



# **Coroners Court of Victoria**

## **Drug overdose deaths in Inner North West Melbourne**

### **YDHF & INWMML forum on pharmaceutical misuse**

Tuesday 24 September 2013

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# The presentation

## Structure:

- Introduction to recent Victorian overdose deaths.
- Comparison of overdose deaths across Melbourne metropolitan Medicare Locals
- Focus on Inner North West Melbourne
- Major themes in the deaths

# Note

The material presented here was generated to inform Victorian coroners' investigations. Much of the material is derived from research that has not been scrutinised through a peer review process. Some data is preliminary in nature, as it is derived from deaths that have not yet been subject to coronial findings.

Any information presented here should be used with caution and an understanding of these limitations.

# Coroners Prevention Unit

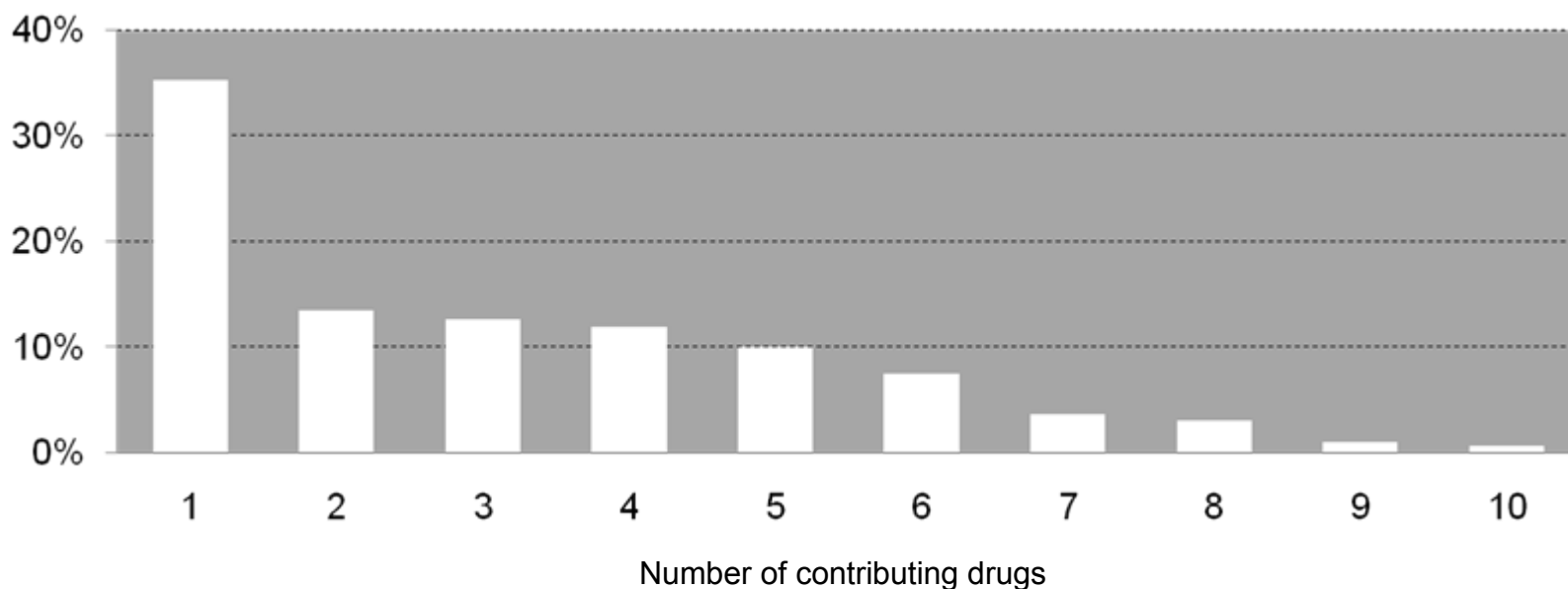
Victorian overdose deaths register:

- Deaths for which the acute toxic effects of one or more drugs played a causal or contributory role.
- No chronic or behavioural contribution.
- Deaths coded according to which drugs contributed (*not* all drugs present), in accordance with expert death investigator advice.
- Register is partially populated.
- Register is used to generate empirical evidence to assist coroners' investigations.

# Annual frequency of Victorian overdose deaths, 2010-2013


Type of overdose	2010	2011	2012	2013*
Single drug	124 (35.5%)	137 (37.4%)	115 (31.3%)	56 (31.8%)
Combined drugs	225 (64.5%)	229 (62.6%)	252 (68.7%)	120 (68.2%)
All deaths	349 (100.0%)	366 (100.0%)	367 (100.0%)	176 (100.0%)

(\* January-June 2013  
PRELIMINARY)



# Contributing drug types

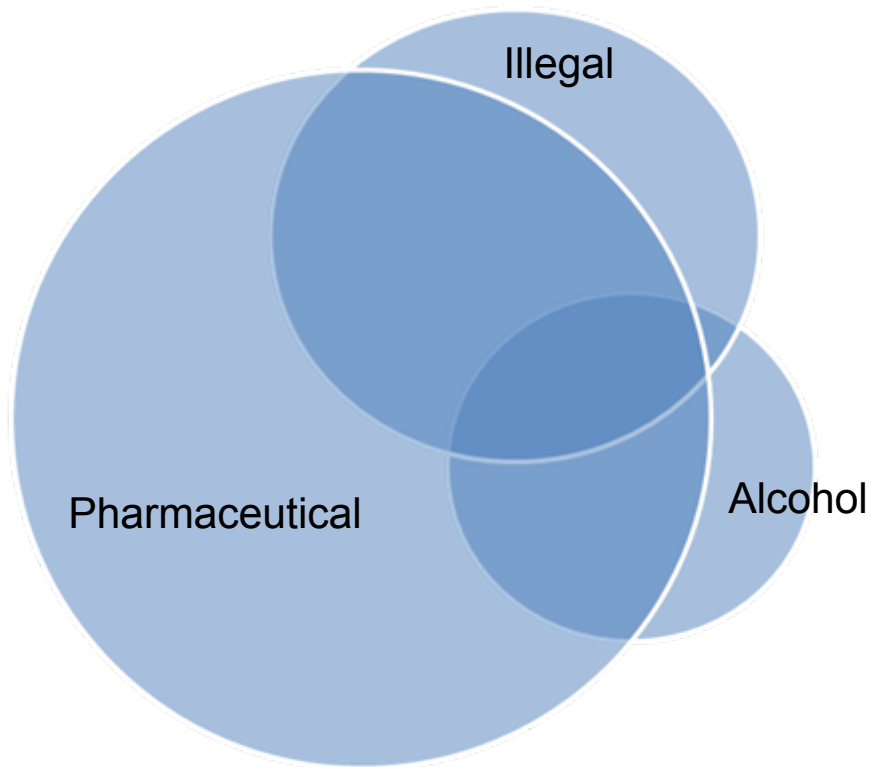
Drug type	2010 (n = 349)	2011 (n = 366)	2012 (n = 367)	2013* (n = 176)
Pharmaceutical	267 (76.5%)	275 (75.1%)	304 (82.8%)	145 (82.4%)
Illegal	149 (42.7%)	153 (41.8%)	131 (35.7%)	77 (43.8%)
Alcohol	84 (24.1%)	88 (24.0%)	80 (21.8%)	53 (30.1%)



Top contributing pharmaceuticals	2010 (n = 349)	2011 (n = 366)	2012 (n = 367)	2013* (n = 176)
Pharma. opioids	144 (41.3%)	183 (50.0%)	209 (56.9%)	94 (53.4%)
Benzodiazepines	168 (48.1%)	180 (49.2%)	196 (53.4%)	102 (58.0%)
Antidepressants	105 (30.1%)	101 (27.6%)	141 (38.4%)	58 (33.0%)
Antipsychotics	64 (18.3%)	65 (17.8%)	77 (21.0%)	33 (18.8%)

(\* January-June 2013  
PRELIMINARY)

# Pharmaceutical-illegal-alcohol nexus



- 43% pharmaceuticals only
- 20% pharmaceuticals and illegal drugs.
- 14% illegal drugs only
- 11% pharmaceuticals and alcohol
- 6% alcohol only
- 5% pharmaceuticals, illegal drugs and alcohol
- 1% alcohol and illegal drugs

# Most frequent contributing drugs (1)

Drug	2010	2011	2012	2013*
Diazepam	109 (31.2%)	124 (33.9%)	131 (35.7%)	84 (47.7%)
Heroin	139 (39.8%)	129 (35.2%)	109 (29.7%)	67 (38.1%)
Codeine	56 (16.0%)	66 (18.0%)	87 (23.7%)	44 (25.0%)
Alcohol	84 (24.1%)	88 (24.0%)	80 (21.8%)	53 (30.1%)
Methadone	55 (15.8%)	72 (19.7%)	74 (20.2%)	29 (16.5%)
Alprazolam	57 (16.3%)	43 (11.7%)	55 (15.0%)	23 (13.1%)
Paracetamol	20 (5.7%)	24 (6.6%)	48 (13.1%)	20 (11.4%)
Oxycodone	39 (11.2%)	46 (12.6%)	46 (12.5%)	23 (13.1%)
Oxazepam	19 (5.4%)	44 (12.0%)	41 (11.2%)	8 (4.5%)
Quetiapine	37 (10.6%)	34 (9.3%)	40 (10.9%)	19 (10.8%)
Amphetamines	17 (4.9%)	34 (9.3%)	39 (10.6%)	17 (9.7%)
Temazepam	23 (6.6%)	48 (13.1%)	36 (9.8%)	7 (4.0%)
Amitriptyline	26 (7.4%)	22 (6.0%)	33 (9.0%)	12 (6.8%)
Mirtazapine	20 (5.7%)	23 (6.3%)	26 (7.1%)	15 (8.5%)

(\* January-June 2013  
PRELIMINARY)



# Most frequent contributing drugs (2)

Drug	2010	2011	2012	2013*
Citalopram	21 (6.0%)	21 (5.7%)	25 (6.8%)	10 (5.7%)
Nitrazepam	16 (4.6%)	11 (3.0%)	24 (6.5%)	14 (8.0%)
Olanzapine	18 (5.2%)	17 (4.6%)	22 (6.0%)	5 (2.8%)
Doxylamine	16 (4.6%)	11 (3.0%)	20 (5.4%)	10 (5.7%)
Clonazepam	9 (2.6%)	14 (3.8%)	18 (4.9%)	8 (4.5%)
Tramadol	9 (2.6%)	15 (4.1%)	17 (4.6%)	11 (6.3%)
Fentanyl	2 (0.6%)	5 (1.4%)	17 (4.6%)	5 (2.8%)
Venlafaxine	12 (3.4%)	16 (4.4%)	15 (4.1%)	7 (4.0%)
Fluoxetine	9 (2.6%)	8 (2.2%)	14 (3.8%)	3 (1.7%)
Metoclopramide	8 (2.3%)	8 (2.2%)	14 (3.8%)	4 (2.3%)
Duloxetine	5 (1.4%)	7 (1.9%)	14 (3.8%)	5 (2.8%)
Pharma. morphine	10 (2.9%)	10 (2.7%)	13 (3.5%)	2 (1.1%)
Zopiclone	3 (0.9%)	6 (1.6%)	13 (3.5%)	7 (4.0%)
Sertraline	6 (1.7%)	4 (1.1%)	12 (3.3%)	2 (1.1%)

(\* January-June 2013  
PRELIMINARY)

# Overdose deaths and death rates by area

- Victorian overdose deaths aggregated across the three years 2010-2012 (1082 deaths in total).
- Three-year standardised rates of overdose death per 100,000 population are calculated using formula below.

$$\text{Rate} = \frac{\text{Frequency of overdose deaths}}{\text{ABS 2011 population of area}} \times 100,000$$

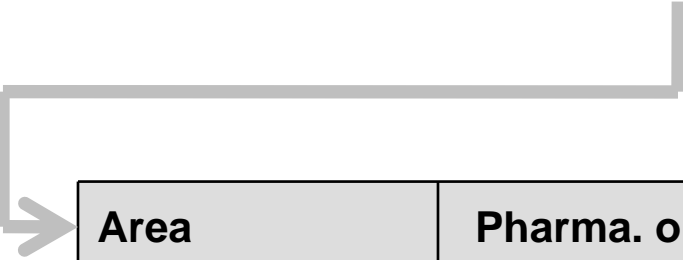
# Metropolitan and regional overdose deaths

Area	Population (2011 ABS)	Frequency of overdose deaths	Rate
Metropolitan	4,108,837	262	18.3
Regional	1,428,211	820	20.0

# Metropolitan and regional overdose deaths by drug type

(frequency with rate in brackets)

Area	Pharmaceuticals	Illegal drugs	Alcohol
Metropolitan	615 (15.0)	368 (9.0)	187 (4.6)
Regional	231 (16.2)	65 (4.6)	65 (4.6)



Area	Pharma. opioids	Benzo'pines	Antidepr'ants	Antipsychotics
Metropolitan	386 (9.4)	424 (10.3)	242 (5.9)	152 (3.7)
Regional	150 (10.5)	120 (8.4)	105 (7.4)	54 (3.8)

# Metropolitan Medicare Local overdose deaths

Area	Population	Deaths	Rate
Bayside	577,704	137	23.7
Eastern Melbourne	410,849	77	18.7
Frankston - Mornington Peninsula	279,621	71	25.4
Inner East Melbourne	618,695	97	15.7
Inner North West Melbourne	445,570	151	33.9
Macedon Ranges NW Melbourne	422,176	81	19.2
Northern Melbourne	663,731	92	13.9
South Eastern Melbourne	479,280	79	16.5
South Western Melbourne	254,094	39	15.3

(Metro average  
rate 18.3)

# Metropolitan Medicare Local overdose deaths by drug type

(frequency with rate in brackets)

Area	Pharma.	Illegal	Alcohol
Bayside	100 (17.3)	69 (11.9)	32 (5.5)
Eastern Melbourne	59 (14.4)	24 (5.8)	19 (4.6)
Frankston - Mornington Peninsula	64 (22.9)	14 (5.0)	19 (6.8)
Inner East Melbourne	76 (12.3)	37 (6.0)	23 (3.7)
Inner North West Melbourne	102 (22.9)	87 (19.5)	41 (9.2)
Macedon Ranges NW Melbourne	57 (13.5)	52 (12.3)	12 (2.8)
Northern Melbourne	72 (10.8)	41 (6.2)	16 (2.4)
South Eastern Melbourne	53 (11.1)	29 (6.1)	20 (4.2)
South Western Melbourne	35 (13.8)	16 (6.3)	6 (2.4)

(Metro average  
rate 15.0)

(Metro average  
rate 9.0)

(Metro average  
rate 4.6)

# Metropolitan Medicare Local overdose deaths by pharmaceutical drug type

(frequency with rate in brackets)

Area	Pharm opioids	Benzos	Antideps	Antipsychs
Bayside	69 (11.9)	69 (11.9)	37 (6.4)	18 (3.1)
Eastern Melbourne	30 (7.3)	30 (7.3)	26 (6.3)	16 (3.9)
Frankston - Mornington Peninsula	35 (12.5)	40 (14.3)	27 (9.7)	14 (5.0)
Inner East Melbourne	38 (6.1)	50 (8.1)	30 (4.8)	18 (2.9)
Inner North West Melbourne	68 (15.3)	74 (16.6)	33 (7.4)	33 (7.4)
Macedon Ranges NW Melbourne	38 (9.0)	43 (10.2)	27 (6.4)	9 (2.1)
Northern Melbourne	47 (7.1)	58 (8.7)	22 (3.3)	22 (3.3)
South Eastern Melbourne	36 (7.5)	33 (6.9)	20 (4.2)	11 (2.3)
South Western Melbourne	26 (10.2)	28 (11.0)	22 (8.7)	12 (4.7)

(Metro average  
rate 9.4)

(Metro average  
rate 10.3)

(Metro average  
rate 5.9)

(Metro average  
rate 3.7)

# Metropolitan Medicare Local overdose deaths by contributing drugs

(frequency with rate in brackets)

Drug	INW Melb	Bayside	N Melb	Macedon Ranges & North West Melb	SW Melb
Heroin	82 (18.4)	63 (10.9)	35 (5.3)	47 (11.1)	15 (5.9)
Diazepam	50 (11.2)	48 (8.3)	38 (5.7)	30 (7.1)	13 (5.1)
Alcohol	41 (9.2)	32 (5.5)	16 (2.4)	12 (2.8)	6 (2.4)
Codeine	36 (8.1)	28 (4.8)	20 (3.0)	22 (5.2)	11 (4.3)
Methadone	22 (4.9)	24 (4.2)	21 (3.2)	15 (3.6)	13 (5.1)
Alprazolam	22 (4.9)	23 (4.0)	25 (3.8)	12 (2.8)	5 (2.0)
Oxycodone	11 (2.5)	16 (2.8)	10 (1.5)	8 (1.9)	6 (2.4)
Oxazepam	15 (3.4)	12 (2.1)	11 (1.7)	8 (1.9)	8 (3.1)
Temazepam	16 (3.6)	11 (1.9)	9 (1.4)	7 (1.7)	8 (3.1)
Quetiapine	11 (2.5)	11 (1.9)	17 (2.6)	2 (0.5)	7 (2.8)
Amphetamines	11 (2.5)	12 (2.1)	13 (2.0)	13 (3.1)	1 (0.4)
Paracetamol	7 (1.6)	12 (2.1)	5 (0.8)	6 (1.4)	4 (1.6)
Amitriptyline	10 (2.2)	3 (0.5)	3 (0.5)	4 (0.9)	7 (2.8)
Citalopram	4 (0.9)	11 (1.9)	5 (0.8)	5 (1.2)	2 (0.8)
Mirtazapine	7 (1.6)	9 (1.6)	6 (0.9)	5 (1.2)	4 (1.6)
Olanzapine	15 (3.4)	4 (0.7)	2 (0.3)	5 (1.2)	3 (1.2)



## INWM Medicare Local overdose deaths by local government area (1)

- There were 50 Victorian local government areas (LGAs) in which greater than three overdose deaths occurred between 2010-2012.
- These 50 LGAs included the four LGAs that comprise the INWM Medicare Local: Melbourne, Moonee Valley, Moreland and Yarra.
- The 50 LGAs were ranked in descending order of rate of overdose death, to contextualise the differences in overdose rate between the LGAs of the INWM Medicare Local.

# INWM Medicare Local

## overdose deaths by local government area (2)

Rank	LGA	Medicare local	Population	n	Rate
1	Yarra	Inner North West Melbourne	78,903	56	71.0
2	Port Phillip	Bayside	97,276	60	61.7
3	Melbourne	Inner North West Melbourne	100,240	55	54.9
4	Northern Grampians	Grampians	12,054	5	41.5
5	Maribyrnong	Macedon Ranges & NW Melbourne	75,154	31	41.2
6	Glenelg	Great South Coast	19,848	8	40.3
7	Frankston	Frankston - Mornington Peninsula	130,350	42	32.2
...					
19	Hobsons Bay	South Western Melbourne	87,395	18	20.6
20	Moreland	Inner North West Melbourne	154,247	30	19.4
21	Mornington Peninsula	Frankston - Mornington Peninsula	149,271	29	19.4
...					
45	Casey	South Eastern Melbourne	261,282	26	10.0
46	Macedon Ranges	Macedon Ranges & NW Melbourne	42,883	4	9.3
47	Moonee Valley	Inner North West Melbourne	112,180	10	8.9
48	Melton	Macedon Ranges & NW Melbourne	112,643	10	8.9

# Themes

- Overdose deaths involve several distinct populations.
- Pharmaceutical drugs are ubiquitous across overdose deaths.
- Inappropriate benzodiazepine prescribing and dispensing is a recurring theme.

## INWM Medicare Local overdose deaths of residents and visitors

<b>LGA</b>	<b>Visitors</b>	<b>Residents</b>	<b>All</b>
Melbourne	24	31	55
Moonee Valley	5	5	10
Moreland	4	26	30
Yarra	21	35	56
<i>All</i>	<i>54</i>	<i>97</i>	<i>151</i>

- Overdoses of visitors were more likely to involve illegal drugs and alcohol.
- Overdoses of residents were more likely to involve pharmaceutical drugs.

# Drug use history

Among the 176 Victorian overdose deaths identified in January-June 2013:

- 79 deceased (45%) had a recorded history of injecting drug use.
- 22 deceased (12%) had a recorded history of substance use but not injecting drug use.
- 75 deceased (43%) had no recorded history of substance use.

# Pharmaceutical involvement

Among the 151 Victorian overdose deaths that occurred in the INWM Medicare Local in 2010-2012:

- Pharmaceutical drugs co-contributed in 58% of the deaths involving illegal drugs.
- Pharmaceutical drugs co-contributed in 73% of the deaths involving alcohol.
- Benzodiazepines (particularly diazepam) were most frequent co-contributors.

# Inappropriate benzodiazepine prescribing and dispensing (1)

Most frequent prescribing issues in deaths referred to CPU :

- Prescribers providing benzodiazepines to new patients upon request at first consultation.
- Prescribers providing benzodiazepines on an ongoing basis for an extended period.
- Prescribers providing high-dose benzodiazepines without any clinical rationale.
- Prescribers co-prescribing multiple benzodiazepines.
- Private scripts for multiple repeats of benzodiazepines.
- Dispensers providing benzodiazepines and Schedule 8 opioids together on scripts from different doctors.

# Inappropriate benzodiazepine prescribing and dispensing (2)

In a CPU pilot study of 113 overdose deaths of prescription shoppers:

- Benzodiazepines were the most frequently sought after drugs.
- Benzodiazepines were the most frequent contributors to overdose.
- Diazepam contributed in 62% of the deaths.

The CPU calculated OD4 indices for benzodiazepines to support Coroner Jamieson's further submission to the TGA:

- Diazepam average OD4 over 2010-2012 was 10.6
- Oxazepam average OD4 over 2010-2012 was 9.8
- Alprazolam average OD4 over 2010-2012 was 6.8



# Thank you



## **Coroners Court of Victoria**