IN THE CORONERS COURT
OF VICTORIA
AT MELBOURNE

Court Reference: COR 2016 004886

FINDING INTO DEATH WITHOUT INQUEST

Form 38 Rule 60(2)
Section 67 of the Coroners Act 2008

Findings of:	Sarah Gebert, Coroner
Deceased:	Mr A
Date of birth:	[redacted] 1991
Date of death:	[redacted] 2016
Cause of death:	Mixed drug toxicity
Place of death:	Nomads Backpackers, 196-198 A'Beckett Street, Melbourne

Introduction

1. Mr A was born on [redacted] 1991. He was 24 years of age and lived with his girlfriend, Miss R in [redacted] at the time of his death.

2. Just before midday on [redacted] 2016, staff from the Nomad Backpackers hostel in Melbourne checked on Mr A in a room where he had stayed overnight, and found that he was not breathing. They called emergency services and commenced cardiopulmonary resuscitation, but despite assistance being rendered he was unable to be revived. Police who subsequently attended the scene seized as evidence medications that were found among Mr A's possessions, several of which were prescribed to him.

The Coronial Investigation

3. Mr A's death was reported to the coroner as it appeared to be unexpected and so fell within the definition of a reportable death in the *Coroners Act 2008* (Vic) **(the Act)**.

4. A coroner independently investigates reportable deaths to establish, if possible, identity, medical cause of death and surrounding circumstances. Surrounding circumstances are limited to events which are sufficiently proximate and causally related to the death. The purpose of a coronial investigation is to establish the facts, not to cast blame or determine criminal or civil liability. Coroners make findings on the balance of probabilities, not proof beyond reasonable doubt.[1]

5. This case was referred to the Coroners Prevention Unit (**CPU**) for review of the medications found in Mr A 's possession.[2] The CPU is staffed by healthcare professionals, including practising physicians and nurses, who are not associated with the health professionals and institutions under consideration and are therefore able to give independent advice to coroners.

6. Victoria Police assigned Detective Senior Constable Jon Amore to be the Coroner's Investigator (**CI**) for the investigation into Mr A's death. Detective Senior Constable Amore conducted inquiries on behalf of the coroner, including taking statements from witnesses and compiling a coronial brief of evidence. The brief comprises statements from witnesses

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[1] This is subject to the principles enunciated in *Briginshaw v Briginshaw* (1938) 60 CLR 336. The effect of this and similar authorities is that coroners should not make adverse findings against, or comments about, individuals unless the evidence provides a comfortable level of satisfaction as to those matters taking into account the consequences of such findings or comments.

[2] The investigation was initially conducted by the Acting State Coroner, Caitlin English.

including, Mr A's mother and girlfriend, staff at Nomads Backpackers, the forensic pathologist, treating clinicians and investigating officers as well as photographs, multi-media information, CCTV footage and other relevant documentation.

7. In addition to the material contained in the brief, the CPU were requested to obtain medical records and pharmacy dispensing records to establish who was prescribing medications to Mr A, when, in what quantities and for what reasons. The CPU were also requested to obtain a further statement from his psychiatrist Dr B, regarding his treatment of and medications prescribed to Mr A.

8. Having considered all the material obtained during the coronial investigation, I determined that I had sufficient information to complete my tasks as coroner and that further investigation was not required.

9. I have based this finding on the evidence contained in the coronial brief as well the additional information described above.

10. Whilst I have reviewed all the material, I will only refer to that which is directly relevant to my findings or necessary for narrative clarity.

Background

11. Mr A was born in [redacted] to parents, [redacted] and [redacted]. He had a younger sister, [redacted].

12. His mother said that for a long time he was *an outstanding child* who was *beyond his years in how he understood people and life* but became increasingly worried and anxious in the later years of secondary school where he would worry about everyday things. It was evident that there were a number of significant stressors throughout this time including, being the subject of bullying at school, both his parents experiencing serious illness, and his father finding a new partner.

13. His father subsequently died from lung cancer when Mr A was doing his VCE. In February 2012, his closest friend, Mr N, died as a result of a deliberate drug overdose.

14. These two deaths had a profound effect on Mr A. His mother described Mr N's death as the hardest period in her son's life resulting in an exacerbation of his anxiety. His girlfriend said that they were like brothers and that Mr N's death really affected him and caused a lot of his anxiety.

15. In 2013, Mr A sought medical assistance including from a psychiatrist who prescribed him medication.

16. Mr A met Miss R in around August 2012 and they commenced living together in early 2014. First in a shared house with three others in [redacted], before moving in September 2014 to a house in [redacted], purchased by Mr A, where they resided at the time of his death. Miss R observed that Mr A would regularly become stressed by activities of daily living.

17. In 2013, Mr A secured a job at the [redacted] where he was a respected worker. He ceased his employment in mid-2016 stating that he did not find the job meaningful preferring to follow his real passion in renewable energy and architecture. He was accepted into a three-year course at [redacted] studying environmental science, which he was passionate about. He was financially secure as a result of a significant inheritance from his father's estate but would not talk about it or overspend.

18. In July 2015 Mr A injured his shoulder and required surgery, following which he was prescribed strong opioid analgesics, oxycodone and tramadol, in various formulations for post-operative pain. The Pharmaceutical Benefits Scheme **(PBS)** Patient Summary and available medical records for Mr A suggest that over the next approximately 14 months he attended at least 10 different doctors across Melbourne seeking opioids. In a statement to the Court, Dr N, Practice T (one of the general practice clinics Mr A regularly attended) noted she refused some of his requests for opioids and discussed drug dependence with him.

19. Miss R commented that he *would always be going to the doctors for something, thinking that something was wrong.* [3]

20. In December 2015 Mr A was first prescribed pregabalin, likely as an adjunct to the opioids for pain relief (the first recorded prescriber was Dr M at Practice W, who was also one of the opioid prescribers). During 2016 pregabalin became a regular part of Mr A 's treatment, with the main known prescribers proximal to his death being Dr N (to treat left shoulder numbness), her colleague Dr L at the Practice T (to treat hand pain), and Dr H at Practice P (to treat left acromioclavicular joint subluxation).

21. Miss R commented in relation to pregabalin,

[3] Statement of Miss R.

Mr A was also prescribed Lycia for his shoulder pain. He was still taking these as his shoulder used to hurt him from his surgery in 2014. They were 150MG capsules he was prescribed to take one daily. I would usually see him take two or three of these at a time every day. [4]

22. Mr A appeared to have taken benzodiazepines at least intermittently for some years to treat anxiety, and shortly after the shoulder surgery he began to be prescribed them on a more regular basis. Clinicians at Practice T commenced this regular prescribing, with their medical records noting benzodiazepines (chiefly diazepam and temazepam) were prescribed for anxiety and/or to assist with relaxing his shoulder. In October 2015 the main portion of the benzodiazepine prescribing was taken over by psychiatrist, Dr B.

23. Mr A attended Dr B for the first time on 29 October 2015, referred by Dr L for anxiety management. Dr B said in his first statement to the Court, that at this appointment he took a medical history in which Mr A reported the following:

- He had previously seen another psychiatrist, Dr G at Practice X, who diagnosed attention deficit hyperactivity disorder (**ADHD**) and prescribed dexamphetamine to treat this.

- He had been prescribed antidepressants including mirtazapine, escitalopram and sertraline by general practitioners, and he did not like the side effects.

- He was currently being prescribed diazepam by a general practitioner to treat his panic attacks and anxiety.

24. Dr B developed a treatment plan to commence Mr A on clonazepam (a long-acting benzodiazepine) to manage his anxiety, as well as talking therapy. He trialled other drugs over subsequent months including the antipsychotic quetiapine and the antidepressant agomelatine, but these do not appear to have been continued for long periods. In May 2016 Dr B prescribed modafinil as a trial for treatment of his suspected ADHD, but he reported that he could not tolerate the side effects (headache) so in June Dr B prescribed dexamphetamine. This was found to have a positive effect on Mr A's mental state and became a regular medication.

25. Miss R said in relation to the clonazapam that,

The dosage was to take one tablet daily. Mr A would usually take about three or four tablets a day, throughout the course of the day. Sometimes he would tell me that he's taking more,

[4] Statement of Miss R.

but I really didn't know what they were. When he'd take them he'd say he's taking 'chill pills'. Sometimes I would say that he didn't need another one of those, but he'd tell me that I didn't understand.'[5]

26. On 6 October 2016, Dr B prescribed bupropion as a treatment for anxiety and to assist him to stop smoking. Dr B said at this consultation, he was not anxious or agitated, his mood was good although he was stressed by university assignments and that there was no suicidal ideation and there never had been in his life.

27. Ms O described her son as being in the best place he could be at the time of his death, and that he was the happiest he's been since leaving school.

CIRCUMSTANCES IN WHICH THE DEATH OCCURRED

28. At about 11.00am on [redacted] 2016, Ms O called her son as she knew it was Mr N's birthday, and this would be a significant event for her son. They spoke about his studies, his future plans for a holiday, and his garden. They also spoke about Mr N, her son saying that he planned to go out for a kebab 'for Mr N' that evening. She described him as *just his same old self* and *really positive.*

29. At about 3.00pm Mr A was getting ready to attend university when Miss R arrived home from work. They spoke briefly before he left at about 3.15pm. She did not notice anything out of the ordinary *(He seemed fine when he left, his persona and attitude were just the same as always*), though stated that he had been a bit more stressed and flustered than usual because of work due for his course. The following day he had to present a large assignment as part of his course work.

30. At around 11.00pm, Mr A sent a text to Miss R saying that he was heading home and 'getting a souvlaki from Mr N's favourite place' on the way. They spoke by telephone at approximately midnight, when Mr A told her that he had decided to stay near the university at a hostel because he had an early start the next morning. She was surprised by this because it was not something he had ever done before. This was the last time they spoke, though there was further communication by text and Snapchat over the next hour or so.

31. Mr A's movements late on the evening of [redacted] 2016 and early on the morning of [redacted] 2016 are not entirely clear. Snapchat videos he sent to Miss R show him

[5] Statement of Miss R.

eating kebabs and drinking beer at an unknown location. He was alone and there was no indication that he was intoxicated or unwell. He was picked up by Uber at the corner of Flinders Street and Elizabeth Street at 1.38am and driven to the Nomads Backpackers[6] by 1.48am, where he booked a room for one night. Reception staff did not think he was ill or significantly alcohol or drug affected. CCTV footage also showed him in good health. He was assigned a room where two other people were staying and fell asleep after sending a text at 2.04am saying good night to Miss R.

32. The next morning Mr A's phone alarm sounded at 8am but he did not wake. His room-mates stated that at the time he was snoring; one of them described this as '*coming in short bursts - not long normal snoring*'. They tried to wake him by speaking to him and shaking him, but to no avail.

33. At approximately 10.20am Nomads Backpackers reception staff member Miss M tried to rouse Mr A because he was due to depart. Miss M tried speaking loudly to him and poking his arm but there was no response. He continued sleeping deeply and snoring loudly. She said that it didn't seem that he had any trouble breathing.

34. Approximately half an hour later, Miss M came back to the room with her manager Mr J and they again tried to wake him, this time using pinches and applying ice to his forehead. Again there was no response. Miss M stated:

Mr J then told me to find the local phone number for the hospital in order to give them a call and get advice as he was still sleeping, breathing and snoring, but not waking up. I then found the phone number for the hospital which was Royal Melbourne Hospital and gave it to Mr J which he then called. Whilst Mr J was on the phone I was just standing next to the bed. I was not able to hear what was said to Mr J. When the phone call finished he advised me that they were not able to give him any information so we then had a quick conversation between myself and Mr J and decided to leave sleep a bit longer as he was snoring and breathing.

35. Mr J was advised that they could not give the information requested over the phone, but to call an ambulance if they thought one was required.

[6] He made a 10 second SnapChat video message in the Uber which showed him in high spirits.

36. The staff decided to leave Mr A to sleep a little longer because '*all the signs indicated that he was just drunk*', which was a scenario they had encountered before. They observed his chest moving up and down.

37. Just before midday Miss M went into the room again to check on Mr A and observed that his lips were blue, and he was not breathing. She immediately informed Mr J and they called Triple Zero. Cardiopulmonary resuscitation was administered under the direction of the operator until emergency services arrived. Mr A could not however be revived.

38. The police commenced an investigation and noted that there were no signs of injury to Mr A's. There were also no other suspicious circumstances at the scene.

IDENTITY

39. On [redacted] 2016, Ms O visually identified her son Mr A, born [redacted]1991.

40. Identity is not in dispute and required no further investigation.

CAUSE OF DEATH

41. On [redacted] 2016, Dr Matthew Lynch, a forensic pathologist practising at the Victorian Institute of Forensic Medicine, conducted an inspection and provided a written report, dated [redacted] 2016. In that report, Dr Lynch concluded that a reasonable cause of death was *Mixed drug toxicity*.

42. Toxicological analysis of a blood sample was undertaken and identified the presence of pregabalin, buprenorphine, the clonazepam-specific metabolite 6-amoniclonazepam, amphetamine, bupropion, modafinil and pholcodine.

43. The toxicological report noted the following:

- pregabalin is used clinically as an analgesic, anticonvulsant and anxiolytic agent which is available in Australia as Lyrica and when taken in combination, pregabalin can increase the depressant effects of opioid analgesics and benzodiazepines.

- buprenorphine is used to treat pain and opioid dependence. Buprenorphine has been associated with death from drug toxicity, particularly those involving concomitant use of benzodiazepines and other central nervous system (**CNS**) depressants.

- clonazepam is a benzodiazepine related to diazepam possessing sedative and anticonvulsant properties.

- amphetamine (dexamphetamine) may be used to treat behavioural disorders in children and narcolepsy.

- pholcodine is an opioid chemically related to morphine and is a cough suppressant which has a mild sedative effect.

- Modafinil is used for the treatment of sleep disorders such as narcolepsy, moderate to severe chronic shift work sleep disorder and obstructive sleep apnoea, hypopnoea syndrome.

44. I note the following in a more recent VIFM *Monograph of Detected Drug* prepared for pregabalin:

Gabapentinoids (gabapentin and pregabalin) lack the characteristics of traditional drugs of abuse but could become addictive in patients with prior substance use disorders, particularly opioid-dependent patients. Addicts administer gabapentinoids to potentiate experienced euphoria and reduce withdrawal symptoms whilst producing minimal adverse effects .... Pregabalin has a higher addiction risk compared to gabapentin due to its faster onset of action

... It is commonplace in deaths implicating for multiple drugs to be present, especially opioids and benzodiazepines... For example, 48.1% of pregabalin positive cases in Finland from 2010-2011 were attributed to drug abuse. Opioids were detected in 91.4% of pregabalin abuse cases, and another study reported a significantly higher distribution of concentrations amongst heroin users... The benzodiazepine-like effects of gabapentinoids apparently potentiate the euphoric high opioids and concomitant use of CSN depressants in gabapentinoid abuse can be fatal....

45. All drugs identified were found to be within therapeutic range, noting however that at least 10 hours is likely to have elapsed since any consumption.

46. The evidence suggests that Mr A experienced a prolonged period of heavy snoring during which he was unable to be roused. This may suggest that his airway was compromised and that he had an altered conscious state. However, the precise mechanism of death cannot be determined with certainty, including the role of individual drugs.

47. Despite amphetamine being a CNS stimulant, it can enhance the CNS depressant effects of opioid drugs such as buprenorphine and pholcodine.

48. No alcohol was detected in toxicological analysis, though the Snapchat videos suggested that Mr A had at the very least consumed beer during the previous evening. It is possible that the alcohol he consumed was metabolised during sleep, and therefore did not record as being present during the analysis.

49. I accept Dr Lynch's opinion as to cause of death.

Intent

50. There is no evidence in the circumstances leading to Mr A's death to suggest that he intended to take his own life. In fact, a significant quantity of medications were available to him for that purpose, had that been his intention.

51. Whilst it was unusual for him to stay overnight at a hostel, he said *I guess I have a bit of that travel spirit where I feel like it's normal to use the hostel, just like we did in USA*. Besides which he had set his alarm and had a presentation to make at [redacted] the following day which he had been working on in the weeks beforehand.

52. I note that he was described by his mother as the happiest he had been in 6 years. Miss R also described his focus on the future, his enjoyment of university life, and that his last messages to her were positive and did not indicate any concerns.

53. His treating psychiatrist, Dr B also indicated that there was no suicidal ideation and there never had been in his life.

54. Having considered all the evidence, I find that Mr A did not intend to take his life as a consequence of his drug consumption in the time prior to his death.

REVIEW OF CARE

55. A substantial number of pharmaceutical medication tablets and packages were found by attending police members among Mr A's possessions at Nomads Backpackers, and at his home. They included tablets and/or packaging for clonazepam, dexamphetamine, modafinil, bupropion and pregabalin. A bottle of over-the-counter (non-prescription) cough syrup with active ingredient pholcodine was found at Nomads Backpackers, together with open packaging for buprenorphine as a sublingual soluble film (brand name Suboxone).

56. The CPU were requested to investigate the sources of these medications and whether any prescribing or other issues were relevant to his access to the medications.

57. As part of this investigation, the CPU analysed the PBS Patient Summary for Mr A, to establish what medications had been dispensed through the PBS in the 24 months leading up to his death. The CPU contacted approximately a dozen pharmacies where Mr A had attended for medication in the six months leading up to his death and requested their dispensing records to identify any medications prescribed outside the PBS system. The CPU also requested medical records from Practice P to supplement records already obtained from Dr B and Practice T.

58. As a result of reviewing this material, the CPU considered that the likely sources of the drugs found in his system at the time of death were:

- The pregabalin was prescribed by several doctors. In the six months leading up to his death, Mr A was dispensed pregabalin on scripts from Dr M (Practice W), Dr N and Dr L (Practice T), and Dr H (Practice P). From 18 May to 13 October 2016, he was prescribed and dispensed a total of 440 tablets of 150mg pregabalin, equivalent to three tablets per day. In the shorter period from 15 August to 5 October 2016, he was prescribed and dispensed 224 tablets of 150mg pregabalin, as well as 168 tablets of 75mg Pregabalin (392 tablets in total, equivalent to approximately four tablets a day). Yet records available, suggest that doctors directed that he take one or two tablets of 150mg per day (or, in the case of Dr H, one 150mg and one 75mg tablet per day).

- The clonazepam, bupropion and modafinil were prescribed by Dr B.

- The dexamphetamine was likely from Dr B, who prescribed it regularly to Mr A in the months leading up to his death. A bottle of dexamphetamine tablets with Dr B labelled as prescriber was found among his possessions in Nomads Backpackers. I note that a

second, older bottle was found at his home bearing a 2014 dispensing label from Dr G, which also contained tablets.

- The pholcodine was purchased over the counter at a pharmacy as cough syrup without requirement for a prescription. Miss R said that she found four empty bottles of the same medicine at their home.

- The buprenorphine source could not be established. No medical or pharmacy dispensing record could be found showing that Mr A was prescribed buprenorphine for at least two years leading up to his death. The Suboxone packaging did not bear any prescriber or dispensing information. It is possible that Mr A was dispensed the buprenorphine, for example as a sample packet or off-PBS script to trial in managing his shoulder pain. It is also possible that he was dispensed the buprenorphine more than two years earlier, and that (as with the clonazepam from Dr G) he stockpiled it. A third possibility, for which there is no available evidence, is that it was obtained illegally. I note that Buprenorphine is a potent opioid sought after in the street drug market.

59. The CPU considered the prescribing in the context of available medical records and the statements of medical practitioners Dr B, Dr L and Dr N, and identified the following matters.

Pregabalin prescribing by multiple doctors

60. Mr A was able to access pregabalin from several doctors in quantities higher than were clinically indicated. Each doctor appeared to have prescribed without knowledge of the other prescribers, which was particularly concerning.

61. In 2016 however pregabalin was not recognised to be a drug with the potential for misuse or that had contributed to a substantial number of overdose deaths[7]. In this context, prescribing pregabalin was not likely to be associated with a serious risk of harm. Additionally, doctors faced challenges at the time in establishing who else was prescribing drugs to a patient they were treating.

[7] See for example Cairns R et al, "Rising Pregabalin use and misuse in Australia: trends in utilization and intentional poisonings", *Addiction*, 2018, doi:10.1111/add.14412.

Coordination of care

62. Also consequent on the challenge faced by doctors at the time regarding the identification of other prescribers is the coordination of care. It appears that no doctor had an overall picture of Mr A's treatment and the drugs being prescribed, which appears to have allowed him to obtain an excessive quantity of pregabalin, and also to obtain drugs that might interact with one another in unanticipated ways (for example, their CNS depressant effects combining to cause respiratory depression and sedation).

63. In particular, concern was raised in respect to Dr B, who knew at least some other treating practitioners involved in Mr A's care, however did not appear to communicate with them regularly when he commenced or ceased prescribing or changed doses for drugs including clonazepam, bupropion, modafinil and dexamphetamine. As a consequence, Dr B was asked to prepare an additional statement to clarify this matter.

64. In response, Dr B recounted his contacts with Practice T practitioners and also indicated that he now ensures he corresponds regularly with referring practitioners to keep them abreast of patient progress and medications.

65. Dr B also noted his involvement in developing clinician resources for the current rollout of the SafeScript real-time prescription monitoring program, and wrote:

I am a strong advocate for the introduction of SafeScript and believe it will be invaluable in enhancing knowledge sharing amongst members of a treating team such that we will have better oversight of what is being prescribed and by whom, as well as preventing the dispensation of excessive or duplicate prescriptions of drugs of dependence at the pharmacy end.

66. Dr B's reference to SafeScript in the context of coordination of care issues, is timely and appropriate. A central challenge that doctors in Victoria have historically faced is that they have no centralised, reliable, comprehensive and easily accessible source of information on what drugs are being prescribed to a patient.[8] They have relied heavily on patient self-report, and when a patient does not accurately disclose what other doctors have prescribed and when

[8] Information sources such as the Medicare Prescription Shopping Information Service and the Medicines and Poisons Regulation (formerly Drugs and Poisons Regulation) information line have existed for some years, however they can only provide limited information about limited cohorts of patients (and also have restricted hours of operation).

(as appears to have occurred in the case of Mr A), this undermines their ability to coordinate the care of that patient.

67. The implementation of SafeScript (which was made available to all Victorian pharmacies and medical practices in October 2018, with a mandatory requirement from April 2020 to check SafeScript prior to writing or dispensing a prescription for a medicine monitored through the system) represents a substantial improvement in this situation.

68. The SafeScript system involves gathering information on target prescription medications immediately as they are dispensed and storing this information in a central electronic database where it can be accessed by clinicians when a patient attends for treatment, as well as by pharmacists when a patient presents a script for a pharmaceutical drug.

69. Through SafeScript, both prescribers and dispensers can identify and intervene to prevent excessive use of prescribed drugs, use of contraindicated drug combinations, prescription shopping, and other issues that emerge from poor coordination of care.

Prescribing practices of Dr B

70. Other aspects of Dr B's prescribing were also investigated by the CPU as they suggested inconsistency with good clinical practice. These included his prescribing the potent addictive benzodiazepine clonazepam for an extended period to treat anxiety; providing scripts with repeats for large quantities of clonazepam at a time; prescribing dexamphetamine to treat ADHD in circumstances where he was "not convinced" of Mr A 's ADHD diagnosis; abruptly increasing Mr A's prescribed dexamphetamine dose from 5mg to 20mg; and prescribing clonazepam and dexamphetamine (both drugs of dependence) to a patient who had a history of pharmaceutical drug misuse and drug seeking behaviour.

71. In Dr B's was also invited to respond to these matters, expanding upon his notes in his medical records and also clarifying and correcting material from his first statement. He explained the clinical rationale for his clonazepam and dexamphetamine prescribing; the medical software issue (now addressed) that led to him prescribing large amounts of clonazepam at a time; the open and trusting nature of his therapeutic relationship with Mr A; the process and clinical rationale for increasing the dexamphetamine dose; and his consistent clinical impression that Mr A did not present as, nor behave as, a drug dependent or drug seeking patient. Dr B admitted his clinical notes were not always as clear and comprehensive as they should have been and described steps he had taken to improve his medical record keeping.

72. I reviewed Dr B's statement in the context of the CPU's advice and concluded that the issues raised by the CPU were addressed.

Conclusion

73. A review of the available evidence suggests that the uncoordinated manner in which doctors could communicate at the time permitted Mr A to obtain an excessive quantity of pregabalin, and also to obtain drugs that might interact with one another in unanticipated ways.

74. The introduction of the SafeScript system subsequent to Mr A's death clearly addresses aspects of the previous shortcomings in the system. However, the manner in which pregabalin featured in this case raises a further issue that should be considered.

COMMENTS PURSUANT TO SECTION 67(3) OF THE ACT

75. If multiple doctors were treating a patient in a similar clinical situation to Mr A today, they would ideally be checking the SafeScript system regularly and communicating with one another to manage any medication-related risks, thus reducing the risk of an adverse outcome.

76. I note, though, that pregabalin - a drug Mr A obtained in excessive quantities from multiple doctors proximal to his death - is not included among the drugs monitored by SafeScript. I understand this is because, at the time when the initial scope of drugs to be monitored in SafeScript was established, the Victorian Department of Health and Human Services did not believe pregabalin was associated with a particularly high risk of harm.[9]

77. The evidence base regarding pregabalin misuse and associated harms has however developed since this time,[10] and these harms are clearly reflected in the annual overdose death statistics recently compiled by the CPU, with the number of pregabalin-involved overdose deaths rising from 17 in 2013 (the first year when pregabalin was systematically tested in toxicology in Victoria) to 69 deaths in 2018 (**Attachment A**).

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[9] The Department of Health and Human Services may have reached this conclusion relying (at least in part) on a report commissioned from Austin Health and titled *Evidence to inform the inclusion of Schedule 4 prescription medications on a real-time prescription monitoring system* (March 2017).

[10] See for example Cairns R et al, "Rising Pregabalin use and misuse in Australia: trends in utilization and intentional poisonings", *Addiction*, 2018, doi:10.1111/add.14412; Crossin R, et al, " Pregabalin misuse-related ambulance attendances in Victoria, 2012–2017: characteristics of patients and attendances", *Medical Journal of Australia*, 210(2), 2019; Murnion B and Conigrave K, "Pregabalin misuse: the next wave of prescription medication problems", *Medical Journal of Australia*, 210(2), 2019.

78. Victorian Coroners have previously highlighted the harms associated with pregabalin, [11] and have advocated for real-time prescription monitoring in Victoria to encompass all prescribed drugs because, as the case of pregabalin clearly illustrates, different drugs can emerge as problematic over time and most drugs are associated with at least some level of misuse.[12] For the purpose of this investigation, the CPU included in Attachment A some basic modelling on the annual proportion of Victorian pharmaceutical drug involved overdose deaths 2010-2018 which are monitored by SafeScript.

79. Considering this material together with the circumstances in which Mr A died, I determined to make the following recommendations.

RECOMMENDATIONS PURSUANT TO SECTION 72(2) OF THE ACT

80. I recommend:

1. To reduce the risk of pharmaceutical drug-involved mortality and morbidity, the Victorian Department of Health and Human Services review the scope of drugs monitored in the SafeScript real-time prescription monitoring program, to ensure that all appropriate drugs are included.

2. To reduce the risk of harm associated with pregabalin, the Victorian Department of Health and Human Services include pregabalin in the scope of drugs monitored in the SafeScript real-time prescription monitoring program.

[11] Carlin R, Finding without inquest in the death of NJ (identity redacted), Coroners Court of Victoria, reference COR 2015 2127, delivered 4 July 2017.

[12] See for example finding of Spanos P, Finding without inquest in the death of Jim Zanis, Coroners Court of Victoria, reference COR 2014 0042, delivered 6 June 2016; Olle J, finding without inquest in the death of Jamie Apap, Coroners Court of Victoria, reference COR 2010 3678, delivered 24 July 2015; Gray I, Finding with inquest in the death of Anne Brain, Coroners Court of Victoria, reference COR 2011 4797, delivered 30 October 2014.

FURTHER COMMENTS PURSUANT TO SECTION 67(3) OF THE ACT

Request for telephone health advice

81. The Royal Melbourne Hospital do not have an official function to provide clinical advice over the phone to members of the public, although I note the advice given on this occasion was appropriate.

82. There are a number of options in Victoria for telephone advice (including the 24/7, Nurse on Call number) as well as the secondary triage system following a call to Triple Zero for an ambulance, where the call may be assessed by a paramedic or registered nurse if determined to be of a less urgent nature.

83. Community education regarding the options available would be invaluable, particularly where people are unsure and do not want to cause unnecessary call outs which burden the system.

84. In these circumstances, I have directed that the finding be provided to Ambulance Victoria for their consideration.

FINDINGS

85. Having investigated the death, without holding an inquest, I find pursuant to section 67(1) of the Act that Mr A, born [redacted] 1991, died on [redacted] 2016 at Nomads Backpackers, Melbourne, Victoria, from Mixed drug toxicity, in the circumstances described above.

86. I convey my sincere condolences to Mr A's family for the loss of such a young man in the tragic circumstances revealed as part of the investigation.

87. Pursuant to rule 64(3) of the Coroners Court Rules 2009, I order that the redacted finding be published on the internet:

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

Miss R, senior next of kin

Ms O, mother of Mr A

Kym Peake, Secretary, Department of Health and Human Services

Ambulance Victoria

Detective Senior Constable Jon Amore, Victoria Police, Coroner's Investigator

Signature:

SARAH GEBERT
CORONER
Date: 18 October 2019

Coroners Prevention Unit
Data Summary

Coroners Court of Victoria

Subject:	Overdose deaths, Victoria 2010-2018
Date:	26 August 2019 (revised)

Executive Summary

- This data summary examines overdose deaths investigated by Victorian coroners during the period 2010-2018.
- The annual frequency of overdose deaths followed an upward trend between 2010 and 2018, reaching 540 deaths in 2018 (page 2). Just over 70% of deaths were caused by the acute toxic effects of multiple contributing drugs rather than a single drug (page 2).
- Pharmaceutical drugs consistently contributed in around 80% of overdose deaths each year across the period. The annual proportion of overdose deaths involving illegal drugs rose slightly from 40% to 50%; the annual proportion involving alcohol also rose from around 25% to nearly 30% (page 3).
- Benzodiazepines were consistently the most frequent contributing pharmaceutical drug group in overdose deaths across the period, followed by opioids then antidepressants (page 5).
- Notable trends in individual drugs included an approximately 10% decline in heroin-involved overdose deaths between 2017 and 2018; and the continuing rise in pregabalin involvement which reached 69 deaths in 2018 (pages 7-8).
- The recently implemented SafeScript real-time prescription monitoring program tracks the dispensing of selected target pharmaceutical drugs to assist prescribers and pharmacists with their clinical decision-making. Between 2010 and 2018, the proportion of Victorian overdose deaths where all contributing pharmaceutical drugs were monitored target drugs under SafeScript declined (pages 10-11), suggesting that SafeScript needs to expand its scope of monitored drugs.

1. Background

The Coroners Prevention Unit (CPU) prepared this data summary at the direction of the Coroner to assist the Coroner's death investigation.

2. Data source

The data source for this data summary was the CPU's Victorian Overdose Deaths Register ('the Register'). The Register design, definitions, case inclusion criteria and coding process have been described in detail elsewhere,[1] and are not repeated here.

To prepare the summary, on 23 August 2019 the Register was used to identify all Victorian overdose deaths reported to the CCOV between 2010 and 2018, and to extract data on the individual drugs that contributed to each death.

The contents of the Register are regularly revised and updated as coronial investigations progress. Through the coroner's investigation, an overdose death initially characterised as involving one drug might be determined to have involved two other drugs; or a death initially thought to be unrelated to drug consumption might be found to be a fatal overdose. Therefore data reported from the Register about Victorian overdose deaths occurring in any given period, can change over time.

3. Overdose deaths, Victoria 2010-2018

The 23 August 2019 data extract included 3846 overdose deaths investigated by Victorian coroners between 2010 and 2018. The following tables provide a basic overview of patterns of drug contribution over time in the deaths.

3.1 Annual frequency of Victorian overdose deaths

Table 1 shows the overall annual frequency of overdose deaths in Victoria for the period 2010-2018, and the frequency and proportion of overdose deaths each year which were due to the toxic effects of a single drug versus multiple drugs.

Table 1: Annual frequency and proportion of single- and multiple-drug overdose deaths, Victoria 2010-2018

Overdose deaths	2010	2011	2012	2013	2014	2015	2016	2017	2018
Overall frequency	**341**	**362**	**366**	**380**	**387**	**454**	**493**	**523**	**540**
Single drug	123	134	115	119	101	131	137	123	133
Multiple drug	218	228	251	261	286	323	356	400	407
Overall proportion	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
Single drug	36.1	37.0	31.4	31.3	26.1	28.9	27.8	23.5	24.6
Multiple drug	63.9	63.0	68.6	68.7	73.9	71.1	72.2	76.5	75.4

The annual frequency of Victorian overdose deaths increased every year between 2010 and 2018. The frequency of deaths in 2018 (540) was 56% higher than in 2010 (341). The proportion involving multiple drugs increased across this period, from 63.9% of deaths (218 of 341) in 2010 to 75.4% of deaths (407 of 540) in 2018.

1 See for example attachment A to Jamieson A, Finding without inquest in the death of Samuel Jack Morrison, Coroners Court of Victoria, reference COR 2016 2730, delivered 6 August 2018; Dwyer J, Ogeil O, Bugeja L, Heilbronn C, Lloyd B, *Victorian Overdose Deaths: The Role of Pharmaceutical Drugs and Drug Combinations*, Richmond: Turning Point, February 2017.

3.2. Overdose deaths by contributing drug types

Contributing drugs across all Victorian overdose deaths were classified into three main types: pharmaceutical, illegal and alcohol. Table 2 shows the annual frequency of Victorian overdose deaths involving each of these three contributing drug types. Most overdose deaths were from combined (multiple) drug toxicity, which is why the annual frequencies for each drug type in Table 2 sum to greater than the overall annual frequency.

Table 2: Annual frequency and proportion of overdose deaths by contributing drug types, Victoria 2010-2018

Overdose deaths	2010	2011	2012	2013	2014	2015	2016	2017	2018
Overall frequency	**341**	**362**	**366**	**380**	**387**	**454**	**493**	**523**	**540**
Pharmaceutical	263	274	302	312	316	356	382	414	422
Illegal	146	150	130	163	164	227	264	271	263
Alcohol	85	89	80	95	94	106	124	151	161
Overall proportion	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
Pharmaceutical	77.1	75.7	82.5	82.1	81.7	78.4	77.5	79.2	78.1
Illegal	42.8	41.4	35.5	42.9	42.4	50.0	53.5	51.8	48.7
Alcohol	24.9	24.6	21.9	25.0	24.3	23.3	25.2	28.9	29.8

The proportion of annual Victorian overdose deaths involving pharmaceutical drugs was relatively steady during the period, ranging between 75.7% (2011) and 82.5% (2012); pharmaceutical drugs contributed in an average 79.1% of all overdose deaths across the period.

Alcohol contribution to Victorian overdose deaths was somewhat variable, ranging between 21.9% (2012) and 29.8% (2018) with an annual average 25.3%. In 2017 and 2018 the proportion of Victorian overdose deaths involving alcohol was higher than average.

Between 2010 and 2014, the annual proportion of Victorian overdose deaths involving illegal drugs ranged from 35.4% (2012) and 42.9% (2013), but then increased to 50.0% of overdose deaths in 2015, and 53.5% of overdose deaths in 2016, and 51.8% of overdose deaths in 2017. The proportion of overdose deaths involving illegal drugs dropped slightly to 48.7% in 2018, but is still notably higher than in the period 2010 to 2014.

3.3. Overdose deaths by combinations of contributing drug types

To explore further how pharmaceutical drugs, illegal drugs and alcohol interacted with one another, each death was classified according to the combination of drug types that contributed to the fatal overdose. The seven mutually exclusive combinations were:

- Pharmaceutical drugs only (no contributing illegal drugs or alcohol).
- Pharmaceutical and illegal drugs (no alcohol).
- Illegal drugs only (no pharmaceutical drugs or alcohol).
- Pharmaceutical drugs and alcohol (no illegal drugs).
- Pharmaceutical and illegal drugs and alcohol.
- Alcohol only (no contributing pharmaceutical or illegal drugs).
- Illegal drugs and alcohol (no contributing pharmaceutical or illegal drugs).

Table 3 shows the annual frequency and proportion of Victorian overdose deaths for each combination of contributing drugs.

Table 3: Annual frequency and proportion of overdose deaths by combinations of contributing drug types, Victoria 2010-2018

Combination of drug types	2010	2011	2012	2013	2014	2015	2016	2017	2018
Overall frequency	**341**	**362**	**366**	**380**	**387**	**454**	**493**	**523**	**540**
Pharma only	141	148	170	148	160	153	153	165	171
Pharma + illegal	64	63	74	82	91	125	145	139	134
Illegal only	51	62	42	55	42	70	71	68	73
Pharma + alc	33	45	47	57	45	52	47	61	72
Pharma + ill + alc	25	18	11	25	20	26	37	49	45
Alcohol only	21	19	19	12	18	22	29	26	34
Illegal + alcohol	6	7	3	1	11	6	11	15	11
Overall proportion	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
Pharma only	41.3	40.9	46.4	38.9	41.3	33.7	31.0	31.5	31.7
Pharma + illegal	18.8	17.4	20.2	21.6	23.5	27.5	29.4	26.6	24.8
Illegal only	15.0	17.1	11.5	14.5	10.9	15.4	14.4	13.0	13.5
Pharma + alc	9.7	12.4	12.8	15.0	11.6	11.5	9.5	11.7	13.3
Pharma + ill + alc	7.3	5.0	3.0	6.6	5.2	5.7	7.5	9.4	8.3
Alcohol only	6.2	5.2	5.2	3.2	4.7	4.8	5.9	5.0	6.3
Illegal + alcohol	1.8	1.9	0.8	0.3	2.8	1.3	2.2	2.9	2.0

Pharmaceutical drug only overdose deaths were consistently the most frequent type of Victorian overdose death between 2010 and 2018. However, over time there was a decline in the proportion of pharmaceutical drug only overdose deaths, and a shift towards overdose deaths involving pharmaceutical drugs in combination with illegal drugs (both with and without alcohol).

3.4. Overdose deaths by contributing pharmaceutical drug groups

Pharmaceutical drugs were disaggregated into drug groups for more detailed analysis. Table 4 shows the annual frequency of Victorian overdose deaths 2010-2018 involving each of the major contributing pharmaceutical drug groups, with illegal drugs and alcohol included for context. Most overdose deaths were from combined drug toxicity, which is why the annual frequencies for each drug group in Table 4 sum to greater than the overall annual frequency.

Table 4: Annual frequency and proportion of contribution to overdose deaths, among major contributing pharmaceutical drug groups plus alcohol and illegal drugs, Victoria 2010-2018. (^ Non-benzodiazepine anxiolytics; * Non-opioid analgesics.)

Drug groups	2010	2011	2012	2013	2014	2015	2016	2017	2018
Overall frequency	**341**	**362**	**366**	**380**	**387**	**454**	**493**	**523**	**540**
Benzodiazepines	168	180	199	212	215	238	263	303	303
Illegal drugs	146	150	130	163	164	227	264	271	263
Pharma opioids	127	165	188	175	182	185	183	198	205
Antidepressants	105	101	141	134	144	161	164	196	194
Alcohol	85	89	80	95	94	106	124	151	161
Antipsychotics	64	65	78	75	81	91	107	136	108
Non-benzo anx.^	28	33	38	56	48	60	40	56	47
Non-opioid anlg.*	25	30	44	39	49	46	35	38	40
Anticonvulsants	14	13	10	37	45	51	54	75	87

(**Table 4** continued over page)

Table 4 continued from previous page

Drug groups	2010	2011	2012	2013	2014	2015	2016	2017	2018
Overall proportion	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
Benzodiazepines	49.3	49.7	54.4	55.8	55.6	52.4	53.3	57.9	56.1
Illegal drugs	42.8	41.4	35.5	42.9	42.4	50.0	53.5	51.8	48.7
Pharma opioids	37.2	45.6	51.4	46.1	47.0	40.7	37.1	37.9	38.0
Antidepressants	30.8	27.9	38.5	35.3	37.2	35.5	33.3	37.5	35.9
Alcohol	24.9	24.6	21.9	25.0	24.3	23.3	25.2	28.9	29.8
Antipsychotics	18.8	18.0	21.3	19.7	20.9	20.0	21.7	26.0	20.0
Non-benzo anx.^	8.2	9.1	10.4	14.7	12.4	13.2	8.1	10.7	8.7
Non-opioid anlg.*	7.3	8.3	12.0	10.3	12.7	10.1	7.1	7.3	7.4
Anticonvulsants	4.1	3.6	2.7	9.7	11.6	11.2	11.0	14.3	16.1

Benzodiazepines were the most frequent contributing pharmaceutical drug group, playing a role in an average 53.8% of overdose deaths annually across the period. The next most frequent pharmaceutical drug groups were opioids (an average 42.3% of overdose deaths each year), antidepressants (annual average 34.6%) and antipsychotics (annual average 20.7%). Notable trends in the data included the gradual increase over time in benzodiazepine and antidepressant involvement in overdose deaths; and the more pronounced rise in the proportion of annual overdose deaths involving anticonvulsants.

3.5. Overdose deaths by individual contributing drugs

Table 5 shows the annual frequency of overdose deaths, Victoria 2010-2018, involving the most frequent contributing individual drugs. The individual drugs are tabulated by the major drug groups to which they belong.

Table 5: Annual frequency and proportion of contribution to overdose deaths, among major contributing pharmaceutical drug groups plus alcohol and illegal drugs, Victoria 2010-2018. (^ Non-benzodiazepine anxiolytics; * Non-opioid analgesics.)

Individual drugs	2010	2011	2012	2013	2014	2015	2016	2017	2018
Benzodiazepines	**168**	**180**	**199**	**212**	**215**	**238**	**263**	**303**	**303**
Diazepam	109	124	133	164	169	192	204	242	234
Alprazolam	56	43	57	45	28	23	23	27	31
Temazepam	22	48	34	22	20	25	26	32	28
Oxazepam	19	44	40	17	19	34	27	23	35
Clonazepam	8	14	18	19	25	33	31	48	40
Nitrazepam	15	11	24	26	13	17	22	11	16
Lorazepam	0	3	1	4	6	2	7	7	5
Illegal drugs	**146**	**150**	**130**	**163**	**164**	**227**	**264**	**271**	**263**
Heroin	136	125	107	128	136	171	190	220	202
Methamphetamine	14	29	34	51	53	72	119	93	95
Cocaine	1	2	4	5	7	15	11	10	17
Amphetamine	4	19	10	10	8	9	1	3	5
MDMA	1	1	1	3	4	5	12	7	4
Pharma opioids	**127**	**165**	**188**	**175**	**182**	**185**	**183**	**198**	**205**
Methadone	55	72	75	70	67	67	73	71	72
Oxycodone	38	46	46	60	46	58	54	66	61
Codeine	32	38	55	46	47	48	46	37	34

(**Table 5** continued over page)

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Individual drugs	2010	2011	2012	2013	2014	2015	2016	2017	2018
Tramadol	9	15	18	23	23	32	26	32	35
Morphine	12	12	13	9	12	9	13	18	18
Fentanyl	2	5	17	11	11	23	13	14	18
Buprenorphine	4	14	4	3	7	4	2	8	20
Antidepressants	**105**	**101**	**141**	**134**	**144**	**161**	**164**	**196**	**194**
Mirtazapine	21	23	26	30	29	50	25	42	58
Amitriptyline	26	22	32	25	41	28	34	47	40
Citalopram	22	21	25	24	25	26	28	35	25
Venlafaxine	12	16	15	20	19	10	22	27	18
Duloxetine	5	7	14	11	12	12	15	12	19
Sertraline	6	4	12	13	9	12	11	18	19
Fluoxetine	9	8	13	10	7	12	16	10	12
Desvenlafaxine	1	3	6	8	11	15	19	15	18
Alcohol	**85**	**89**	**80**	**95**	**94**	**106**	**124**	**151**	**161**
Antipsychotics	**64**	**65**	**78**	**75**	**81**	**91**	**107**	**136**	**108**
Quetiapine	36	34	41	41	48	49	57	74	52
Olanzapine	18	17	22	15	21	30	36	41	42
Risperidone	3	11	8	10	7	9	14	9	13
Zuclopenthixol	4	4	6	3	3	5	4	14	4
Chlorpromazine	2	4	10	6	3	5	5	5	4
Clozapine	6	0	4	6	2	4	5	3	3
Anticonvulsants	**14**	**13**	**10**	**37**	**45**	**51**	**54**	**75**	**87**
Pregabalin	0	0	0	17	27	34	34	52	69
Sodium valproate	9	5	6	13	9	9	6	7	5
Carbamazepine	3	6	1	3	3	2	8	3	0
Lamotrigine	2	1	2	2	2	2	3	6	10
Non-benzo anx.	**28**	**33**	**38**	**56**	**48**	**60**	**40**	**56**	**47**
Doxylamine	16	11	21	23	13	14	13	18	18
Zopiclone	3	6	13	14	11	17	13	17	13
Pentobarbitone[2]	5	11	1	8	15	18	9	10	6
Zolpidem	3	5	5	4	6	11	6	8	6
Diphenhydramine	1	4	2	7	5	5	4	6	6
Non-opioid anlg.	**25**	**30**	**44**	**39**	**49**	**46**	**35**	**38**	**40**
Paracetamol	21	24	42	37	37	42	30	32	32
Ibuprofen	5	4	5	2	7	5	4	1	7
Antihistamines	**11**	**11**	**10**	**11**	**14**	**14**	**14**	**21**	**32**
Promethazine	10	8	8	6	11	11	11	16	27
Pheniramine	0	1	1	3	3	3	2	4	3

Among the data presented in table 5 there were several findings that require some further commentary.

2 Pentobarbitone prescribing to humans is not permitted in Australia, and the drug could be alternatively classified as illegal.

In 2018 diazepam continued to be the most frequent contributing drug to Victorian overdose deaths. Of the 1675 diazepam-involved overdose deaths that occurred in Victoria between 2010 and 2018, 1673 involved other drugs in addition to diazepam: for example 57.7% involved opioid analgesics, 49.3% involved antidepressants, 39.7% involved heroin and 31.1% involved antipsychotics.

Heroin contribution in Victorian overdose deaths fell by nearly 10%, from 220 deaths in 2017 to 202 deaths in 2018, after a five-year period during which the annual frequency of heroin-involved overdose deaths more than doubled. The other most frequent contributing illegal drug, methamphetamine, contributed in 95 deaths, which was very similar to 2017 (93 deaths) and well down from its peak involvement across 119 deaths in 2016.

No pregabalin-involved Victorian overdose deaths were recorded in the period 2010-2012, possibly because routine post-mortem testing for pregabalin did not commence in Victoria until 2013. Over the ensuing six years the frequency of pregabalin contribution steadily rose to reach 69 deaths in 2018. Among the 233 deaths total during this period there were no pregabalin-only overdoses; benzodiazepines co-contributed in 83.2% of pregabalin-involved overdoses, opioids in 78.4%, and antidepressants in 65.1%. This suggests pregabalin has a similar risk profile to benzodiazepines: it is relatively safe unless combined with other central nervous system depressants.[3]

Methadone remained the most frequent contributing opioid to Victorian overdose deaths in 2018 (72 deaths), followed by oxycodone (61 deaths). The involvement of these two drugs in Victorian overdose deaths has been steady for some years; in the case of oxycodone, this is despite the reformulation of the tablet to reduce misuse by crushing and injecting in 2014. Codeine contribution to Victorian overdose deaths declined in 2018 to 34 deaths, from a peak of 48 deaths in 2015. This decline might be associated with the February 2018 change in codeine availability (rescheduling) so that it could no longer be sold over the counter without a prescription, however the frequency of codeine-involved overdose deaths was declining for two years before this so there could be other drivers for the decrease. Buprenorphine involvement in overdose death jumped from eight deaths in 2017 to 20 in 2018; the reasons for this also require further investigation.

Finally, 27 Victorian overdose deaths during 2018 involved the antihistamine promethazine, which was a substantial increase on the 16 deaths during 2017. Of the 115 total Victorian overdose deaths involving promethazine between 2010 and 2018, 81.7% involved a co-contributing pharmaceutical opioid and/or heroin. Promethazine is known to enhance the effects of opioids including heroin, and the 2018 data suggests there may be a recent increase in its misuse for this purpose.

4. SafeScript coverage of pharmaceutical drugs

The Victorian Department of Health and Human Services (DHHS) commenced implementing the SafeScript real-time prescription monitoring system in October 2018 and announced its "full roll-out" throughout Victoria on 31 March 2019. The SafeScript system enables doctors and pharmacists to check the history of pharmaceutical drugs dispensed to a patient during a consult with that patient. The benefits of this are anticipated to include improving the safety of pharmaceutical drug prescribing and dispensing, and reducing pharmaceutical-related mortality and morbidity.

At present the following target drugs are monitored through the SafeScript system:[4]

- All drugs that are Schedule 8 poisons in the Standard for the Uniform Scheduling of Medicines and Poisons. These include strong opioids (for example buprenorphine, morphine, fentanyl,

3 The substantial cross-over between pregabalin and opioid contribution in Victorian overdose deaths also raises an issue of classification. Pregabalin was classified as an anticonvulsant in this report, however a brief review of the deaths suggests that in many cases it was being prescribed to supplement the effects of opioids. It may therefore arguably be classified more appropriately as a non-opioid analgesic.)

4 The drugs monitored in the SafeScript system are described in Schedule 5 to the *Drugs, Poisons and Controlled Substances Amendment (Real-time Prescription Monitoring) Regulations 2018* (Vic).

methadone, oxycodone, codeine, hydrocodone, hydromorphone, tapentadol, pethidine) as well as certain benzodiazepines (alprazolam, flunitrazepam) and some other drugs of dependence (for example methylphenidate, dexamphetamine, ketamine).

- All benzodiazepines that are Schedule 4 poisons (clonazepam, diazepam, nitrazepam, oxazepam, temazepam and so on).
- Codeine when a Schedule 4 poison.
- The antipsychotic quetiapine, which is often mis-prescribed and misused for its sedative effect and potentiation of opioids.
- Zopiclone and zolpidem, which are two non-benzodiazepine anxiolytics.

The rationale for monitoring these drugs is that they were determined to present an elevated risk of harm in comparison to other similar drugs.[5]

This selective approach contrasts with the position advocated by many Victorian Coroners, who have called for SafeScript to monitor all drug dispensing.[6] The reason for Coroners taking this position is that their investigations show a broad range of drugs are implicated in Victorian overdose deaths, and therefore doctors and pharmacists need to know as much as possible about what drugs their patients are accessing so they can make appropriate clinical decisions and manage risks associated with prescribed drug use.

To explore the Coroners' concerns further, the 2010-2018 overdose deaths data was used to model the extent to which SafeScript might provide doctors and pharmacists with knowledge of dispensing of pharmaceutical drugs that currently contribute to Victorian overdose deaths. Every contributing pharmaceutical drug in every pharmaceutical-involved overdose death was classified according to whether or not it is a monitored drug under the SafeScript system. Then, deaths were grouped according to whether monitored and/or unmonitored pharmaceutical drugs contributed. The three groups were:

- **All monitored**, if every contributing pharmaceutical drug in the overdose death belonged to the group of drugs currently being monitored by SafeScript.
- **Some monitored**, if at least one contributing pharmaceutical drug in the overdose death belonged to the group of drugs currently being monitored by SafeScript, but at least one other contributing pharmaceutical drug did not.
- **None monitored**, if no contributing pharmaceutical drug in the overdose death belonged to the group of drugs currently being monitored by SafeScript.

To simplify the modelling exercise, the contribution of non-pharmaceutical drugs (illegal drugs and alcohol) in the pharmaceutical-involved overdose deaths was ignored.

Table 6 shows the results of the modelling. Between 2010 and 2018, the proportion of pharmaceutical drug-involved overdose deaths in the 'all monitored' group declined from 36.5% to 25.1%, while the proportion in the 'some monitored' group increased from 46.8% to 61.5%. Put another way, over time doctors' and pharmacists' knowledge regarding the dispensing of relevant drugs contributing to overdose deaths would have diminished, with non-target pharmaceutical drugs (for example the antidepressants mirtazapine, amitriptyline, citalopram, venlafaxine and duloxetine;

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5 See Liew D, et al, *Evidence to inform the inclusion of Schedule 4 prescription medications on a real-time prescription monitoring system*, Austin Health, March 2017.

6 See for example finding of Coroner Paresa Spanos in the death of Jim Zanis (COR 2014 0042); finding of Coroner John Olle in the death of Jamie Apap (20103678); finding of State Coroner Iain Gray in the death of Anne Brain (20114797).

the antipsychotic olanzapine; the anticonvulsant pregabalin; and the antihistamines doxylamine and promethazine) playing an increasing role.

Table 6: Annual frequency and proportion of pharmaceutical-involved overdose deaths where contributing pharmaceutical drugs were monitored, both monitored and unmonitored, or unmonitored only under current SafeScript system, Victoria 2010-2018

Overdose deaths	2010	2011	2012	2013	2014	2015	2016	2017	2018
All pharma-involved	**263**	**274**	**302**	**312**	**316**	**356**	**382**	**414**	**422**
All monitored	96	108	103	97	95	102	114	106	105
Some monitored	123	125	165	164	169	201	201	253	257
None monitored	44	41	34	51	52	53	67	55	60
All pharma-involved	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
All monitored	36.5	39.4	34.1	31.1	30.1	28.7	29.8	25.6	25.1
Some monitored	46.8	45.6	54.6	52.6	53.5	56.5	52.6	61.1	61.5
None monitored	16.7	15.0	11.3	16.3	16.5	14.9	17.5	13.3	14.4

This again supports the position articulated by several Victorian Coroners, that SafeScript needs to monitor all drug dispensing.