IN THE CORONERS COURT
OF VICTORIA
AT MELBOURNE

Court Reference: COR 2021 2418

FINDING INTO DEATH WITHOUT INQUEST

Form 38 Rule 63(2)
*Section 67 of the **Coroners Act 2008***

Findings of:	Caitlin English, Deputy State Coroner
Deceased:	KFZ[1]
Date of birth:	13 December 1995
Date of death:	9 May 2021
Cause of death:	1(a) Combined flualprazolam and alcohol toxicity
Place of death:	Vermont, Victoria

[1] This Finding has been de-identified to replace the names of the deceased and their family members with pseudonyms of randomly generated three letter sequences to protect their identity and to redact identifying information.

INTRODUCTION

1. On 9 May 2021, KFZ was 25 years old when he died after ingesting alcohol and illicit drugs. At the time of his death, KFZ lived in Vermont with housemates.

THE CORONIAL INVESTIGATION

2. KFZ's death was reported to the Coroner as it fell within the definition of a reportable death in the *Coroners Act 2008* (**the Act**). Reportable deaths include deaths that are unexpected, unnatural or violent, or result from accident or injury.

3. The role of a coroner is to independently investigate 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.

4. Under the Act, coroners also have the important functions of helping to prevent deaths and promoting public health and safety and the administration of justice through the making of comments or recommendations in appropriate cases about any matter connected to the death under investigation.

5. The Victoria Police assigned an officer to be the Coroner's Investigator for the investigation of KFZ's death. The Coroner's Investigator conducted inquiries on my behalf, including taking statements from witnesses – such as family, the forensic pathologist, treating clinicians and investigating officers – and submitted a coronial brief of evidence.

6. This finding draws on the totality of the coronial investigation into KFZ's death, including evidence contained in the coronial brief. 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. In the coronial jurisdiction, facts must be established on the balance of probabilities.[2]

[2] 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.

MATTERS IN RELATION TO WHICH A FINDING MUST, IF POSSIBLE, BE MADE

Identity of the deceased

7. On 9 May 2021, KFZ, born 13 December 1995, was visually identified by his housemate.

8. Identity is not in dispute and requires no further investigation.

Medical cause of death

9. Forensic Pathologist, Dr Joanna Glengarry, from the Victorian Institute of Forensic Medicine (**VIFM**), conducted an examination on 13 May 2021 and provided a written report of her findings dated 19 August 2021.

10. Toxicological analysis of post-mortem samples identified the presence of ethanol,[3] flualprazolam,[4] cocaine and its metabolites, methylamphetamine and amphetamine,[5] MDMA,[6] ketamine,[7] and lignocaine.[8] A tablet stamped with 'Xanax' on one side submitted for testing also contained flualprazolam.

11. Dr Glengarry noted that flualprazolam is a novel psychoactive substance with no therapeutic use in Australia. It is associated with causing death, particularly in the setting of other medications that may cause central nervous system depression. She noted that KFZ was reported to have taken 'Xanax' (which is the trade name of alprazolam). Alprazolam was tested for in both the blood and urine and was not detected. The tablet labelled 'Xanax' was received as an exhibit and was tested and found to contain flualprazolam. Dr Glengarry explained that there is recognition that what is marketed as alprazolam, when bought through non-legitimate means, may contain unexpected and hazardous substances such as this.

12. Dr Glengarry noted blood alcohol was 0.06 g/100mL and the combined effects of flualprazolam and alcohol are capable of causing death.

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[3] Alcohol.
[4] Flualprazolam is a benzodiazepine derivative and has no established therapeutic use.
[5] Amphetamines is a collective word to describe central nervous system stimulants structurally related to dexamphetamine. One of these, methamphetamine, is often known as 'speed' or 'ice', which is a strong stimulant. Amphetamine is also a metabolite of methamphetamine, benzfetamine, and selegiline. Amphetamines stimulate the central nervous system, causing persons to become hyperactive and more aroused. Blood pressure and heart rate are also increased.
[6] Methylenedioxymethamphetamine (MDMA) is a designer amphetamine also known as ecstasy.
[7] Ketamine is an anaesthetic normally used for short and medium duration operations as an induction agent.
[8] Lignocaine (lidocaine) is a local anaesthetic and antiarrhythmic drug.

13. Dr Glengarry also explained that microscopic examination of the lungs showed early bronchopneumonia (lung infection), which may occur as a consequence of a reduced level of consciousness (such as may occur due to drug-induced coma, for example).

14. Dr Glengarry provided an opinion that the medical cause of death was *"1(a) Combined flualprazolam and alcohol toxicity"*.

15. I accept Dr Glengarry's opinion.

Circumstances in which the death occurred

16. KFZ worked as a carpenter. The coronial brief contained statements from KFZ's family and friends, and it is evident that he was very much loved and is dearly missed.

17. On the morning of 8 May 2021, KFZ played football. After arriving home, he started drinking heavily with his housemates at which time he mentioned taking cocaine and/or ketamine while out the night before. Two of his housemates went to bed at approximately 9.30pm, leaving KFZ and KXQ to continue drinking.

18. Sometime during the evening, the duo collected UYN who joined them at the house, and they continued drinking. In the early hours of the morning of 9 May 2021, KFZ took a 'Xanax' tablet he had obtained the previous day and after a short time began slurring his words and swaying on his chair before he passed out at about 2.00am. KXQ and UYN dragged him to bed. At about this time, WJD also arrived.

19. WJD checked on KFZ at some point and observed KFZ's breathing sounded like *"a rattling chainsaw"*; she turned his head to the side. KXQ and UYN were with her at this time. She put a doona over him, and they thereafter left his room.

20. Before leaving sometime later, WJD and UYN checked on KFZ again at about 3.00am. WJD stated that his breathing to be fainter but did not think it was unusual.

21. At approximately 9.30am that morning, KFZ's housemate, CED, attempted to rouse him but left and closed the door when KFZ did not awaken; he did not think this was unusual as he knew KFZ had had a big night.

22. CED returned at approximately 11.00am with housemate GGY at which time they realised KFZ was not breathing and contacted emergency services. They and KXQ provided

cardiopulmonary resuscitation. Paramedics arrived a short time later and confirmed KFZ was deceased.

23. Victoria Police members subsequently attended the house and seized several medications from KFZ's room and a 'Xanax' tablet provided by KXQ.

FINDINGS AND CONCLUSION

24. Pursuant to section 67(1) of the Act I make the following findings:

    (a) the identity of the deceased was KFZ, born 13 December 1995;

    (b) the death occurred on 9 May 2021 at Vermont, Victoria, from combined flualprazolam and alcohol toxicity; and

    (c) the death occurred in the circumstances described above.

25. Having considered all of the evidence, I am satisfied that his death was the unintended consequence of the deliberate ingestion of drugs.

COMMENTS

Pursuant to section 67(3) of the Act, I make the following comments connected with the death.

26. Flualprazolam is a novel psychoactive substance (**NPS**) benzodiazepine not approved for therapeutic use.

27. NPS benzodiazepines emerged in unregulated drug markets in Europe more than 20 years ago and were initially sold as 'legal' substitutes for clinically approved benzodiazepines.

28. The availability of NPS benzodiazepines greatly increased after 2015, not only in Europe but also North America and other countries. It has been speculated that this increase was driven by a range of factors including the wider availability of NPS generally, and new restrictions on access to pharmaceutical benzodiazepines driving people to unregulated

alternatives.[9] Reduced access to prescribed drugs generally during the coronavirus pandemic has also been identified as a potential factor in the rising use of NPS benzodiazepines.[10]

29. By February 2021, the European Monitoring Centre for Drugs and Drug Addiction (**EMCDDA**) was monitoring 30 NPS benzodiazepines, although the majority of detections involved one or more of three drugs: flualprazolam, etizolam, and flubromazolam. These three drugs, together with two other NPS benzodiazepines (clonazolam and diclazepam), were recently listed in the 1971 United Nations Convention on Psychotropic Substances to assist in controlling their spread.

30. The prevalence of NPS benzodiazepine use and associated harms over time is generally not well documented.[11] However, the experience from Scotland provides some indication of the potential for harm. In 2018, NPS benzodiazepines (primarily etizolam, and to a lesser extent diclazepam and phenazepam) were implicated in 571 deaths, accounting for 48.2% of the total 1187 drug-related deaths registered in Scotland for that year.[12] These numbers had risen even higher by 2020, when NPS benzodiazepines were implicated in 879 (66%) of the 1339 drug-related deaths in Scotland for that year.[13]

Availability and use in Australia

31. Very little information is available in the academic and policy literature about NPS benzodiazepine availability and use in Australia.

32. NPS benzodiazepines were not mentioned in the Parliament of Victoria's 2007 *Inquiry into Misuse/Abuse of Benzodiazepines and Other Pharmaceutical Drugs*, nor in its 2018 *Inquiry into Drug Law Reform*. The Australian Institute of Health and Welfare's most recent (2019) *National Drug Strategy Household Survey* did not address NPS at all.

33. Further insight comes from a 2020 ‘grey literature’ news article in Vice, which described a rise in Australian NPS benzodiazepine use due to regulatory initiatives such as the 2015 rescheduling of alprazolam, increased monitoring of benzodiazepine prescribing and

[9] European Monitoring Centre for Drugs and Drug Addiction, New Benzodiazepines in Europe: A Review, Lisbon: EMCDDA, 2021, pp.2-4; Laing MK, et al, "An outbreak of novel psychoactive substance benzodiazepines in the unregulated drug supply: Preliminary results from a community drug checking program using point-of-care and confirmatory methods", International Journal of Drug Policy, vol 93, no 3, February 2021: 103169.
[10] Brunetti P, et al, "Designer Benzodiazepines: A Review of Toxicology and Public Health Risks", Pharmaceuticals, vol 14, 2021: 559.
[11] European Monitoring Centre for Drugs and Drug Addiction, New Benzodiazepines in Europe: A Review, Lisbon: EMCDDA, 2021, pp.20-21.
[12] National Records of Scotland, Drug-related deaths in Scotland in 2018, Edinburgh: National Records of Scotland, 2019.
[13] National Records of Scotland, Drug-related deaths in Scotland in 2020, Edinburgh: National Records of Scotland, 2021.

dispensing, and efforts to reduce patients' benzodiazepine use generally. Drawing on interviews with several addiction medicine clinicians, Vice reporter Sam Nichols commented:[14]

> *Here we encounter the much-covered side effect of restricting supply without reducing demand: the way it invariably provides opportunity for the black market. And while these observations are anecdotal, the underlying issue here is that restrictions on medical professionals have pushed benzodiazepines and users underground, creating the very problems they're intended to prevent.*

34. Sam Nichols also provided a useful description of the 'pressed' form in which many NPS benzodiazepines are sold in unregulated Australian drug markets:

> *The street term "pressed" describes liquid or powdered benzodiazepines that have been smuggled into Australia, cut, pressed in a pill machine, and sold as knockoffs. The look and quality, as well as what they're cut with, varies depending on who you ask, but their availability has become widespread and further fuelled by restrictions on pharmacies.*

35. Another indicator of NPS benzodiazepine availability and use in Australia is advertising on the internet.

Risks

36. Benzodiazepines as a drug class present risks when used, including the following:

(a) benzodiazepines are central nervous system depressants, which is how they produce clinically useful effects such as reducing anxiety and excitement, and inducing sleep and amnesia; but their depressant effect can also cause over-sedation and respiratory depression, which may be fatal;

(b) benzodiazepines interact with other central nervous system depressants (including alcohol) to produce additive and synergistic respiratory depression, which substantially heightens the risk of fatal outcomes; and

(c) while all benzodiazepines produce their depressant effects through enhancing the action of gamma-aminobutyric acid (the chief inhibitory neurotransmitter in the

[14] Nichols S, "The Rise, Fall, and Explosive Return of Benzos to Australia", Vice World News, 28 July 2020, <https://www.vice.com/en/article/m7j5qp/the-rise-fall-benzos-valium-xanax-to-australia>, accessed 15 October 2021.

human central nervous system), these effects can vary in onset, duration and potency. This means that a person using one benzodiazepine may experience adverse effects such as over-sedation if they use another benzodiazepine with which they are not familiar.

37. People who use benzodiazepines regularly can develop dependence and may experience cravings and withdrawal symptoms if they reduce or cease using benzodiazepines. On a related point, regular benzodiazepine use produces tolerance such that a person requires more of the drug to achieve the same effect, and experiences greater adverse effects if the benzodiazepine use is subsequently reduced or ceased.

38. Reflecting these risks, benzodiazepines are the most frequent contributing drug class to overdose deaths in Victoria. The overwhelming majority of benzodiazepine-involved overdose deaths in Victoria (more than 99%) also involve other central nervous system depressants, highlighting the dangers of consuming benzodiazepines in combination with other drugs.

39. A central question in the literature is whether NPS benzodiazepines present any additional risk of misuse, dependence, overdose, or death above the risks inherent in the benzodiazepine drug class generally. The consensus view is that this question cannot be answered at present because too little is known clinically about NPS benzodiazepines, their distribution and absorption in the body when consumed, their metabolism, excretion, and subjective effects.[15] Furthermore, in most documented instances of NPS benzodiazepine-involved toxicity (both fatal and non-fatal), other central nervous system depressants were also involved, which makes it impossible to establish the specific role that the NPS benzodiazepines played.[16]

40. However, researchers have put forward some reasons as to why NPS benzodiazepines might present greater risks than pharmaceutical benzodiazepines:

    (a) most benzodiazepines approved for therapeutic use in Australia have a chemical structure referred to as the 1,4-benzodiazepine structure. In contrast, many NPS benzodiazepines including bromazolam, clonazolam, and flualprazolam have a

[15] For a summary see Brunetti P, et al, "Designer Benzodiazepines: A Review of Toxicology and Public Health Risks", Pharmaceuticals, vol 14, 2021: 560.
[16] Greenblatt HK, Greenblatt DJ, "Designer Benzodiazepines: A Review of Published Data and Public Health Significance", Clinical Pharmacology in Drug Development, vol 8, no 3, 2019: 266-269; Brunetti P, et al, "Designer Benzodiazepines: A Review of Toxicology and Public Health Risks", Pharmaceuticals, vol 14, 2021: 560.

triazolobenzodiazepine structure, which is believed to be more potent, though this suspected potency has not been confirmed in clinical settings in humans;

(b) benzodiazepine effects including sedation and respiratory depression are dose dependent. Illicitly manufactured NPS benzodiazepines may vary in dose strength from batch to batch, and even from tablet to tablet, increasing the risk of toxic effects because the dose consumed cannot accurately be gauged;

(c) related to the above, the active contents of illicitly manufactured NPS benzodiazepine substances may vary from what is described by the supplier, creating a risk of toxic effects if the NPS benzodiazepine in the substance is more potent or has different effects than what the user was expecting;

(d) NPS benzodiazepines may be sold in a variety of forms, from factory-produced tablets to street-pressed pills to powders, liquids, and blotters. These forms mean it is difficult to measure dosage, creating a risk of toxicity; and

(e) with respect to potency, evidence from intoxications and observation studies suggests that certain NPS benzodiazepines (such as flualprazolam) are more potent and have more profound sedative effects than pharmaceutical benzodiazepines. However, there is also evidence that some (such as etizolam) are less potent.[17]

41. In balance, NPS benzodiazepines appear to present a broader range of risks than pharmaceutical benzodiazepines, but these risks may be primarily associated with how NPS benzodiazepines are prepared and sold, rather than NPS benzodiazepines being inherently more dangerous.

[17] This summary was synthesised from Greenblatt HK, Greenblatt DJ, "Designer Benzodiazepines: A Review of Published Data and Public Health Significance", Clinical Pharmacology in Drug Development, vol 8, no 3, 2019: 266-269; Brunetti P, et al, "Designer Benzodiazepines: A Review of Toxicology and Public Health Risks", Pharmaceuticals, vol 14, 2021: 560; Laing MK, et al, "An outbreak of novel psychoactive substance benzodiazepines in the unregulated drug supply: Preliminary results from a community drug checking program using point-of-care and confirmatory methods", International Journal of Drug Policy, vol 93, no 3, February 2021: 103169; World Health Organisation Expert Committee on Drug Dependence, Critical Review Report: Etizolam, Geneva: World Health Organisation, October 2019, p.6; Ntoupa P, et al, "A fluorine turns a medicinal benzodiazepine into NPS: the case of flualprazolam", Forensic Toxicology, vol 39, 2021: 368–376; Zawilka JB and Wojcieszak J, "An expanding world of new psychoactive substances: designer benzodiazepines", Neurotoxicity, vol 73, 2019: 8-16.

Victorian deaths

42. Forty NPS benzodiazepine-involved overdose deaths occurred in Victoria between 2009 and 2020. The first death occurred in November 2015, then there were no further deaths in 2016 or 2017, one death in 2018, 10 in 2019, and 28 in 2020.

43. Five specific NPS benzodiazepines were identified as having contributed to the Victorian overdose deaths. Etizolam was the most prevalent contributor (36 deaths), followed by flubromazolam (nine deaths), and flualprazolam (seven deaths). Diclazepam and clonazolam were infrequent contributors (two deaths each).

44. In 14 of the 40 deaths (35%), multiple NPS benzodiazepines were identified as co-contributors to the fatal overdose.

45. This suggests a recent substantial increase in NPS benzodiazepine availability and use in unregulated drug markets in Victoria, although it is also possible that the increasing trend was influenced by improved capacity to detect the drugs in forensic toxicology.

Prevention

46. The recent substantial increase in NPS benzodiazepine contribution to Victorian overdose deaths suggests they are established in local unregulated drug markets. The experience of Scotland, where NPS benzodiazepines were implicated in two-thirds of all drug-related deaths during 2020, demonstrates their potential to become major contributors to drug harms. There is a strong rationale to consider prevention initiatives in Victoria.

NPS harm reduction

47. Coroner Paresa Spanos examined the risks associated with NPS use in her 31 March 2021 findings in the deaths of five young people who died after consuming a particularly dangerous combination of two NPS: the phenethylamines 25C-NBOMe and 4-fluoroamphetamine.[18] In each case, the deceased did not know they were consuming NPS and instead believed they were consuming MDMA (or on one case psilocybin).

[18] The lead case is *Finding into Death of Anson with Inquest*, delivered 31 March 2021.

48. Having considered expert advice and submissions from multiple organisations involved in drug and alcohol issues, Coroner Spanos made recommendations supporting the implementation of two harm reduction interventions.[19]

49. The first intervention was a drug checking service (also known colloquially as a pill testing service) for Victoria. The second intervention was to establish an early warning network to disseminate information rapidly on substances of concern that have been identified circulating in unregulated drug markets. Department of Health Secretary Professor Euan Wallace did not directly accept either recommendation but noted the department continues to consider evidence for additional harm reduction approaches that will prevent further deaths and support improved health and social outcomes for people who use drugs.

50. It is worth noting here that Scotland, which (as already discussed) is experiencing very substantial harms associated with NPS benzodiazepines, has determined to implement a drug checking service.

Conclusion

51. The number of Victorian overdose deaths involving NPS benzodiazepines has risen quite suddenly in recent years: from one in 2018, to 10 in 2019, to 28 in 2020. This increase is mirrored in several other countries, and the Coroners Court of Victoria is concerned that it may be indicative of an emerging trend, rather than a transitory feature of drug-related harms in the state. Therefore, I will distribute this finding for information to the Victorian Department of Health to assist the Department in understanding and responding to the risks presented by NPS benzodiazepines in Victoria.

52. NPS benzodiazepines are still relatively minor contributors to overdose deaths in Victoria, playing a role in 28 (5.3%) of the 526 Victorian overdose deaths that occurred in 2020. However, the experience of other countries shows that NPS benzodiazepine-related harms have the potential for enormous growth. For example, NPS benzodiazepines were implicated in 879 (66%) of the 1339 drug-related deaths that occurred in Scotland in 2020.

[19] A central tenet of harm reduction approaches is the acceptance that people will use drugs. Harm reduction strategies focus on helping people to make safe and informed decisions about using drugs; to use the drugs safely; and to recognise and respond appropriately to any adverse results of drug use. By contrast, harm minimisation approaches are broader in scope and include efforts to prevent people from using drugs in the first place. Law enforcement responses (such as increasing street patrols to interrupt unregulated drug markets, and increasing penalties for possession of drugs) are part of a harm minimisation approach but are not generally included within harm reduction strategies.

53. The Scottish Drug Deaths Taskforce has been examining the harms associated with NPS benzodiazepines and has convened a specialist working group including experts to develop harm reduction strategies. The Victorian Department of Health may wish to consider assembling a similar expert group to address emerging NPS benzodiazepine-related harms locally. The expert group could undertake work to understand who is using NPS benzodiazepines in Victoria, how they are being accessed, and reasons for use, so that locally relevant harm reduction strategies can be developed.

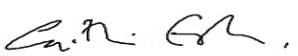
I convey my sincere condolences to KFZ's family for their loss.

Pursuant to section 73(1A) of the Act, I order that this finding be published on the Coroners Court of Victoria website in accordance with the rules.

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

Senior next of kin
Professor Euan Wallace, Secretary, Department of Health
Senior Constable Simon Gunn, Victoria Police, Coroner's Investigator

Signature:



Caitlin English, Deputy State Coroner

Date: 17 December 2021

NOTE: Under section 83 of the ***Coroners Act 2008*** ('the Act'), a person with sufficient interest in an investigation may appeal to the Trial Division of the Supreme Court against the findings of a coroner in respect of a death after an investigation. An appeal must be made within 6 months after the day on which the determination is made, unless the Supreme Court grants leave to appeal out of time under section 86 of the Act.