IN THE CORONERS COURT
OF VICTORIA
AT MELBOURNE

Court Reference: COR 2020 000390

FINDING INTO DEATH WITHOUT INQUEST

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

Findings of:	Coroner Paresa Antoniadis Spanos
Deceased:	JR
Date of birth:	1975
Date of death:	21 January 2020
Cause of death:	1(a) Mixed drug toxicity
Place of death:	Victoria
Key words:	Improper use of anaesthetic agents by anaesthetist, accidental death

INTRODUCTION

1. On 21 January 2020, Dr JR was 45 years old when he was found deceased at home. At the time, he lived in Victoria with his wife and children.

2. Dr JR was a practising anaesthetist who worked at various hospitals in and around Melbourne. He was conscious of his health, attended the gym, and ate well. Dr JR was clearly highly regarded in his profession; his colleagues described him as an energetic, hardworking, and brilliant professional who took pride in his work.

3. He also enjoyed spending time with his family, taking time from work to take his children to outings, and regularly holidaying together.

4. Other than insomnia, Dr JR did not appear to have any medical issues. His wife, Mrs AR, stated that approximately one year before his death, she had found him quite drowsy in bed and believed he had taken too many sleeping tablets in an attempt to fall asleep. Dr JR was prescribed diazepam in May and December 2019, which Mrs AR stated he used for long haul plane trips. No further medications appear on his recent Pharmaceutical Benefits Scheme records.

THE CORONIAL INVESTIGATION

5. Dr JR'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.

6. 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.

7. 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.

8. The Victoria Police assigned an officer to be the Coroner's Investigator for the investigation of Dr JR'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.

9. This finding draws on the totality of the coronial investigation into Dr JR'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.[1]

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

Identity of the deceased

10. On 21 January 2002, Dr JR, born in 1975, was visually identified by his wife who signed a formal Statement of Identification to this effect.

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

Medical cause of death

12. Senior Forensic Pathologist, Dr Matthew Lynch, from the Victorian Institute of Forensic Medicine (**VIFM**), conducted an inspection of Dr JR's body in the mortuary on 22 January 2020 and provided a written report of his findings dated 6 June 2020.

13. Routine toxicological analysis of post-mortem samples detected ethanol,[2] propofol (1.1 mg/L),[3] cocaine[4] (and its metabolites), lignocaine,[5] alfentanil,[6] diazepam[7] and nordiazepam in blood. Analysis of hair detected cocaine (and metabolites), fentanyl,[8]

[1] 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] Alcohol.
[3] Propofol is a short acting intravenous anaesthetic agent. Fatalities due to propofol have been reported at blood concentrations of 0.2 mg/L.
[4] Cocaine is an alkaloid found in the leaves of *Erythroxylon coca.* Adverse effects of cocaine include agitation, anxiety, confusion, diaphoresis, hypertension, hyperexcitability, irritability, mydriasis, and tachycardia. Cocaine has direct cardiotoxicity and cocaethylene may potentiate these cardiotoxic effects.
[5] Lignocaine (or Lidocaine) is a local anaesthetic often administered to patients prior to surgery or during resuscitation attempts. It may also be used as an anti-arrhythmic drug to return the heart to a more regular beat (rhythm).
[6] Alfentanil (alfentanyl) is indicated as an opioid adjunct in anaesthesia.
[7] Diazepam is a sedative/hypnotic drug of the benzodiazepines class. Metabolites of diazepam include nordiazepam, temazepam, and oxazepam.
[8] Fentanyl is a synthetic opioid with 50-100 times the analgesic potency of morphine, rapid onset (two to three minutes) and short duration of action (30 minutes to one hour). It is clinically used in surgical anaesthesia, chronic pain, and breakthrough cancer pain. The effects of fentanyl are reportedly indistinguishable from heroin, hence its abuse. Also, fentanyl-laced heroin unbeknownst to the users can causes an additive central nervous system depression, increasing the risk of death even in opioid tolerant users.

diazepam, nordiazepam, oxycodone,[9] midazolam,[10] zolpidem,[11] and zopiclone.[12] The hair analysis results reflect remote drug use. No other commonly encountered drugs or poisons were detected.

14. The forensic toxicologist noted that the level of propofol detected was consistent with excessive and potentially fatal use. In addition, the combination of drugs detected may cause death in the absence of other contributing factors.

15. Dr Lynch provided an opinion that the medical cause of death was *"1(a) Mixed drug toxicity"*.

16. I accept Dr Lynch's opinion.

Circumstances in which the death occurred

17. From 13 to 19 January 2020, Mrs AR and the children holidayed in Lorne. Mrs AR stated that during this period, she spoke to her husband on the phone and there was nothing in their conversations that alerted her or concerned her about Dr JR's behaviour or state of mind.

18. On 15 January 2020, Mrs AR had a prescription for Stilnox (zolpidem) filled for her husband. She explained that Dr JR did not regularly take sleeping tablets because he felt they clouded his judgment, but he had recently been experiencing sleeping difficulties.

19. On 19 January 2020, Dr JR attended work, where he spoke excitedly to colleagues about an imminent overseas family holiday.

20. Mrs AR and the children returned home from Lorne at about 5.00pm that evening. Dr JR greeted them at the garage door, already dressed in his pyjamas. He had had lunch with a friend in the city that day and was looking forward to their overseas trip. Mrs AR stated that her husband did not mention anything was bothering him and he looked well. She gave him the Stilnox and he went to bed at his usual time that evening; she did not know whether he took any Stilnox tablets that night.

21. On 20 January 2020, Dr JR went to the gym early in the morning and then went to work. He returned home at about 5.00pm and left approximately an hour later for dinner with friends.

[9] Oxycodone is a semi-synthetic opiate narcotic analgesic related to morphine used clinically to treat moderate to severe pain.
[10] Midazolam is clinically used as a preoperative medication, antiepileptic, sedative-hypnotic and anaesthetic induction agent.
[11] Zolpidem is a hypnotic agent and is available in Australia as Stilnox tablets.
[12] Zopiclone is a cyclopyrrolone derivative used in the short-term treatment of insomnia.

22. Dr JR returned home at approximately 11.00pm and happily spoke to his wife about the evening. She described him as *"tipsy"* but not overly intoxicated. They retired to bed sometime after midnight.

23. At about 1.00am, Dr JR got out of bed as he could not sleep. He told his wife that he was going downstairs to watch television.

24. At approximately 4.00am, Mrs AR awoke and realised her husband had not returned to bed. She went downstairs to look for Dr JR and found him on the floor of the loungeroom. Thinking that he had fallen asleep after taking Stilnox, Mrs AR attempted to rouse him before realising that he was pale and not breathing. She immediately began administering cardiopulmonary resuscitation (**CPR**) and contacted emergency services.

25. Responding Ambulance Victoria paramedics arrived at 4.20am. Finding no palpable carotid pulse, no heart or breath sounds, and evidence of lividity, they verified Dr JR's death at 4.22am.

26. When Victoria Police members responded at about 5.30am, they observed a cannula at Dr JR's left wrist. Police members also found:

    (a) an unopened vial of Fresofol (propofol) on the kitchen bench;

    (b) a syringe plunger that Mrs AR said she had removed and placed in the bin while CPR was underway;

    (c) two empty vials of Propofol Lipuro;

    (d) one empty vial of Fresofol;

    (e) one unused vial of Fresofol; and

    (f) one empty vial of Rapifen (alfentanil).

27. According to the Ambulance Victoria records, Mrs AR disclosed to paramedics that Dr JR used Stilnox regularly and had used propofol once to help with sleep.

28. One of Dr JR's anaesthetist colleagues provided a statement in which he explained that Dr JR would have learned about propofol addiction during training. He understood that the drug was *"extremely addictive and rehabilitation in our line of work would be a challenge because we*

encounter this drug on a day to day basis". Regarding the drugs found near Dr JR's body, he explained further:

> *Propofol is a sedative in smaller doses and an anaesthetic in larger doses. Propofol when taken with alcohol would probably have an increased effect as they are both central nervous system (CNS) depressants. Opioids (like morphine[,] fentanyl and alfentanil) are also CNS depressants.*
>
> *Propofol … is a short-acting medication that results in a decreased level of consciousness and lack of memory for events. Its uses include the starting and maintenance of general anaesthesia, sedation for mechanically ventilated adults, and procedural sedation.*
>
> *Alfentanil is a potent but short-acting synthetic opioid analgesic drug, used for anaesthesia for surgery. It is an analogue of fentanyl with around 1/4 to 1/10 the potency of fentanyl with short duration of action and with onset of effects faster than fentanyl. It is a respiratory depressant.*
>
> *Combined with other drugs, 900mg of propofol is probably sufficient to make a health adult anaesthetised for 30-60 minutes. Propofol and Alfentanil are fast acting drugs, always administered under professional medical guidance with monitoring in a controlled medical environment. If a large enough dose is administered, the drug can cause temporary apnoea (stop breathing) and without artificial breathing assistance the person can die.*

29. Senior Constable Patrick Perera, Coroner's Investigator, did not identify any suspicious circumstances surrounding Dr JR's death. He concluded that Dr JR had voluntarily self-administered a combination of powerful controlled drugs intravenously, which resulted in his unintentional death.

INVESTIGATION INTO THE SOURCE OF THE DRUGS

30. Senior Constable Perera made enquiries as to the distribution of the anaesthetic drugs. His enquiries revealed that the Propofol and Fresofol were distributed by Symbion Pty Ltd (**Symbion**) to various hospitals and day surgeries in Melbourne.

31. As part of my investigation, and to ascertain whether there were any lapses or weaknesses in their dispensing procedures and protocols, I requested further information from Symbion

(through parent company EBOS Group Limited) to try to ascertain from which hospitals Dr JR could have obtained the Propofol and Fresofol.

32. Enquiries with Symbion revealed that the relevant batch of Fresofol had been distributed to several hospitals at which Dr JR had practised. However, those same enquiries were unable to establish from which hospital or day surgery Dr JR may have sourced the Propofol.

33. It is unfortunate that a clear and unambiguous source for the anaesthetic drugs implicated in Dr JR's death has not been established. This means that I have been unable to interrogate the procedures and policies in place at a particular hospital or day surgery that may have been the source of the anaesthetic agents used.

34. Nevertheless, I am satisfied that while their access is likely to be controlled by stringent procedures and protocols, an anaesthetist will always be able to access anaesthetic agents in a hospital setting due to their necessity and frequent use in their work. As Dr JR's colleague thoughtfully noted above, anaesthetists encounter anaesthetic agents on a day-to-day basis – they are, by necessity, the tools of their trade.

35. Access to drugs, including anaesthetic agents, is a known occupational health and safety risk for the medical profession. This case highlights the risk for anaesthetists in particular. For this reason, I will distribute my finding to the relevant professional groups and Safer Care Victoria and order the publication of a deidentified version of this finding.

SIMILAR DEATHS

36. As part of my investigation, I obtained a report from the Coroners Prevention Unit[13] (**CPU**) regarding the use of anaesthetic drugs in intentional/unintentional overdoses.

37. While the primary focus of this investigation was anaesthetists, the Court's experience and the extracted data confirms that other healthcare workers are at risk. The CPU's research revealed the following.

[13] 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. The CPU also reviews medical care and treatment in cases referred by the coroner. The CPU is comprised of health professionals with training in a range of areas including medicine, nursing, public health and mental health.

The literature on anaesthetists and substance abuse

38. Research in Australia and internationally shows that anaesthetists are at higher risk than other medical specialties of abusing substances and developing drug dependence. One possible reason discussed in the literature is anaesthetists' direct access to drugs of dependence (anaesthetic agents such as propofol, and potent analgesics such as fentanyl and its analogues), daily exposure to these drugs, and expert capability to prepare and administer them.

39. Other potential causes and consequences of substance abuse in anaesthetists include occupational stress impacting mental health and relationships with family and others; and tendency to self-medicate rather than seek assistance for mental health issues. Propofol and alcohol are mentioned most frequently as drugs abused by anaesthetists, and propofol is singled out as the most common drug implicated in drug-related deaths of anaesthetists.[14]

40. Furthermore, drug-related deaths of anaesthetists are noted in the literature to be primarily intentional (suicides) rather than unintentional, and anaesthetists have been repeatedly found to be at elevated risk of suicide compared to other medical specialties.[15]

41. Medical peak bodies the Australian and New Zealand College of Anaesthetists, Australian Society of Anaesthetists, and New Zealand Society of Anaesthetists convene a wellbeing special interest group, and their current advice on substance abuse emphasises that this is primarily a health and ethical issue. Education and training in substance abuse is recommended, along with good clinical supports for anaesthetists to assist them in recovering from substance abuse and returning to practice.[16] These recommendations are consistent with the international evidence. Countermeasures such as restricting access to medications have been found to have no impact.

[14] See for example Fry RA, "Substance Abuse by Anaesthetists in Australia and New Zealand", *Anesthesia and Intensive Care*, 33, 2005: 248-255; Fry RA et al, " A retrospective survey of substance abuse in anaesthetists in Australia and New Zealand from 2004 to 2013", *Anesthesia and Intensive Care*, 43(1), 2015: 111-117; Mayall RM, "Substance abuse in anaesthetists", *BJA Education*, 16(7), 2016: 236-241; Baird C, "Substance use disorder in anaesthetists: A personal perspective", *Anesthesia and Intensive Care*, 49(1), 2021: 120-22.

[15] See for example Plunkett E et al, "Suicide in anaesthetists: a systematic review", *Anaesthesia*, 76, 2021: 1392-1403; McDonnell NJ et al, "Mental health and welfare in Australian anaesthetists", *Anaesthesia and Intensive Care*, 41(5), 2013: 641-647; Shinde S et al, "Guidelines on suicide amongst anaesthetists 2019", *Anaesthesia*, 75, 2020: 96-108.

[16] See Australian and New Zealand College of Anaesthetists, Australian Society of Anaesthetists and New Zealand Society of Anaesthetists Wellbeing Special Interest Group, *Suspected or proven substance abuse (misuse)*, 2016, <https://www.anzca.edu.au/resources/membership-services/rd-20-substance-abuse-2016.aspx>, accessed 19 October 2022.

Overdose deaths involving access to anaesthetic drugs

42. The CPU maintains an overdose death register (**the Register**) that contains coded information on all overdose deaths[17] investigated by Victorian coroners between 2009 and 2021.

43. The Register does not include coded information about the deceased's occupation, so it cannot be searched directly to identify overdose deaths of anaesthetists and other clinicians. However, it includes each drug that was found to have contributed in each overdose death; this can be used to identify overdose deaths involving anaesthetic drugs, and then available evidence can be reviewed to determine whether the drugs were accessed by a clinician in a surgical setting.

44. The Register was search for the period 2012-2021 to identify any deaths where a drug strongly associated with anaesthesia in surgery was contributory. The following specific drugs in the search:

    (a) general anaesthetic agents propofol, sevoflurane, and ketamine;

    (b) the local anaesthetic agent lignocaine.

    (c) neuromuscular blocking agents atracurium, rocuronium, and suxmethonium;[18]

    (d) the sedative midazolam; and

    (e) analgesics morphine and fentanyl, as well as fentanyl analogues commonly used in surgery (for example alfentanil and remifentanil).

45. The coronial materials for each death were accessed to establish whether there was any evidence the deceased was a clinician and/or the relevant drug(s) may have been accessed from a surgical setting. General practitioners were excluded because a general practice presents different issues to a surgical setting.

46. A parallel search of the National Coronial Information System (**NCIS**) was also conducted to extract the NCIS occupation text for every death between 1 January 2012 and the present where the mechanism of death was coded 'Poisoning by pharmaceutical substance', which

[17] Deaths where the expert death investigators (the forensic toxicologist, forensic pathologist, and in closed cases the coroner) determined the acute toxic effects of a drug or drugs played a causal role.
[18] Laudanosine was included in this search, because it is a major metabolite of atracurium and is often detected in circumstances where atracurium itself is not detectable.

was filtered to identify clinicians who may be involved in surgical procedures.[19] These deaths were then matched to the corresponding record in the Register. Despite this thorough research, it is possible not all relevant Victorian deaths that occurred during the period have been identified.

47. From the searches, the CPU identified 12 deaths of clinicians who fatally overdosed using anaesthetic drugs that were either definitely or probably accessed in a surgical setting in the workplace. Of note:

    (a) eight deaths were coroner-determined or probable suicides, and the remaining four were coroner-determined or probable unintentional deaths;

    (b) seven deceased were nurses, four were anaesthetists, and one was a radiographer; and

    (c) propofol was the most common contributing drug.

Other deaths involving workplace access to drugs

48. At least two other cohorts of deaths have been examined by coroners where issues pertaining to workplace access to drugs arose:

    (a) between 2013 and 2015, there were five overdose deaths of paramedics who accessed fentanyl (in some cases other drugs such as morphine and midazolam were also accessed) through their workplaces. Four of the five deaths were unintentional; the fifth death was determined to be a suicide; and

    (b) while the powerful barbiturate pentobarbitone is not approved for use in humans, it is a standard drug in veterinary practice and is primarily administered to euthanise animals. The CPU identified that between 2000 and 2021 there were 14 pentobarbitone-involved suicides of veterinarians and veterinary nurses who accessed the drug in their workplaces.

FINDINGS AND CONCLUSION

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

[19] This search was filtered to identify cases where any of the following appeared in the occupation text: "doctor", "practitioner", "surgeon", "anaesthetist", "anaesthetic", "radiologist" or "radiographer", "intensive", "registrar" or "*ologist" (this last search term was to capture specialists such as urologists and nephrologists). Psychologists and psychiatrists because they were unlikely to be engaged in surgery.

(a) the identity of the deceased was JR, born in 1975;

(b) the death occurred on 21 January 2020 at Victoria;

(c) the cause of Dr JR's death was mixed drug toxicity; and

(d) the death occurred in the circumstances described above; and

(e) having considered all of the evidence, I am satisfied that his death was the unintended consequence of the deliberate ingestion of drugs.

I convey my sincere condolences to Dr JR'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
EBOS Group Limited
Safer Care Victoria
Australian and New Zealand College of Anaesthetists
Australian Society of Anaesthetists
Australian Anaesthesia Allied Health Practitioners
Senior Constable Patrick Perera, Victoria Police, Coroner's Investigator

Signature:

Coroner Paresa Antoniadis Spanos

Date: 01 February 2023

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.