

IN THE CORONERS COURT  
OF VICTORIA  
AT MELBOURNE

Court Reference: COR 2012 4080

**FINDING INTO DEATH WITHOUT INQUEST**

*Form 38 Rule 60(2)*

*Section 67 of the Coroners Act 2008*

I, AUDREY JAMIESON, Coroner having investigated the death of FRANK EDWARD FROOD

without holding an inquest:

find that the identity of the deceased was FRANK EDWARD FROOD

born 2 September 1965

and the death occurred on 28 September 2012

at Hampton Park VIC 3976

**from:**

1 (a) BRONCHOPNEUMONIA ON A BACKGROUND OF METHADONE AND  
BENZODIAZEPINE USE

Pursuant to section 67(1) of the **Coroners Act 2008**, I make findings with respect to **the following circumstances:**

1. Mr Frank Edward Frood was 47 years of age at the time of his death. He lived in Hampton Park with his parents and was on a disability pension. Mr Frood was an asthmatic and had been diagnosed with bipolar disorder. He had a history of illicit drug abuse, including heroin.
2. Prior to 10.00am on 28 September 2012, Mr Frood was located by his mother on the lounge room floor, curled up on his side. Mr Frood's teenage son rolled him over and liquid came out of his mouth. Emergency services were called at approximately 9.55am. Attending paramedics were unable to resuscitate Mr Frood and declared him deceased. Paramedics moved Mr Frood to a bedroom, due to a number of family members being present and walking around the premises. Police arrived shortly afterwards.

## INVESTIGATIONS

### *Forensic pathology investigation*

3. Dr Yeliena Baber, Forensic Pathologist at the Victorian Institute of Forensic Medicine, performed a full post mortem examination on the body of Mr Frood and referred to the Victoria Police Report of Death, Form 83. At autopsy, Dr Baber identified thick purulent material within Mr Frood's main bronchi and within smaller airways. Histological examination confirmed widespread bronchopneumonia within both of Mr Frood's lungs.
4. Toxicological analysis of post mortem blood detected multiple drugs at low levels, including methadone,<sup>1</sup> diazepam,<sup>2</sup> oxazepam,<sup>3</sup> tramadol,<sup>4</sup> olanzapine<sup>5</sup> and methylamphetamine.<sup>6</sup> The C-reactive protein<sup>7</sup> was high at 148mg/L, confirming that infection was present.
5. Dr Baber reported to the Coroner that Mr Frood's death was due to widespread bronchopneumonia, however the contribution of a respiratory depressant effect of methadone, tramadol and two benzodiazepines in combination could not be excluded.

### *Police investigation*

6. The circumstances of Mr Frood's death have been the subject of investigation by Victoria Police on my behalf. Police obtained statements from Mr Frood's mother Judith Frood and General Practitioner at Frankston Healthcare Dr Andrew Taylor.
7. In the course of their investigation, police learned that Mr Frood had been a heroin user for at least 20 years. Mrs Frood reported from time to time, he would stop taking heroin and start taking methadone.
8. In a letter to Frankston Magistrates' Court dated 9 May 2011, Dr Taylor had written that alongside a long standing opiate addiction, Mr Frood had coronary artery disease, mixed valvular disease and mental illness including bipolar disease.

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<sup>1</sup> Methadone is a synthetic narcotic analgesic and is used for the treatment of opioid dependency or for the treatment of severe pain.

<sup>2</sup> Diazepam is a sedative/hypnotic drug of the benzodiazepines class.

<sup>3</sup> Oxazepam is a sedative/hypnotic drug of the benzodiazepine class.

<sup>4</sup> Tramadol is a narcotic analgesic used for the treatment of moderate to severe pain.

<sup>5</sup> Olanzapine is indicated for the treatment of schizophrenia and related psychoses. It can also be used for mood stabilisation and as an anti-manic drug.

<sup>6</sup> Methylamphetamine is a central nervous system stimulant structurally related to dexamphetamine.

<sup>7</sup> The C-reactive protein is a marker of infection or inflammation.

9. Mr Frood's mother would accompany him to collect methadone from the pharmacy and she reported that prior to his death, he was trying to cease taking the drug.
10. Mrs Frood also stated that her son had endured a chest infection for months before he died, and that he had been on antibiotics for some time. Mr Frood was coughing up sputum and having difficulty breathing. He had been a severe asthmatic since he was a young child, and this condition worsened during his chest infection.
11. Mrs Frood had observed that for two nights prior to his death, Mr Frood had been reluctant to go to sleep. He had been scared to lie down because of his difficulty with breathing.

#### *Coroners Prevention Unit investigation*

12. The Coroners Prevention Unit (CPU),<sup>8</sup> also investigated the circumstances of Mr Frood's death on my behalf, in particular in relation to concerns that he was prescribed methadone for opioid replacement therapy (ORT) to treat his longstanding opioid dependence, while suffering ongoing respiratory issues including asthma and chronic chest infection. I asked the CPU to investigate whether the management of the ORT was appropriate, given that Mr Frood died from bronchopneumonia in a setting of methadone and benzodiazepine use.

#### *Recent context of prescriptions*

13. The evidence indicates that proximal to Mr Frood's death, he was attending the Frankston Pharmacy two days per week for supervised methadone dosing, and was dispensed five methadone doses per week for unsupervised consumption. Mr Frood had a long history of opioid dependence, and was prescribed methadone in ORT to treat this dependence across a period of approximately 22 years. His most recent ORT prescribing clinicians were Dr Robert Weiss (November 2007 to October 2011) and Dr Andrew Taylor (October 2011 to September 2012) at Frankston Healthcare. Dr Taylor held a valid Schedule 8 permit to prescribe ORT methadone to Mr Frood at the time of his death.
14. In addition to methadone, Frankston Healthcare clinicians Dr Weiss, Dr Taylor and their colleague Dr Emad Tadros, regularly prescribed the benzodiazepine diazepam to Mr Frood. The clinical indication repeatedly recorded in the Frankston Healthcare medical records for

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<sup>8</sup> The Coroners Prevention Unit (CPU) was established in 2008 to strengthen the prevention role of the coroner. The unit assists the coroner with research in matters related to public health and safety and in relation to the formulation of prevention recommendations, as well as assisting in monitoring and evaluating the effectiveness of the recommendations. The CPU comprises a team with training in medicine, nursing, law, public health and the social sciences.

prescribing the diazepam was “opiate addiction” (with the exception of 30 December 2011, when Dr Weiss recorded the clinical indication as “anxiety – generalised”).

15. In the six months leading up to Mr Frod’s death, his Pharmaceutical Benefits Scheme (PBS) Patient Summary shows he was also dispensed diazepam from doctors at other clinics, including Dr Alan Lim, Dr Sarvanan Shanmugam, Dr Omid Khavari, Dr Shahroze Khan and Dr Thoung Sein at First Health Medical Centre in Hampton Park; Dr Martin Hill and Dr Jia Li at Stud Road Medical Centre in Dandenong; and Dr Peter Williams at Duff Street Medical Clinic in Cranbourne. The clinical records from these doctors were not obtained, therefore I am unaware of whether the clinical indication for their prescribing was “opiate addiction”, anxiety, or another condition.
16. Together with his opioid dependence, Mr Frod had a long history of asthma and respiratory disease. In the five years leading up to his death, Dr Weiss and Dr Taylor diagnosed him at various times with acute bronchitis and other chest infection; they prescribed regular medication to treat his asthma as well as a range of antibiotics (including cephalexin, amoxicillin and roxithromycin). In addition, in the six months leading up to Mr Frod’s death, his PBS Patient Summary shows he was also dispensed antibiotics including amoxicillin and roxithromycin from doctors at other clinics, including Dr Wei GU at First Health Medical Centre and Dr Melissa Soars and Dr Martin Hill at Stud Road Medical Centre.

#### *Methadone prescribing*

17. The initial clinical issue I explored in my investigation was how Dr Weiss and Dr Taylor managed the risks entailed in prescribing methadone to a patient who also suffered significant respiratory disease. Methadone has strong depressive effects on the central nervous system, including respiratory depression. In a person with pre-existing respiratory disease, there is a risk that methadone might further – and fatally – compromise respiration. Benzodiazepines enhance the respiratory depressant effects of methadone, thus increasing this risk.
18. I determined this risk was directly relevant to Mr Frod’s cause of death, as he was suffering a particularly severe chest infection proximal to death, to the point where his mother stated he was “scared to lie down because of how bad his breathing was”; and his medical cause of death was bronchopneumonia on a background of methadone and benzodiazepine (diazepam) use.
19. My concern regarding methadone prescribing to a person who suffers significant respiratory disease, is reflected both directly and indirectly in a range of methadone prescribing guidelines

and information. For example, the Consumer Medicine Information for Biodone Forte (the main brand of methadone liquid used in ORT) warns that:

- a. “Biodone Forte is not suitable for everyone. Your doctor will take a full assessment of your condition before prescribing Biodone Forte. You should not use Biodone Forte if you: [...] Have any type of breathing problems especially if you suffer from blue discoloration of the skin, or plenty of mucus in your airways [...] or are suffering from an asthma attack.”<sup>9</sup>

20. The contraindications in the Product Information for Biodone Forte include:

- a. “Like other opioids, methadone is contraindicated in patients with respiratory depression, especially in the presence of cyanosis and excessive bronchial secretions. Methadone should not be given during an attack of bronchial asthma.”<sup>10</sup>

21. One precaution for methadone administration listed in the Biodone Forte Product Information is that “the major side effect of methadone is respiratory depression”. The product information also warns that:

- a. “The general depressant effects of methadone may be enhanced by other centrally-acting agents such as alcohol, barbiturates, neuromuscular blocking agents, phenothiazines and tranquillisers.”<sup>11</sup>

22. During the period when Mr Froud was being prescribed ORT methadone at Frankston Healthcare, the Commonwealth Department of Health *Clinical Guidelines and Procedures for the Use of Methadone in the Maintenance Treatment of Opioid Dependence* (2003) were the primary reference for administering ORT in Australia, establishing the overarching clinical framework within which individual states’ ORT policies were developed.

23. The *Clinical Guidelines* noted that some categories of patients “are not suitable for treatment with methadone”, including:

- a. “Other contraindications identified by the manufacturers of methadone include severe respiratory depression, acute asthma, acute alcoholism, head injury and raised intracranial pressure, ulcerative colitis, biliary and renal tract spasm, and patients

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<sup>9</sup> McGaw Biomed Pty Ltd, “Biodone Forte methadone hydrochloride: consumer medicine information”, 24 November 1999 (updated August 2007).

<sup>10</sup> Biomed Australia Pty Ltd, “Biodone Forte product information”, amended 7 April 2015.

<sup>11</sup> Biomed Australia Pty Ltd, “Biodone Forte product information”, amended 7 April 2015.

receiving monoamine oxidase inhibitors or within 14 days of stopping such treatment. It is recommended that specialist advice be sought in these cases.”<sup>12</sup>

24. The *Clinical Guidelines* further emphasised that “particular caution should be exercised by prescribers” when patients had certain clinical conditions including the following:

- a. “*Asthma and other respiratory conditions*: in such patients even usual therapeutic doses of opioids may decrease the respiratory drive associated with increased airways resistance.
- b. *Poor compliance*: patients who exhibit poor compliance with treatment for major intercurrent illness such as asthma or diabetes pose a particular challenge in MMT [methadone maintenance therapy].”<sup>13</sup>

25. In April 2014, approximately 18 months after Mr Froom’s death, updated *National Guidelines for Medication-Assisted Treatment of Opioid Dependence* were released. The guidance regarding respiratory disease was:

- a. “Mild asthma and emphysema are not contraindications to substitution treatment and changing the dose of substitute medication is generally not necessary, but it is appropriate to review other factors that might contribute to respiratory distress. If concerned, seek specialist advice or referral.”<sup>14</sup>

26. The 2014 *National Guidelines* do not provide any further information about appropriate management of ORT clients with respiratory disease, however the following advice regarding methadone, buprenorphine and respiratory depression more generally:

- a. “As a partial agonist, buprenorphine is a safer opioid than methadone with regard to the potential for over-sedation, respiratory depression and overdose. Hence, dose increases can be more rapid and, in general, most patients can achieve their target dose within two to three days.”<sup>15</sup>

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<sup>12</sup> Henry-Edwards S, Gowing L, White J, et al, *Clinical Guidelines and Procedures for the Use of Methadone in the Maintenance Treatment of Opioid Dependence*, Commonwealth Department of Health, August 2003, p.6.

<sup>13</sup> Henry-Edwards S, Gowing L, White J, et al, *Clinical Guidelines and Procedures for the Use of Methadone in the Maintenance Treatment of Opioid Dependence*, Commonwealth Department of Health, August 2003, p. 7.

<sup>14</sup> Gowing L, Ali R, Dunlop A, et al, *National Guidelines for Medication-Assisted Treatment of Opioid Dependence*, Commonwealth Department of Health, April 2014, p.38.

<sup>15</sup> Gowing L, Ali R, Dunlop A, et al, *National Guidelines for Medication-Assisted Treatment of Opioid Dependence*, Commonwealth Department of Health, April 2014, p.25.

27. At a state level, the Victorian Department of Human Services *Policy for Maintenance Pharmacotherapy for Opioid Dependence* (2006) was the relevant policy for ORT provision during the period when Mr Frood was being prescribed ORT methadone at Frankston Healthcare. The *Policy* did not contain any general guidance for methadone administration to ORT clients with respiratory disease. However, the *Policy* listed “unstable medical conditions (for example, decompensated cirrhosis, pneumonia)” as a contraindication to takeaway dosing.<sup>16</sup> Additionally, the *Policy* noted that “concerns re: medical condition (severe liver / respiratory disease)” were a reason for restricting client access to only one to two non-consecutive takeaway methadone doses per week.<sup>17</sup>
28. A revised Department of Health (now Department of Health and Human Services) *Policy for Maintenance Pharmacotherapy for Opioid Dependence* was released in 2013 and includes identical warnings to the 2006 *Policy* regarding respiratory disease and takeaway dosing,<sup>18</sup> but again does not contain any general guidance on ORT clients with respiratory disease.

*Unsupervised methadone dispensing and role of benzodiazepines*

29. In my investigation, the initial focus was on the low level of supervised methadone dispensing to Mr Frood (he accessed five unsupervised doses per week regularly over the 12 months leading up to his death) because I was concerned that it led to a missed opportunity for prevention; specifically, if Mr Frood had attended more regularly for methadone dispensing, his pharmacist may have noted the significant worsening in his respiratory disease and may have contacted his treating clinician or directed him to appropriate treatment.
30. However, in the course of this investigation, I noted that there were other reasons to question Dr Taylor’s decision to allow Mr Frood regular access to five unsupervised methadone doses per week. In particular, Dr Taylor and his colleagues at Frankston Healthcare made multiple clinical notes proximal to Mr Frood’s death indicating that he attended inappropriately to seek the benzodiazepine diazepam. Dr Taylor additionally made a clinical note about Mr Frood fraudulently modifying a referral to support his drug seeking. The 2013 Victorian Department of

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<sup>16</sup> Drugs and Poisons Regulation Group, Victorian Department of Human Services, *Policy for Maintenance Pharmacotherapy for Opioid Dependence*, 2006, p.22.

<sup>17</sup> Drugs and Poisons Regulation Group, Victorian Department of Human Services, *Policy for Maintenance Pharmacotherapy for Opioid Dependence*, 2006, p.26.

<sup>18</sup> See Drugs and Poisons Regulation, Victorian Department of Health, *Policy for Maintenance Pharmacotherapy for Opioid Dependence*, 2013, pp. 22, 26.

Health and Human Services *Policy* explicitly warns that unstable benzodiazepine use and dependence are contraindications to unsupervised methadone dosing.

*Dr Taylor's explanation of his prescribing practice*

31. I directed the CPU to write to Dr Taylor and Dr Weiss, requesting statements regarding how they managed the risks of prescribing methadone to a person suffering significant respiratory disease. The Court received a response from Dr Taylor, dated 31 December 2015, but not from Dr Weiss; I determined that as Dr Taylor was the responsible ORT clinician proximal to Mr Frood's death, his statement was sufficient to inform my investigation.
32. I have annexed the statement questions as Attachment A to this finding, and Dr Taylor's statement as Attachment B. The following is a summary of his main points:
33. Dr Taylor provided a statement to the Court dated 31 December 2015 in which:
  - a. Dr Taylor indicated his methadone prescribing to Mr Frood was clinically appropriate, as was his management of Mr Frood's lung disease.
  - b. Dr Taylor maintained that Mr Frood died because "he did not access care available for his chest infection". The reasons for his not accessing care were poverty and mental illness. Dr Taylor proposed that the underlying cause of Mr Frood's death could be formulated as "severe mental illness, drug addiction (likely related) and consequent self neglect".
  - c. Dr Taylor stated that opioid dependence and severe lung disease are "very frequent comorbidities" and he has extensive experience in managing them together.
  - d. Dr Taylor stated he was unaware of any specific guidelines for treating opioid dependence among people who suffer chronic respiratory disease, and further indicated that no such guidelines are needed.
  - e. Dr Taylor explained that he supported unsupervised methadone dosing for Mr Frood because unsupervised dosing is "vital to engagement" in treatment for drug dependence. Dr Taylor did not believe the 2006 DHS Policy regarding severe respiratory disease and access to unsupervised dosing was applicable to Mr Frood, because "he did not have opioid induced depression of respiratory drive."



### *Prescription shopping*

34. While the central focus of the CPU investigation was on how the Frankston Healthcare clinicians managed Mr Frod's opioid dependence in combination with his serious lung disease, other issues were noted and documented in the course of the case review. Mr Frod's propensity for prescription shopping for benzodiazepines was noted in particular, and the extra risk that they posed to his health, given their enhancement of the respiratory depressant effects of methadone.

35. The PBS Patient Summary of PBS benefits paid for medications dispensed to Mr Frod in the two years leading up to his death, runs to 26 pages. A review of the Patient Summary for the 12 months leading up to Mr Frod's death showed he was dispensed the following drugs of dependence in addition to what was prescribed by Frankston Healthcare clinicians:

- a. At Stud Road Medical Centre in Dandenong:
  - i. Codeine on one occasion from Dr Martin Hill
  - ii. Diazepam on two occasions from Dr Jia Li
  - iii. Diazepam on eight occasions from Dr Martin Hill
  - iv. Diazepam on one occasion from Dr Suzette Meshreky
  - v. Oxycodone on one occasion from Dr Martin Hill
  - vi. Tramadol on three occasions from Dr Martin Hill
  - vii. Tramadol on one occasion from Dr Suzette Meshreky
- b. At First Health Medical Centre in Hampton Park:
  - i. Diazepam on two occasions from Dr Omid Khavari
  - ii. Diazepam on five occasions from Dr Alan Lim
  - iii. Diazepam on two occasions from Dr Saravanan Shanmugam
  - iv. Oxycodone on one occasion from Dr Shahroze Khan
  - v. Oxycodone on one occasion from Dr Thoung Sein
  - vi. Oxycodone on six occasions from Dr Alan Lim
- c. At Duff Street Medical Clinic in Cranbourne:
  - i. Diazepam on two occasions from Dr Peter Williams

- d. At Young Street Medical and Dental Centre in Frankston:
  - i. Diazepam on one occasion from Dr Zoran Zec
- e. At Casey Superclinic in Berwick:
  - i. Diazepam on one occasion from Dr Milan Katic
  - ii. Diazepam on one occasion from Dr Mahbub Mazumder
  - iii. Tramadol on one occasion from Dr Myint Maung
- f. At Marina Medical Centre in Patterson Lakes:
  - i. Diazepam on one occasion from Dr Michael Croce
- g. At Dandenong Superclinic in Dandenong:
  - i. Diazepam on one occasion from Dr Roger Bernard
  - ii. Temazepam on one occasion from Dr Mojtaba Sebti
- h. At Southern Cross Medical Centre in Hampton Park:
  - i. Oxycodone on one occasion from Dr Sanskruti Joshi
- i. At Hallam Family Practice in Hallam:
  - i. Tramadol on one occasion from Dr Ngoc Le

## COMMENTS

Pursuant to section 67(3) of the **Coroners Act 2008**, I make the following comments connected with the death:

1. As Dr Taylor indicated in his statement, he has “much experience” in prescribing methadone to patients with comorbid opioid addiction and severe lung disease. His opinions that there are no inherent issues in prescribing methadone to patients with these comorbidities; that guidelines for methadone prescribing to patients with severe lung disease are not needed; and that severe lung disease should not mediate access to unsupervised dosing; are presumably based on this extensive experience and associated clinical knowledge.
2. However, while acknowledging Dr Taylor’s experience, I must also acknowledge the various prescribing advice – for example in consumer medicine information and product information for methadone syrup; in the Commonwealth Department of Health *Clinical Guidelines* and *National Guidelines*; and in the Victorian Department of Health and Human Services *Policy* –

which would not appear to be consistent with Dr Taylor's opinions. I also note data from the Coroners Prevention Unit, which indicates that between 2000 and 2015 there were 52 deaths investigated by Victorian coroners where the cause of death included acute methadone toxicity in combination with pre-existing respiratory disease; in seven of these deaths asthma was explicitly nominated as being a contributory factor.

3. Focusing on the Frankston Healthcare clinicians' benzodiazepine prescribing independently of the methadone prescribing, I noted the following concerns:
  - a. The Frankston Healthcare notes show that between June 2009 and Mr Froad's September 2012 death, clinicians there prescribed diazepam to him continuously. Continuous prescribing for extended periods (longer than six to eight weeks) is contraindicated in all but exceptional cases because it is associated with patients developing benzodiazepine dependence.
  - b. According to the Frankston Healthcare notes, the diazepam was almost always prescribed to treat Mr Froad's "opiate addiction". "Opiate addiction" is not a Therapeutic Goods Administration approved clinical indication for diazepam, nor is it specified in the 2013 edition of the Australian Medicines Handbook. Therefore, presumably the diazepam was being prescribed off-label. However, off-label prescribing is not eligible for PBS subsidies, whereas the PBS Patient Summary shows that a PBS benefit was claimed for dispensing the prescribed diazepam on each occasion.
  - c. According to the Frankston Healthcare clinical notes, in the six months leading up to Mr Froad's death he was prescribed a 5mg tablet of diazepam twice daily. Over the course of six months this would amount to a requirement for 360 tablets (two tablets per day for 180 days). However, during this period the Frankston Healthcare clinicians provided him scripts for 600 tablets, which was nearly twice this amount, while simultaneously making clinical notes that he was clearly benzodiazepine dependent and drug seeking.
  - d. There is no evidence that any clinician at Frankston Healthcare contacted Drugs and Poisons Regulation at the Victorian Department of Health and Human Services to notify intention to supply a drug of dependence, diazepam, to a drug dependent person, Mr Froad, as required under Section 33 of the *Drugs Poisons and Controlled Substances Act 1981* (Vic).
4. The review of Mr Froad's PBS Patient Summary of PBS benefits paid for medication dispensed to him in the 12 months leading up to his death provides further evidence that he had developed

a serious benzodiazepine dependence and was going to great lengths to “prescription shop” to obtain diazepam. While neither oxycodone nor tramadol contributed to Mr Frood’s death, both drugs would have fed his opioid dependence at a time when it was being treated with methadone.

5. I note that neither medical records nor statements were sought from any of the listed prescribers in the course of my investigation. However, I concluded that this material was not necessary because Mr Food was clearly engaged in prescription shopping and at the time of his death, as is the case even today, there were no effective tools available for prescribing doctors to establish who else a patient had attended for scripts, other than relying on all doctors to make reports to Drugs and Poisons Regulation in line with relevant legislation.
6. I note Coroners Prevention Unit data that indicates between 2009 and 2015 there have been an average of 376 overdose deaths per year in Victoria. The annual frequency of overdose deaths has increased every year since 2010, reaching 420 deaths in 2015. Of these deaths, pharmaceutical drugs consistently contributed in approximately 80 percent of the Victorian overdose deaths annually. Among pharmaceutical drugs, benzodiazepines were the most frequently contributing drug group. The 2009-2015 data shows that the dominant role of pharmaceutical drugs in Victorian overdose deaths has remained undiminished over time, despite recent safety-focused initiatives such as improved prescribing guidelines, drug rescheduling and reformulation of some drugs into purportedly safer preparations. I have annexed the Coroners Prevention Unit’s data summary relating to Victorian overdose deaths from 2009 to 2015 as Attachment C.
7. There is thus an ongoing, urgent need for Victoria to implement a real time prescription monitoring (RTPM) system to achieve reductions in pharmaceutical drug related harms and deaths. An RTPM system will, for the first time, enable prescribers and dispensers to find out what drugs a presenting patient has been dispensed in what quantities, when and by whom. This will have enormous benefits in assisting clinicians to make informed prescribing and dispensing decisions, and to coordinate the care they provide to patients. In addition, an RTPM system will enable a range of other prevention-focused interventions alongside identifying prescription shoppers: for example, identifying doctors whose prescribing practices might be clinically suboptimal so they can be provided targeted education and providing automated warnings to prescribers and dispensers regarding potential issues with drug interactions and drug quantities.

8. I note that the implementation of an RTPM system is an undoubtedly complex endeavour, and that progress appears to have been made, at least in planning. However, I also emphasise that every year since 2010, more Victorians have died from fatal overdoses involving pharmaceutical drugs, and that if Victoria continues to link its RTPM efforts with nationally coordinated initiatives then there could be ongoing significant delays causing the deaths to continue unabated.

## RECOMMENDATIONS

1. I have concluded that best clinical practice in methadone prescribing to drug dependent patients with severe lung disease may be an area where there are differing clinical opinions, and have determined that it might be most appropriately considered by the relevant authorities. Therefore, I recommend that the Victorian Department of Health and Human Services review the *Policy for Maintenance Pharmacotherapy for Opioid Dependence* (2013) to ensure it provides adequate and explicit guidance to clinicians on how to manage maintenance pharmacotherapy in patients with asthma or other respiratory conditions.
2. And I further recommend that the Commonwealth Department of Health review the *National Guidelines for Medication-Assisted Treatment of Opioid Dependence* (2014) to ensure they provide adequate and explicit guidance to clinicians on how to manage maintenance pharmacotherapy in patients with asthma or other respiratory conditions.
3. Again, I determined that the question as to whether or not the Frankston Healthcare clinicians' methadone and benzodiazepine prescribing to Mr Flood was consistent with accepted clinical practice and extant legislation, would most appropriately be examined by relevant authorities. Therefore I recommend that the Victorian Department of Health and Human Services direct Drugs and Poisons Regulation to review the Frankston Healthcare clinicians' diazepam and methadone prescribing to Mr Flood, and determine whether the clinicians require any further training in maintenance pharmacotherapy, prescribing to drug-dependent patients, or the obligations of prescribers under the *Drugs Poisons and Controlled Substances Act 1981* (Vic).
4. And I further recommend that the Australian Health Practitioner Regulation Agency review the treatment provided (and particularly drugs prescribed) to Mr Flood at Frankston Healthcare and consider whether this treatment raises any issues relating to the conduct of the practitioners involved.
5. Mr Flood's death further reinforces the immediate need for a real-time prescription monitoring system to assist doctors in their clinical decision-making around drug prescribing, which should

not await the involvement of all other states and territories. With this in mind, I recommend that the Victorian Department of Health and Human Services immediately proceed with implementing a real time prescription monitoring system in Victoria to tackle the ever-increasing toll of pharmaceutical drug related deaths in the state.

## **FINDINGS**

I find that the prescription of methadone and diazepam, in light of Mr Frod's ongoing respiratory problems, may have exacerbated his decline in health. In the circumstances, I find that a real time prescription monitoring system may have assisted clinicians to understand the extent of Mr Frod's prescription shopping for diazepam in the lead up to his death. However, on the evidence available to me, I am unable to find that Mr Frod's death was preventable.

I accept and adopt the medical cause of death as identified by Dr Yeliena Baber and find that Frank Frod died from bronchopneumonia, on a background of methadone and benzodiazepine use.

Pursuant to section 73(1A) of the *Coroners Act 2008*, I order that this Finding be published on the internet.

I direct that a copy of this finding be provided to the following:

Mrs Judith Frod

Dr Andrew Taylor, General Practitioner

Dr Robert Weiss, General Practitioner

Victorian Department of Health and Human Services

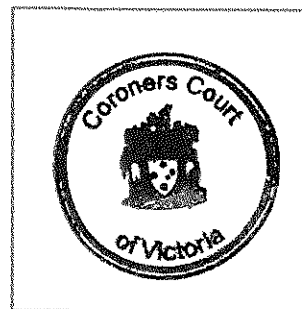
Australian Health Practitioner Regulation Agency

Commonwealth Department of Health

Senior Constable Viktoria Maley

Signature:

  
AUDREY JAMIESON  
CORONER



Date: 4 April 2016

**Attachment A**

Questions put to Dr Andrew Taylor

## Attachment A

### Background

You and your colleague Dr Ronald Weiss treated Frank Frood's opioid dependence with opioid replacement therapy using methadone. Additionally you treated Frank Frood for chronic respiratory disease including asthma and bronchitis.

Prescribing methadone to a person who suffers serious respiratory disease is recognised to entail some risk. For example, the Product Information for methadone syrup includes the following contraindication:

Like other opioids, methadone is contraindicated in patients with respiratory depression, especially in the presence of cyanosis and excessive bronchial secretions. Methadone should not be given during an attack of bronchial asthma.

The 2003 Commonwealth Department of Health *Clinical Guidelines and Procedures for the Use of Methadone in the Maintenance Treatment of Opioid Dependence*, which were in place when you were prescribing methadone, warned that some categories of patients "are not suitable for treatment with methadone", including:

Other contraindications identified by the manufacturers of methadone include severe respiratory depression, acute asthma, acute alcoholism, head injury and raised intracranial pressure, ulcerative colitis, biliary and renal tract spasm, and patients receiving monoamine oxidase inhibitors or within 14 days of stopping such treatment. It is recommended that specialist advice be sought in these cases

The more recent 2014 *National Guidelines for Medication-Assisted Treatment of Opioid Dependence* state that:

Mild asthma and emphysema are not contraindications to substitution treatment and changing the dose of substitute medication is generally not necessary, but it is appropriate to review other factors that might contribute to respiratory distress. If concerned, seek specialist advice or referral

Coroner Jamieson is seeking answers to the following questions, to gain an understanding of how you negotiated the potential tension between prescribing methadone for opioid dependence and treating Frank Frood's respiratory disease.

### Questions

1. Were you concerned about prescribing methadone to Frank Frood in circumstances where he also suffered respiratory disease?
2. Were you ever concerned that Frank Frood's respiratory disease was sufficiently serious to contraindicate methadone prescribing?
3. Did you put in place any measures to manage the risk of taking methadone in a setting of respiratory disease? In particular, did you have any strategies in place to manage or monitor the effects of methadone if Frank Frood experienced a clinical worsening of his respiratory disease?
4. Are you aware of any practice guidelines or other resources for treating opioid dependence among people who suffer chronic respiratory disease? Do you think there is a need for detailed guidelines?
5. Unsupervised or 'takeaway' dosing is believed to encourage client engagement in opioid replacement therapy, but supervised dosing creates opportunities for the pharmacist to



monitor the client's day-to-day presentation. What regard did you have to these considerations when determining Frank Froot should have access to five unsupervised methadone doses per week?

6. The DHHS *Policy for Maintenance Pharmacotherapy for Opioid Dependence* (2006, revised 2013) lists severe respiratory disease as a reason for restricting client access to unsupervised dosing. What regard did you have to this when determining Frank Froot should have access to five unsupervised methadone doses per week?
7. In the days immediately preceding Frank Froot's death, evidence suggests he was too scared even to lie down because he was in such severe respiratory distress. Were you aware of this? If so, did you take any steps to manage this? If not, what steps might you have taken had somebody (for example a family member or pharmacist) alerted you to his clinical state?
8. If you have any additional comments for Coroner Jamieson on methadone prescribing to a patient who suffers respiratory disease, these would be welcome.

**Attachment B**

Dr Andrew Taylor's Statement

0397700014



## Frankston Healthcare

4/42 Young Street  
Frankston Vic 3199

Ph 97700023 Fax 97700014

31/12/2015

Coroners Court  
Att Jeremy Dwyer

Re: Mr Frank Frood

Reference: COR 2012 004080

It is over 3 years since Frank Frood, DOB 2/9/1966, died. I sent a letter, through the investigating policeman, at about that time. It is unfortunate that my memory of Frank, and the events around his demise, are not as clear now as they once were.

I am informed that Frank died as result of a chest infection. From your letter it would seem that you believe that asthma was actually the underlying cause of the infection, and death. Suffering a chest infection may be a consequence of him having asthma, but in fact is significantly different in that death from infection, as opposed to asthma, is not usually immediate/ rapid.

I suggest that the underlying cause of death was, in my opinion, severe mental illness, drug addiction (likely related) and consequent self neglect. He did not seek treatment for a chest infection which 'was so severe that he could not lie flat for a number of days'.

Mr Frood was extremely grandiose when I last saw him, and showing profound cognitive dissonance. In hindsight it is possible he was methamphetamine affected. I would be interested in toxicology results.

In response to your questions

1. No. Not at all. Opiate addiction and severe lung disease are very frequent comorbidities. I have much experience in prescribing for such dual diagnosis patients. Both diseases are readily and easily treated with subsidised medications. However it is my experience that patients on methadone (and unemployed) can rarely afford all the chest medications that they require. Methadone at \$150+ per month, plus rent, leaves little money for other essentials. Not prescribing methadone leaves the patient to die.
2. No. This question suggests alternative methods of treating opiate addiction exist. They really don't in this State at this time.
3. Both respiratory and addiction conditions were treated. What was not well treated and cannot be within current frameworks is co-morbid poverty, and evolving/ worsening psychiatric illness
4. No. I am not aware of any guidelines and see no need for them. Suboxone may be a safer alternative for patients with opiate addiction and respiratory disease. Unfortunately most patients do not find that Suboxone and methadone are equally efficacious and most have a strong preference for one or the other. Mr Frood died because he did not access care available for his chest infection.
5. Take aways, or independent self medication and self treatment of drug addiction is vital to engagement as is recognised. Take away dosing serves to free people up to be with family and work, and to minimise contact with "old friends" ( people on same drug treatment ). I hypothetically ask you if it would it be sensible to suggest that people with severe asthma attend the pharmacist daily and be required to use their preventative medications in front of same ? That is what is being suggested.
6. I presumed severe respiratory disease to allude to those patients whereby opioid induced depression of respiratory drive or cough reflex to be both likely and potentially lethal. If Mr Frood could not lie flat for a number of nights due his breathlessness he did not have opioid induced depression of respiratory drive!
7. Mr Frood, nor his family and friends, did not contact me regarding his terminal illness. It is clear that Mr Frood required hospital treatment.
8. Making medications like methadone free to patients is a desperately required intervention that will save lives and reduce drug dealing.

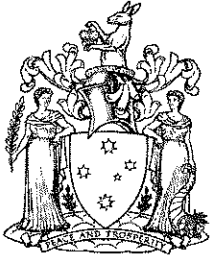
Yours sincerely,

Dr Andrew Taylor  
037763KF

**Attachment C**

Coroners Prevention Unit Data Summary

Re: Victorian Overdose Deaths, 2009-2015



# Coroners Court of Victoria

## Coroners Prevention Unit Data Summary

Author: Jeremy Dwyer, Coroners Prevention Unit

Date: 16 March 2016

Re: Victorian overdose deaths, 2009-2015

### 1. Background

This data summary provides an introduction to the drug types, drug groups and individual drugs that contributed to overdose deaths in Victoria 2009-2015. Data was drawn from the Victorian Overdose Deaths Register (the Register) created by the Coroners Prevention Unit (CPU); the composition of the Register is described in Attachment A to the data summary.

### 2. Annual frequency of overdose deaths, Victoria 2009-2015

Table 1 shows that in the period 2009-2015 the annual frequency of Victorian overdose deaths ranged between 342 deaths (in 2010) and 420 deaths (in 2015) with an average of 376 deaths per year. The annual frequency of deaths increased each year between 2010 and 2015. Approximately 30% of overdose death each year involved a single drug, and 70% involved the combined toxic effects of multiple (two or more) drugs.

Table 1: Annual frequency of overdose deaths, Victoria 2009-2015

Year	2009	2010	2011	2012	2013	2014	2015
All overdose deaths	379	342	362	367	380	387	420
Single drug deaths	127	122	133	114	118	101	121
Multiple drug deaths	252	220	229	253	262	286	299

### 3. Overdose deaths by contributing drug types

Table 2 shows the annual frequency of Victorian overdose deaths involving pharmaceutical drugs, illegal drugs and alcohol. Data is presented across all overdose deaths, then disaggregated into single and multiple drug deaths.

Pharmaceutical drugs were overall the most frequent contributors to overdose deaths in Victoria during 2009-2015; they consistently played a role in around 80% of deaths each year. Their contribution was more prevalent in multiple drug deaths than single drug deaths; on average more than 95% of multiple drug deaths each year involved one or more contributing pharmaceutical drugs.

Illegal drugs consistently played a role in approximately 42% of annual overdose deaths in the period 2009-2014; this increased to just over half of overdose deaths in 2015 (217 of 420, 51.7%). The increase in illegal drug contribution from 164 deaths in 2014 to 217 deaths in 2015, appears to account for the overall increase in the frequency of overdose deaths between 2014 and 2015.

Alcohol consistently played a role in approximately 24% of annual overdose deaths across the period 2009-2015. Alcohol contribution was more prevalent in multiple drug deaths (an average 28% annually) than single drug deaths (an average 16% annually).

**Table 2: Annual frequency of overdose deaths by contributing drug types, Victoria 2009-2014**

Drug types	2009	2010	2011	2012	2013	2014	2015
<b>All overdose deaths</b>	<b>379</b>	<b>342</b>	<b>362</b>	<b>367</b>	<b>380</b>	<b>387</b>	<b>420</b>
Pharmaceutical	295	266	275	306	313	316	330
Illegal	147	149	153	133	166	164	217
Alcohol	94	85	88	80	94	94	97
<b>Single drug deaths</b>	<b>127</b>	<b>122</b>	<b>133</b>	<b>114</b>	<b>118</b>	<b>101</b>	<b>121</b>
Pharmaceutical	58	53	58	60	55	49	46
Illegal	45	48	56	35	51	34	56
Alcohol	24	21	19	19	12	18	19
<b>Multiple drug deaths</b>	<b>252</b>	<b>220</b>	<b>229</b>	<b>253</b>	<b>262</b>	<b>286</b>	<b>299</b>
Pharmaceutical	237	213	217	246	258	267	284
Illegal	102	101	97	98	115	130	161
Alcohol	70	64	69	61	82	76	78

#### 4. Interactions between contributing drug types

Table 3 shows the combinations of drug types that contributed in Victorian overdose deaths 2009-2015. Overall, 40.2% of overdose deaths involved pharmaceutical drugs only, compared to 13.8% of overdose deaths that involved only illegal drugs (and 5.0% of deaths that were alcohol only). A further 22.0% involved pharmaceutical drugs in combination with illegal drugs, and 11.9% involved pharmaceutical drugs in combination with alcohol.

**Table 3: Overall frequency and proportion of overdose deaths by combinations of contributing drug types, Victoria 2009-2015**

Combinations of contributing drug types	Single drug		Multiple drug		All overdose	
	n	%	n	%	n	%
<b>Total overdose deaths</b>	<b>836</b>	<b>100.0</b>	<b>1801</b>	<b>100.0</b>	<b>2637</b>	<b>100.0</b>
Pharma only	379	45.3	682	37.9	1061	40.2
Pharma + illegal	0	0.0	581	32.3	581	22.0
Illegal only	325	38.9	38	2.1	363	13.8
Pharma + alcohol	0	0.0	315	17.5	315	11.9
Pharma + illegal + alcohol	0	0.0	144	8.0	144	5.5
Alcohol only	132	15.8	0	0.0	132	5.0
Illegal + alcohol	0	0.0	41	2.3	41	1.6

#### 5. Overdose deaths by contributing pharmaceutical drug groups

Pharmaceutical drugs were disaggregated into drug groups using a modified version of the Drug Abuse Warning Network (DAWN) level 2 drug categories classification system (the main modifications were that the 'analgesics' category was split into opioid and non-opioid analgesics, and the 'anxiolytics' category was split into benzodiazepine and non-benzodiazepine anxiolytics).

Table 4 shows the annual frequency of Victorian overdose deaths 2009-2015 by contributing drug groups, with illegal drugs and alcohol included for context. Overall benzodiazepines were the most frequent contributing drug group, contributing in an annual average of 51.3% of all overdose deaths. The next most frequent pharmaceutical drug groups were opioid analgesics (an annual average of 48.5% of all overdose deaths), antidepressants (annual average 34.0%) and antipsychotics (annual average 19.2%)

Table 4: Most frequent contributing drug groups to overdose deaths, Victoria 2009-2015

Drug groups	2009	2010	2011	2012	2013	2014	2015
All overdose deaths	379	342	362	367	380	387	420
Benzodiazepines	160	169	180	199	212	215	220
Opioid analgesics	177	145	183	212	192	186	183
Illegal drugs	147	149	153	133	166	164	217
Antidepressants	122	106	101	142	134	144	151
Alcohol	94	85	88	80	94	94	97
Antipsychotics	63	64	65	78	75	81	82
Non-benzo anxiolytics	35	28	33	38	56	48	56
Non-opioid analgesics	26	25	30	52	41	49	43
Anticonvulsants	18	14	13	10	37	45	44

## 6. Overdose deaths by individual contributing drugs

Table 5 shows the most frequent individual contributing drugs to Victorian overdose deaths 2009-2015 within each of the most frequent contributing drug groups.

Table 5: Most frequent contributing individual drugs by drug groups in overdose deaths, Victoria 2009-2015

Year	2009	2010	2011	2012	2013	2014	2015
<b>All Benzodiazepines</b>	<b>160</b>	<b>169</b>	<b>180</b>	<b>199</b>	<b>212</b>	<b>215</b>	<b>220</b>
Diazepam	104	109	124	133	164	169	176
Alprazolam	62	56	43	57	45	28	21
Temazepam	28	22	48	35	22	20	25
Oxazepam	18	19	44	41	17	19	28
Nitrazepam	17	16	11	24	26	13	17
Clonazepam	7	9	14	18	19	25	31
<b>All opioid analgesics</b>	<b>177</b>	<b>145</b>	<b>183</b>	<b>212</b>	<b>192</b>	<b>186</b>	<b>183</b>
Codeine	76	57	66	93	71	54	60
Methadone	50	55	72	75	70	67	64
Oxycodone	41	39	46	46	61	46	53
Tramadol	22	9	15	18	24	23	31
Morphine	22	11	10	13	7	12	7
Fentanyl	1	2	5	17	11	11	20
Buprenorphine	3	4	14	4	3	7	4
Propoxyphene	10	10	7	3	1	2	0

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Year	2009	2010	2011	2012	2013	2014	2015
<b>All illegal drugs</b>	<b>147</b>	<b>149</b>	<b>153</b>	<b>133</b>	<b>166</b>	<b>164</b>	<b>217</b>
Heroin	127	139	129	111	132	137	168
Methamphetamine	23	14	29	36	51	53	67
Amphetamine	4	4	19	11	10	8	9
Cocaine	7	1	2	4	5	7	15
MDMA	5	1	1	1	3	4	5
GHB	3	0	3	1	0	1	0
<b>All antidepressants</b>	<b>122</b>	<b>106</b>	<b>101</b>	<b>142</b>	<b>134</b>	<b>144</b>	<b>151</b>
Mirtazapine	23	21	23	26	30	29	47
Amitriptyline	24	26	22	32	25	41	26
Citalopram	17	22	21	25	24	25	22
Venlafaxine	25	12	16	15	20	19	10
Fluoxetine	8	9	8	14	10	7	12
Duloxetine	3	5	7	15	11	12	12
Sertraline	6	6	4	12	13	9	11
Desvenlafaxine	0	1	3	6	8	11	13
Doxepin	7	6	6	8	6	4	4
<b>Alcohol</b>	<b>94</b>	<b>85</b>	<b>88</b>	<b>80</b>	<b>94</b>	<b>94</b>	<b>97</b>
<b>All antipsychotics</b>	<b>63</b>	<b>64</b>	<b>65</b>	<b>78</b>	<b>75</b>	<b>81</b>	<b>82</b>
Quetiapine	28	37	34	41	41	48	45
Olanzapine	19	18	17	22	15	21	28
Risperidone	6	3	11	8	10	7	9
Chlorpromazine	5	2	4	10	6	3	4
Zuclopenthixol	5	4	4	6	3	3	4
Clozapine	5	5	0	4	6	2	2
Amisulpride	1	3	6	3	2	4	1
<b>All non-benzo anxiolytics</b>	<b>35</b>	<b>28</b>	<b>33</b>	<b>38</b>	<b>56</b>	<b>48</b>	<b>56</b>
Doxylamine	13	16	11	21	23	13	14
Zopiclone	6	3	6	13	14	11	16
Pentobarbitone	4	5	11	1	8	15	17
Zolpidem	11	3	5	5	4	6	10
Diphenhydramine	5	1	4	2	7	5	4
<b>All non-opioid analgesics</b>	<b>26</b>	<b>25</b>	<b>30</b>	<b>52</b>	<b>41</b>	<b>49</b>	<b>43</b>
Paracetamol	23	21	24	50	39	37	39
Ibuprofen	5	5	4	5	2	7	5
Naproxen	1	2	2	2	1	2	1

(Table 5 continued over page)



(Table 5 continued from previous page)

Drugs	2009	2010	2011	2012	2013	2014	2015
<b>All anticonvulsants</b>	<b>18</b>	<b>14</b>	<b>13</b>	<b>10</b>	<b>37</b>	<b>45</b>	<b>44</b>
Pregabalin	0	0	0	0	17	27	31
Valproic Acid	9	9	5	6	13	9	7
Carbamazepine	7	3	6	1	3	3	1
Lamotrigine	1	2	1	2	2	2	1
Levetiracetam	0	0	1	0	2	1	6
Topiramate	0	0	0	0	4	4	2

To summarise Table 5, the 10 overall most frequent contributing individual drugs to Victorian overdose deaths 2009-2015 were:

- Diazepam, a benzodiazepine (which contributed in 979 overdose deaths across the period).
- Heroin, an illegal drug (943 deaths)
- Alcohol (632 deaths)
- Codeine, an opioid analgesic (477 deaths)
- Methadone, an opioid analgesic (453 deaths)
- Oxycodone, an opioid analgesic (332 deaths)
- Alprazolam, a benzodiazepine (312 deaths)
- Quetiapine, an antipsychotic (274 deaths)
- Methamphetamine, an illegal drug (273 deaths)
- Paracetamol, a non-opioid analgesic (233 deaths)

## 6. Overdose deaths by location of fatal incident

The Register includes detailed coded information on locations (street address, suburb and local government area) where fatal overdose incidents occur, and where deceased usually reside. For the purpose of this report, the CPU extracted basic overdose death frequencies (overall overdoses and subsets involving pharmaceutical drugs, illegal drugs and alcohol) by local government area (LGA) for the period 2009-2015.

The CPU established the population of each LGA as at 2011 according to the Australian Bureau of Statistics (ABS), and then calculated average annual overdose death rate per 100,000 population for each LGA using these steps:

- Overall frequency of overdose deaths in LGA for 2009-2015, -
- divided by 2011 population of LGA, -
- multiplied by 100,000 (to yield seven-year overdose rate per 100,000), -
- divided by seven (to yield average annual overdose rate per 100,000 for the period 2009-2015).

Table 6(a) shows the overall frequency of overdose deaths and average annual overdose rate per 100,000 population across the period 2009-2015, for all metropolitan Victorian LGAs. Across all metropolitan LGAs the average annual rate of overdose death per 100,000 population was 6.9 deaths.

**Table 6a:** Overall frequency and average annual rate per 100,000 population of overdose deaths in metropolitan local government areas, Victoria 2009-2015

LGA	Total overdose deaths	Involving pharma drugs	Involving illegal drugs	Involving Alcohol	Population (ABS 2011)	Average Annual Rate
<b>All metropolitan deaths</b>	<b>1985</b>	<b>1533</b>	<b>945</b>	<b>473</b>	<b>4,108,837</b>	<b>6.9</b>
Banyule	48	39	20	9	122,983	5.6
Bayside	31	26	8	6	96,119	4.6
Boroondara	61	50	23	14	167,062	5.2
Brimbank	103	74	62	17	191,496	7.7
Cardinia	27	19	9	7	75,831	5.1
Casey	69	55	22	12	261,282	3.8
Darebin	85	67	38	17	142,942	8.5
Frankston	101	87	42	26	130,350	11.1
Glen Eira	44	28	19	13	137,152	4.6
Greater Dandenong	92	70	46	25	142,167	9.2
Hobsons Bay	35	27	19	6	87,395	5.7
Hume	56	44	29	8	174,290	4.6
Kingston	46	38	19	8	148,304	4.4
Knox	64	54	25	14	154,625	5.9
Manningham	27	21	11	4	116,750	3.3
Maribyrnong	73	52	47	18	75,154	13.9
Maroondah	60	46	15	19	107,323	8.0
Melbourne	129	96	89	31	100,240	18.4
Melton	29	24	10	3	112,643	3.7
Monash	59	44	25	12	177,345	4.8
Moonee Valley	40	25	27	12	112,180	5.1
Moreland	57	43	25	19	154,247	5.3
Mornington Peninsula	78	70	15	20	149,271	7.5
Nillumbik	11	8	4	1	62,716	2.5
Port Phillip	132	94	79	38	97,276	19.4
Stonnington	54	43	29	16	98,853	7.8
Whitehorse	82	69	33	24	157,538	7.4
Whittlesea	47	39	23	6	160,800	4.2
Wyndham	58	45	25	6	166,699	5.0
Yarra	131	88	96	41	78,903	23.7
Yarra Ranges	56	48	11	21	148,901	5.4

The highest frequency of overdose deaths among metropolitan LGAs occurred in Port Phillip (132 deaths between 2009-2012) followed by Yarra (131 deaths) and Melbourne (129 deaths). These three LGAs also had the highest average annual rates per 100,000 population: Yarra (23.7 deaths per 100,000 population per year on average) then Port Phillip (19.4) then Melbourne (18.4).

In analysing regional Victorian LGAs, the CPU notes there are recognised issues with calculating rates where there are low frequencies of deaths among small populations. These issues were clearly present when average annual rates were calculated for some regional LGAs. Therefore, the CPU determined to tabulate only the results for regional LGAs where at least seven overdose deaths occurred across the seven-year period 2009-2015. This led to the exclusion of 23 regional LGAs from Table 6b. However, the bolded row "All regional deaths" in Table 6b shows the

frequencies and average annual rates aggregated across all regional LGAs, not just the LGAs included in the table.

Table 6(b) shows the overall frequency of overdose deaths and average annual overdose rate per 100,000 population across the period 2009-2015, for regional Victorian LGAs where at least seven overdose deaths occurred. Across all regional LGAs the average annual rate of overdose death per 100,000 population was 6.5 deaths, which was very close to the overall metropolitan rate (6.9).

**Table 6b:** Overall frequency and average annual rate per 100,000 population of overdose deaths in regional local government areas where at least seven overdose deaths occurred, Victoria 2009-2015.

LGA	Total overdose deaths	Involving pharma drugs	Involving illegal drugs	Involving Alcohol	Population (ABS 2011)	Average Annual Rate
<b>All regional deaths</b>	643	562	177	156	1,422,355	6.5
Ballarat	34	29	14	10	95,185	5.1
Bass Coast	17	12	5	4	30,233	8.0
Baw Baw	21	19	2	3	43,389	6.9
Campaspe	12	12	1	1	36,855	4.7
Colac Otway	9	8	3	2	20,799	6.2
East Gippsland	22	20	8	8	42,826	7.3
Glenelg	18	14	4	5	19,848	13.0
Greater Bendigo	58	49	12	10	101,995	8.1
Greater Geelong	111	94	40	32	215,837	7.3
Greater Shepparton	38	34	11	8	61,744	8.8
Hepburn	8	6	3	1	14,629	7.8
Horsham	8	8	1	1	19,523	5.9
Latrobe	50	49	13	8	73,788	9.7
Macedon Ranges	12	9	3	2	42,883	4.0
Mildura	25	22	4	8	51,822	6.9
Mitchell	17	15	7	2	35,105	6.9
Moira	8	7	2	2	28,406	4.0
Moorabool	8	6	2	1	28,670	4.0
Northern Grampians	8	8	1	2	12,054	9.5
South Gippsland	9	9		1	27,512	4.7
Wangaratta	12	12	3	5	27,212	6.3
Warrnambool	12	9	2	1	32,667	5.2
Wellington	17	15	7	6	42,068	5.8
Wodonga	21	20	3	3	36,025	8.3

The highest frequency of regional overdose deaths occurred in Greater Geelong (111 deaths), but the highest average annual rate was in Glenelg (13.0 deaths per 100,000 population per year).

## **Attachment A**

The Coroners Prevention Unit (CPU) created the Victorian Overdose Deaths Register (the Register) to support coronial investigations; this attachment describes the case identification and coding process used to populate the register.

### A.1 Definitions

The CPU definition of the term 'drug' is largely consistent with the Australian Bureau of Statistics (ABS) definition, encompassing substances that "may be used for medicinal or therapeutic purposes, or to produce a psychoactive effect".<sup>1</sup> Like the ABS, the CPU excludes tobacco and volatile solvents such as petrol and toluene from its definition of a drug. However, the CPU considers alcohol to be a drug, whereas it is excluded under the ABS definition.

An overdose death is any death in which the acute toxic effects of one or more drugs played a causal or contributory role.

### A.2 Inclusion and exclusion criteria

The CPU includes as relevant any death where the expert death investigators (coroner, forensic pathologist and forensic toxicologist) advise the acute toxic effects of one or more drugs played a causal or contributory role.

The following types of deaths are included:

- Deaths caused by drug overdose in combination with an underlying natural disease process; for example "methamphetamine toxicity in a setting of cardiomegaly", or "acute alcohol toxicity in an obese person".
- Deaths caused by drug overdose in combination with another (non-overdose) mechanism; for example "effects of hypothermia and combined drug toxicity", or "inhalation of motor vehicle exhaust in a person with fatally toxic levels of oxycodone and diazepam".

The following types of deaths are excluded:

- Deaths that resulted from allergic reactions to drugs (allergic reaction and overdose are very different mechanisms of death, requiring different preventative countermeasures).
- Deaths associated with the behavioural effects of drugs, for example a motor vehicle collision or falling off a pier and drowning while intoxicated.
- Deaths linked to chronic drug abuse in the absence of an acute toxic effect, for example a death from liver disease brought about by chronic alcohol use.
- Deaths linked to a means of drug-taking rather than the toxic effects of the drug, for example foreign body granulomatosis caused by crushing and injecting tablets that contain insoluble binding agents. Note however that a death from foreign body granulomatosis in combination with acute drug toxicity would be included as relevant.
- Suspected overdose deaths where specific contributing could not be identified (for example because appropriate specimens could not be obtained for forensic toxicological examination).

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1 Australian Bureau of Statistics, "Drug-induced deaths: a guide to ABS causes of death data", 8 August 2002, p.2.

- Suspected overdose deaths where the cause of death was unascertained following coronial investigation.

### A.3 Case identification

The CPU identifies potentially relevant deaths for inclusion in the Register through searches of the CCOV's case management system and death surveillance database, as well as the National Coronial Information System. The autopsy report, toxicology report and (for closed cases) finding in each potentially relevant death are reviewed to determine whether the death meets the inclusion criteria.

### A.4 Coding

For each death that meets the inclusion criteria, the CPU uploads the following information into the Register (a custom Access database): the local case number, deceased age and sex, cause of death, intent, and the date the death was reported. For each death the CPU then uses the register interface to record each individual drug that the expert death investigators determined had played a causal or contributory role in the overdose. The coding rules are:

- Where the expert death investigators explicitly nominate the individual contributing drugs (for example, "an overdose of morphine in combination with diazepam"), these are coded as contributory in the death.
- Where the expert death investigators nominate drug types or groups rather than individual drugs (for example, "an overdose of opioids and benzodiazepines"), the toxicology report is reviewed and all specific drugs detected that belong to that drug type or group are coded as contributory.
- Where the expert death investigators do not nominate contributing drugs at all, the toxicology report is reviewed and every specific drug detected is coded as contributory.

In most cases, the expert death investigators concur as to contributing drugs. The main exception is with respect to metabolites, where on occasion the forensic pathologist and coroner nominate a contributing drug that the toxicologist advises was actually a metabolite of another drug (recurring examples are risperidone and hydroxyrisperidone, which are both are drugs in their own right but the latter is also a metabolite of the former; and diazepam, temazepam and oxazepam, where the latter two drugs can also be present as metabolites of the diazepam). In such cases, the CPU follows the toxicologist's advice and codes only the contributing drugs, not the metabolites.

The CPU also uses special coding rules for determining the drug source where morphine is a contributing drug, because morphine can be present as a metabolite of heroin, as a metabolite of codeine, or as a drug in its own right. The following hierarchy of coding rules is applied:

- If 6-monoacetyl morphine (a distinctive metabolite of heroin) is detected in post-mortem blood or urine, morphine is assumed to be present as a metabolite of heroin.
- If there is evidence of a high level of codeine in comparison to morphine in blood (as a rule of thumb, if the codeine level is more than six times higher than the morphine level), or if there is codeine in blood but morphine is only detected in urine, the morphine is assumed to be present as a metabolite of codeine.
- If there is evidence the deceased was prescribed morphine, or if morphine-containing medications were found at the scene of death, the morphine is assumed to be present as a drug in its own right.

- If none of the above three conditions are met, the morphine is coded as being of unknown source. Morphine of unknown source is aggr

In the overwhelming majority (more than 90%) of deaths involving morphine of unknown origin, the circumstantial evidence including statements of witnesses and deceased drug use history indicates that the likely morphine source was heroin. For this reason, deaths involving morphine of unknown source are classified as heroin deaths for analysis.

#### A.5 Limitations

Coding in the Register is continually reviewed as coroners' investigations progress and findings are made. Therefore, any data reported from the Register is subject to review and may subsequently change.

Combining heroin with morphine of unknown source for analysis may lead to an over-estimate of heroin involvement in Victorian overdose deaths. However, the magnitude of over-estimate is likely to be very small and is preferable to the large distortion in estimation of heroin overdose that would occur if morphine of unknown source was treated separately to heroin.