IN THE CORONERS COURT
OF VICTORIA
AT MELBOURNE

Court Reference: COR 2015 1638

FINDING INTO DEATH WITH INQUEST

Form 37 Rule 60(1)
Section 67 of the Coroners Act 2008

Findings of:	Caitlin English, Deputy State Coroner
Deceased:	Gerard Guy Vaz
Delivered on:	14 July 2020
Delivered at:	Coroners Court of Victoria, 65 Kavanagh Street, Southbank
Hearing date:	14 July 2020
Assisting the Coroner:	Leading Senior Constable Jo Allen

INTRODUCTION

1. At the time of his death, Gerard Guy Vaz was a 61-year-old man who lived in Mooroolbark with his partner of 32 years, Elisabeth Rottmann.

2. His medical history included bipolar disorder, hypertension, obstructive sleep apnoea, diabetes mellitus, renal impairment, and an enlarged prostate.

3. Mr Vaz died at Maroondah Hospital shortly after mid night on 5 April 2015 from an unascertained cause.

THE PURPOSE OF A CORONIAL INVESTIGATION

4. Mr Vaz's death was reported to the Coroner as he was person in care or custody immediately before their death, and so fell within the definition of a reportable death in the *Coroners Act 2008*. The death of a person in care or custody is a mandatory report to the Coroner, even if the death appears to have been from natural causes.

5. Pursuant to section 52(2) of the Act, it is mandatory for a coroner to hold an inquest if the deceased was, immediately before death, a person placed in custody or care. As Mr Vaz was a patient detained in a designated mental health service within the meaning of the *Mental Health Act 2014*, he is deemed to be a person placed in custody or care.

6. The jurisdiction of the Coroners Court of Victoria is inquisitorial.[1] The Act provides for a system whereby reportable deaths are independently investigated to ascertain, if possible, the identity of the deceased person, the cause of death and the circumstances in which death occurred.[2]

7. It is not the role of the coroner to lay or apportion blame, but to establish the facts.[3] It is not the coroner's role to determine criminal or civil liability arising from the death under investigation,[4] or to determine disciplinary matters.

8. The expression "*cause of death*" refers to the medical cause of death, incorporating where possible, the mode or mechanism of death.

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[1] Section 89(4) *Coroners Act 2008* (Vic).
[2] Preamble and section 67 *Coroners Act 2008* (Vic).
[3] *Keown v Khan* (1999) 1 VR 69.
[4] Section 69(1) *Coroners Act 2008* (Vic).

9. For coronial purposes, the phrase "*circumstances in which death occurred*,"[5] refers to the context or background and surrounding circumstances of the death. Rather than being a consideration of all circumstances which might form part of a narrative culminating in the death, it is confined to those circumstances which are sufficiently proximate and causally relevant to the death.

10. The broader purpose of coronial investigations is to contribute to a reduction in the number of preventable deaths, both through the observations made in the investigation findings and by the making of recommendations by coroners.

11. The coronial investigation in this case was undertaken by a member of Victoria Police who was appointed as the coroner's investigator, Senior Constable Elizabeth Davies. A coronial brief was prepared with witness statements taken from Mr Vaz's family, as well as the medical and nursing staff at Maroondah Hospital and the forensic pathologist's medical examiners report. The concerns raised by Mr Vaz's family were taken into account, the Coroners Prevention Unit also provided advice regarding Mr Vaz's medical management, and an expert report was obtained from Dr Narendra Gunja, a specialist in clinical toxicology and emergency medicine. Eastern Health has had an opportunity to respond to my proposed findings regarding Mr Vaz's medical management and have indicated changes implemented since his death.

12. All coronial findings must be made based on proof of relevant facts on the balance of probabilities.[6] In determining these matters, I am guided by the principles enunciated in *Briginshaw* v *Briginshaw*.[7] 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 that they caused or contributed to the death.

13. The State Coroner Judge Ian Gray had the original carriage of this investigation. Following his retirement, the investigation passed to other coroners who have since left the court. I took over the carriage of this investigation in December 2019.

14. At the conclusion of the coronial investigation I was satisfied I was able to find, as far as possible, the identity, the cause of death and the circumstances in which death occurred, so this case was listed for a summary inquest and I delivered my findings.

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[5] Section 67(1)(c) *Coroners Act 2008* (Vic).
[6] *Re State Coroner; ex parte Minister for Health* (2009) 261 ALR 152.
[7] (1938) 60 CLR 336.

BACKGROUND

15. Mr Vaz was born in Malaysia. In his late teens, he moved to Australia with his family and worked in multiple jobs, including candle-making and shearing. Prior to his retirement, Mr Vaz was employed by the Austin Hospital as a Patient Services Assistant where he worked for approximately 25 years.

16. Mr Vaz's partner of 32 years, Elizabeth Rottmann reported that when she first met Mr Vaz, he was mentally unwell and suffering from either schizophrenia or bipolar disorder. They lived together in Mooroolbark. He was regularly employed until the age of about 50 years, when he became too unwell to work.

17. Mr Vaz had psychiatric inpatient admissions at Monash Health in 2002 and 2003. His mental health was reportedly stable between 2004 and 2014.

18. In May 2014, and following an acute manic episode, Mr Vaz was admitted to Maroondah Hospital. He was an in-patient for six weeks and he responded well to zuclopenthixol acetate (Clopixol acuphase, often referred to as 'acuphase') and commenced on amisulpride and lithium carbonate. Prolonged QT[8] was noted post administrative of zuclopenthixol acetate.

19. Upon discharge in late July 2014, he was followed-up by the Crisis Assessment and Treatment Team and later the Lilydale Continuing Care Team. He was discharged from case management in December 2014 and continued his psychiatric care with his general practitioner. At this time, his psychiatric medications were amisulpride and lithium.

20. Ms Rottman stated that Mr Vaz was *"never quite right"* after his hospitalisation and felt that he was released from the hospital and care team too early.

21. Ms Rottman stated Mr Vaz often went on a trip '*to attempt to escape his malaise.*' She recalled he began exhibiting symptoms of an impending breakdown while he was in Perth in 2015 visiting relatives. When she picked him up from Mooroolbark railway station, he was initially calm but later became hyperactive and erratic and was not sleeping well.

22. In the period prior to his admission to Maroondah Hospital on 2 April 2015, Mr Vaz's erratic behaviour continued to escalate to a point where he had a physical fight with a neighbour. According to Ms Rottman, Mr Vaz thereafter became *"completely manic"*. He dismantled the

[8] The QT interval represents electrical depolarisation and repolarisation of the ventricles. A lengthened QT interval is a marker for potential ventricular tachyarrhythmia like torsades de pointes.

kitchen, took his bed apart, started scrubbing the walls all night, and brought the garden tools from outside to inside the home. His insomnia also continued.

23. Ms Rottmann called the police who attended and asked Mr Vaz to leave the house. Mr Vaz drove to Yea. On the morning of 2 April 2015, he presented to the Yea police station in a distressed state, requesting assistance, stating he was being persecuted. Police arranged an ambulance and advised Ms Rottman Mr Vaz was being transported to Maroondah hospital.

IDENTITY OF THE DECEASED PURSUANT TO SECTION 67(1)(a) OF THE ACT

24. On 8 April 2015, Helena Vaz-Mecoy visually identified her brother, Gerard Guy Vaz, born 7 October 1953.

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

CIRCUMSTANCES IN WHICH THE DEATH OCCURRED PURSUANT TO SECTION 67(1)(c) OF THE ACT

26. On his arrival at Maroondah Hospital emergency department, Mr Vaz was assessed as suffering acute manic relapse with psychosis. He had minor superficial grazes on his head. In the context of significant risk factors (harm to others, impulsivity, vulnerability, misadventure, and further deterioration), he was admitted to Inpatient Unit 1 (**IPU 1**), initially on a voluntary basis.

27. Dr Andreja Vuchkov was the on-call psychiatrist at IPU 1 when Mr Vaz was admitted. Dr Vuchkov confirmed Mr Vaz's diagnosis was bipolar affective disorder type 1 with dysphoric mania with psychosis and that Mr Vaz had suffered an acute relapse. Dr Vuchkov reported that Mr Vaz had been sleeping in his car to defend himself and his family from a non-existent persecutor.

28. At the time of his arrival, Mr Vaz was displaying acute symptoms of mania and incongruent psychotic symptoms. Dr Vuchkov reported that Mr Vaz's deterioration was in the context of his general practitioner changing his medication from lithium carbonate to sodium valproate due to impaired renal function. Mr Vaz's behaviour thereafter significantly deteriorated.

29. Shortly after his admission to IPU 1, Mr Vaz became involved in a physical altercation where it was reported he was hit by another patient and hit his head on a wall. A subsequent physical examination did not identify any signs or symptoms of head trauma. However, after this incident, Mr Vaz was transferred to the Intensive Care Area (**ICA**) of the hospital due to his

behaviour, which allowed him to be separated from other patients and be observed more closely.

30. According to Dr Vuchkov, due Mr Vaz's ongoing aggression, volatility, and unpredictable behaviour, he was unable to undergo a CT scan of his head. He was subsequently placed on an Inpatient Assessment Order.[9]

31. During the evening of 2 April 2015, Mr Vaz was managed in mechanical restraints due to physically aggressive behaviour towards other patients and staff. Due to periods of sleep apnoea, recorded for up to 20 seconds, the restraints to Mr Vaz's hands and feet were relaxed to facilitate breathing, and were fully removed at 3.30am that morning.

32. On the morning of 3 April 2015, it was reported that Mr Vaz attacked and assaulted two hospital staff members during efforts to review him. Both were forced to barricade themselves in an interview room and seek assistance from colleagues and security. As a result of this and a further incident involving another patient, Mr Vaz was physically restrained. Dr Vuchkov then reviewed Mr Vaz and described his mental state as follows:

> *... heightened psychomotor state/agitation, inability to establish rapport, screaming and yelling, pressured speech with inability to be interrupted, manic and highly dysphoric affect with upset mood. His thought form was complicated by flight of ideas but attempting to stay on track of discussed matters; he expressed persecutory delusions (similar to admission), entitled grandiose themes, wanting to be discharged and denied thoughts of self-harm and harm to others. He had no subjective physical complaints and was not observed to be responding to internal or external stimuli. His insight into his illness and treatment was impaired, and he had no ability to place the aggressive events into perspective, rationally discuss the consequence and/or be able to agree on the immediate treatment plan. His cognition was reasonably stable, he was alert and orientated to time, place and person but his overall judgment was impaired.*

33. During this medical review, it was noted that a fully flat lying position for Mr Vaz was affecting his breathing, so an elevated head rest was immediately implemented.

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[9] An Assessment Order is made pursuant to section 30 of the *Mental Health Act 2014*. It provides authority for a person to be taken to, and detained in, a designated mental health service so that they can be examined by an authorised psychiatrist to determine whether the treatment criteria apply to the person.

34. No other medical issues were identified apart from a chronically abnormal QT interval of approximately 460 ms and a creatine kinase (**CK**)[10] of 1202.

35. At 11.00am, Mr Vaz was made subject to an Inpatient Temporary Treatment Order.[11]

36. At about midday, Mr Vaz was administered an injection of zuclopenthixol acetate 100mg and it was planned that Mr Vaz's sedation would be observed for the next 12 hours. Dr Vuchkov stated that whilst asleep and physically restrained on the hospital bed, Mr Vaz was observed to have frequent apnoeic episodes. His oxygen saturation fluctuated between 93 and 98 percent and his blood pressure was approximately 91/65.

37. At approximately 5.00pm, Mr Vaz was released from physical restraints and was able to move around the ICA freely. No further period of physical restraint was used.

38. He was transferred onto a bed that could allow his head to be raised to make breathing easier. Mr Vaz was monitored overnight, and staff reported non breathing for up to 20 seconds at a time and a poor night's sleep was recorded. Dr Vuchkov reported that Mr Vaz had an uneventful night of sleep.

39. On 4 April 2015, Mr Vaz was reported to be more settled in mental state, but still a high risk to others.

40. Given Mr Vaz's anticipated sedation from the zuclopenthixol acetate injection, his chronic cardiological problem (mild prolongation of QT of 451), the need for ongoing pharmacological treatment and sleep apnoea, he was reviewed by a medical registrar. Mr Vaz's general vital signs (and the physical examination) were normal. His CK level was decreasing (from 1202 to 1079). It was recommended that his CK and electrolytes by checked daily in addition to his regular vital signs. Despite this recommendation, the last vital signs were recorded at 7.45am on 4 April 2015.

41. During this day, there were two reported aggressive episodes towards ICA nursing staff, which were managed via behavioural intervention and medication (one dose of lorazepam 2mg). Due to his ongoing sedation, further lorazepam was withheld, and Mr Vaz accepted his regular sodium valproate and amisulpride. He fell asleep at approximately 8.30pm.

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[10] Creatine kinase (CK) is an enzyme found in the heart, brain, skeletal muscle, and other tissues. Increased amounts of CK are released into the blood when there is muscle damage.

[11] A Temporary Treatment Order is made pursuant to section 46 of the *Mental Health Act 2014*. It provides authority for a person to be treated compulsorily and taken to, and detained and treated in, a designated mental health service. It lasts for a maximum of 28 days.

42. At approximately 12.15am on 5 April 2015, Ms Sindisiwe Maposa, Acting Associate Nurse Unit Manager, reported that Mr Vaz appeared to be breathing, with noted apnoeic episodes.

43. At approximately 12.30am, Ms Maposa returned to again check on Mr Vaz and noted that he was unresponsive with no pulse. A second nurse then checked on Mr Vaz and could not elicit a response. A Code Blue was called, and cardiopulmonary resuscitation was commenced.

44. Despite the administration of multiple rounds of adrenaline and the attendance of the Intensive Care Registrar and Senior Emergency Registrar, Mr Vaz was unable to be revived. He was pronounced deceased at 1.24am on 5 April 2015.

45. Victoria Police members attended Maroondah Hospital after Mr Vaz's death and were taken to the room where he died. Police advised that on entering, they observed that the room had been cleaned, Mr Vaz had been redressed and the bed sheets and pillows had been changed. Police reported no signs that the room had recently been the subject of a medical emergency and were advised by hospital staff that the room was considered to be a biological hazard so was not kept in its original state.

MEDICAL CAUSE OF DEATH PURSUANT TO SECTION 67(1)(b) OF THE ACT

46. On 13 April 2015, Dr Matthew Lynch, a Senior Forensic Pathologist practising at the Victorian Institute of Forensic Medicine, conducted an examination and provided a written report, dated 3 August 2015. Dr Lynch was unable to ascertain a reasonable cause of death and described the cause of death as '*Undetermined*'.

47. The examination identified an abrasion to the left side of the forehead, a heart weight at the upper limit of normal, pulmonary oedema, hepatomegaly, and fractured ribs and sternum (consistent with attempted resuscitation).

48. No intracranial haemorrhage was noted.

49. Dr Lynch did not identify any natural disease that in itself might be invoked as *the* cause of death.

50. Toxicological analysis identified the presence of glucose, amisulpride, olanzapine, diazepam, lorazepam, and zuclopenthixol. The level of zuclopenthixol in the three samples taken from Mr Vaz ranged from 274 to 384 ng/mL.

51. Dr Lynch noted the level of zuclopenthixol in the three different samples and noted that the level detected in Mr Vaz falls within the *potentially* toxic range. Manifestations of zuclopenthixol toxicity include prolongation of the QT interval and cardiac arrhythmia induction.

52. However, he noted that there are difficulties associated with the interpretation of post mortem drug levels due to the phenomena of post mortem redistribution, metabolism and stability and also notions of pharmacogenomics. He noted that zuclopenthixol is a drug which may undergo significant post mortem redistribution.

53. Dr Lynch recommended seeking an expert opinion from a clinical toxicologist, preferably with expertise in the management of psychiatric patients. [12]

54. Dr Lynch also commented that another potential mechanism of death is an arrhythmia occurring in the setting of hypoxia as a complication of the obstructive sleep apnoea where the heart weight is at the upper limit of normal.

FAMILY CONCERNS

55. On 20 November 2015, Mr Vaz's siblings, Helena Vaz-Mecoy and Maurice Vaz, wrote to the Court outlining their concerns. In summary, these were:

(a) the circumstances surrounding an abrasion to the left side of Mr Vaz's forehead;

(b) an alleged assault from a neighbour on the night of his death;

(c) that Mr Vaz spent time with family at their home on 4 April 2015, at which time he appeared calm and non-aggressive;

(d) whether care and treatment provided to Mr Vaz was adequate;

(e) whether excessive force used by hospital staff when restraining him; and

(f) the amount of medication administered to Mr Vaz.

Injuries to Mr Vaz

56. On his admission to Maroondah Hospital, staff who examined Mr Vaz reported that he had superficial grazing to the left side of his forehead. I am satisfied that this abrasion occurred

[12] The conclusion in the expert report by Associate Professor Gunja on this point are discussed at paragraph 70 where he notes the effect of post mortem redistribution of zuclopenthixol.

prior to Mr Vaz being admitted to Maroondah Hospital, and was not a causal factor in his death.

57. Whilst there was a physical confrontation with another patient following Mr Vaz's admission to Maroondah Hospital, there is no evidence to suggest that any injury sustained was a causal factor in Mr Vaz's death.

Mr Vaz's appearance on 4 April 2015

58. Mr Vaz was admitted as a compulsory inpatient on 2 April 2015, and until the day of his death on 5 April 2015. The medical records indicate he was not granted, nor did he take any leave from the hospital.

59. I am satisfied that Mr Vaz did not leave the Maroondah Hospital after his admission on 2 April 2015.

Medical care and treatment provided to Mr Vaz

60. The Court's Coroners Prevention Unit (**CPU**) conducted a review of the medical and mental health care provided to Mr Vaz in the day's preceding his death.

61. The CPU is staffed by healthcare professionals, including practising physicians and nurses. Importantly, these healthcare professionals are independent of the health professionals and institutions under consideration. They draw on their medical, nursing, and research experience to evaluate the clinical management and care provided in particular cases by reviewing the medical records, and any particular concerns which have been raised.

62. The CPU identified that Mr Vaz had challenging psychiatric symptoms that at times impeded medical care, however the psychiatric care provided to Mr Vaz in the psychiatric unit was appropriate in the context of his presentation. He underwent multiple reviews by medical and psychiatric doctors during his admission and appropriate plans for monitoring his medical comorbidities were made.

63. The use of restraints and seclusion were applied within the requirements of the *Mental Health Act 2014*.

64. The CPU identified that Mr Vaz had apnoeic episodes while asleep, worsened by sedation and mechanical restraint. Attempts at treatment measures such as low flow oxygen were considered when oxygen desaturation occurred but were not tolerated by Mr Vaz. It was

unlikely in his agitated state that Mr Vaz would have tolerated continuous oximetry, a sleep study, or the treatment for obstructive sleep apnoea, continuous positive airway pressure. Appropriate medical plans recommended follow up of Mr Vaz's apnoea when he was more psychiatrically stable.

65. The CPU identified that zuclopenthixol acetate was administered to Mr Vaz at 11.25am on 3 April 2015 and, based on Eastern Health sedation guidelines, physical observation for Mr Vaz was required at one and two-hour intervals after administration. Maroondah Hospital records show the final review of Mr Vaz was at 7.45am on 4 April 2015, and he died approximately 16 hours later. There was also an absence of vital sign measurements between 7.45am on 4 April 2015 and 12.15am on 5 April 2015. While daily ECGs (electrocardiogram) were ordered, there was no ECG undertaken on 4 April 2015.

TREATMENT AT EASTERN HEALTH

66. The Eastern Health Sedation Guidelines of Acutely Disturbed Psychiatric Patients (**the guidelines**), last reviewed on 24 March 2015, relevantly provided as follows:

(a) if sedation is required, appropriate levels of visual and physical observations should be undertaken;

(b) observations should include blood pressure, pulse, respiration, and level of consciousness. Where clinically necessary, this also includes ECG and/or pulse oximetry;

(c) observations should occur every 15 minutes according to the intensity of sedation and drugs that have been used;

(d) where zuclopenthixol acetate has been used, observations should be undertaken for a period of 8 to 36 hours;

(e) suggested monitoring guideline for zuclopenthixol acetate included paying particular attention to monitoring of vital signs (blood pressure, respiration, oxygen saturation, ECG) is absolutely essential;

(f) where patients have a history of sleep apnoea, respiratory complications and arrhythmias need to be in the forefront of the clinician's mind;

(g) for ambulatory patients, vital signs should be monitored as follows:

(i) two-hourly for the first six hours;

(ii) then hourly for the next 10 hours;

(iii) if vital signs remain stable, vital signs observations can be reduced to two-hourly for the following eight hours;

(iv) if vitals continue to remain stable, vital signs observations can be further reduced to four-hourly thereafter for a period of 24 hours and then six-hourly for a period of 24 hours;

(v) ECG should be repeated 24 hours after the last injection to ensure safety of the QT interval; and

(vi) vital signs should be clearly documented.

67. Eastern Health was notified that as a result of the CPU review of Mr Vaz's medical records and the statements received as part of the coronial investigation, it appeared that staff had not followed the guidelines. Eastern Health was provided with an opportunity to provide submissions regarding this issue.

68. On 2 October 2017, Associate Professor Paul Katz, Executive Clinical Director of Mental Health, provided a response in which he acknowledged that staff did not adhere to the guidelines. However, he noted:

> *... Mr Vaz's physical concerns were recognised prior to the administration of clopixol acuphase and that he underwent medical reviews following the administration. We therefore do not believe that it can be concluded that more robust physical observations may have contributed to earlier detection of his physical deterioration.*

69. Associate Professor Katz noted that after Mr Vaz was administered the zuclopenthixol acetate on 3 April 2015, he was reviewed at 12.00pm by the on-call psychiatry registrar and was noted to be sedated. Physical observations including heart rate, blood pressure, oxygen saturations, temperature, and respiratory rate were done, which were initially abnormal but when repeated they had normalised. There was discussion between the psychiatry registrar and nursing staff and the recommendations were for two-hourly physical observations overnight.

70. At 1.00pm on 4 April 2015, Mr Vaz was reviewed by the medical registrar who noted that his observations were stable, his respiratory and cardiovascular examination was normal and that his CK levels had reduced. However, I note that in the medical records the medical registrar recorded *"obs stable"*. It is therefore not clear if the registrar completed a set of observations or this referred to the set of physical observations completed at 7.45am, some five hours earlier.

Expert report

71. As recommended in Dr Lynch's report, on March 2018, the Court obtained an expert report from Associate Professor Naren Gunja, a clinical and forensic toxicologist. He was asked to comment on:

(a) the appropriateness and monitoring of the medications administered to Mr Vaz while he was an inpatient at Eastern Health;

(b) the significance of the post mortem zuclopenthixol levels; and

(c) the appropriateness of the Eastern Health's sedation guidelines specific to zuclopenthixol acetate.

Zuclopenthixol

72. Associate Professor Gunja explained that zuclopenthixol is a neuroleptic (anti-psychotic) drug that is used to treat acute psychosis and bipolar disorder. Zuclopenthixol is a dopamine receptor blocker in the brain and improves psychotic symptoms and mania. Its common side effects are drowsiness, hypotension, dystonia, dry mouth, and visual disturbance. In overdose, it can also cause more serious complications such as coma, cardiac rhythm disturbances, and seizure. The drug is available as tablets or an intramuscular injection (acuphase), which is commonly used as a sedative for acute agitation. The usual dose for acuphase is 50 to 150 mg intramuscularly every two to three days. Sedation is expected within a few hours of an injection, which may last several days in some patients.

73. The liver enzymes that metabolise the drug, which vary widely in activity in individuals, mean that concentrations in blood can be altered depending on genetic factors and drug interactions. After therapeutic intramuscular injection doses, plasma zuclopenthixol concentrations in adults is usually under 0.05 mg/L. In zuclopenthixol-related deaths, post-mortem blood levels were usually over 0.2 mg/L. However, zuclopenthixol is known to

exhibit post mortem redistribution, which means concentrations change after death as body compartments no long function. With this phenomenon, blood levels of zuclopenthixol are expected to rise with the post-mortem interval.

Medications administered to Mr Vaz

74. Associate Professor Gunja noted that Mr Vaz was clearly aggressive and agitated in the first 24 hours after arriving at Maroondah Hospital. He received sedative medications including two benzodiazepines (lorazepam and diazepam) and three anti-psychotic drugs (olanzapine, amisulpride, and zuclopenthixol).

75. He explained that it is not unusual for violent or aggressive patients to be sedated with multiple drugs as the risks to the patient and staff and other patients need to be controlled. However, if multi-drug sedation is required, adequate monitoring needs to be in place to watch for adverse cardio-respiratory events.

76. Associate Professor Gunja explained that the sedative agents administered to Mr Vaz all cause drowsiness and affect breathing by reducing ventilation. Physical restraint or being placed in a prone position further exacerbates hypoventilation.

77. Mr Vaz was administered escalating doses of amisulpride, a long acting intramuscular injection of zuclopenthixol, and olanzapine. These three anti-psychotic drugs are known to prolong the QT interval of the ECG rhythm to varying degrees. However, when given in combination, the risk of QT prolongation increases significantly.

78. He noted that ECGs were performed on 3 April 2015. However, the ongoing administration of anti-psychotics and the use of long-acting zuclopenthixol should have necessitated ECGs to have been conducted for a further 24 hours. No ECG was performed on Mr Vaz on 4 April 2015, in contravention of Eastern Health's guidelines.

79. In regard to Mr Vaz's apnoeic episodes observed while he was in hospital, Associate Professor Gunja noted there could be several causes:

    (a) hypoventilation from sedative medications;

    (b) upper airway dystonia (for example laryngospasm) from anti-psychotic medications; or

    (c) short runs of cardiac arrhythmias.

80. He noted that Mr Vaz's history of sleep apnoea may have meant that his symptoms did not attract the attention that they required to have triggered clinical responses or management. They did not trigger increased monitoring or a reduction in the doses of sedatives and anti-psychotic medications. Associate Professor Gunja said he would have expected an escalation to continuous ECG and capnography monitoring, which, he admitted, would have been difficult to achieve in a psychiatric unit with an agitated patient. He postulated that Mr Vaz should have been moved to an intensive care, high dependency, or close observation unit for monitoring.

Mr Vaz's post mortem levels of zuclopenthixol

81. Although the elevated zuclopenthixol concentration may indicate an overdose or poor metabolism of this drug, Associate Professor Gunja noted that as zuclopenthixol is known to undergo post mortem redistribution, the elevated level may just be an indication of recent therapeutic exposure.

Eastern Health guidelines

82. Associate Professor Gunja opined that Eastern Health's guidelines were entirely appropriate and correctly prescriptive as to how to manage agitated patients with intramuscular zuclopenthixol (acuphase). However, in Mr Vaz's case, it appeared that the principles underlying these guidelines may not have been followed, particularly in respect to risk prediction monitoring protocols post-injection, and clinical escalation in response to the deteriorating patient.

Conclusion

83. Associate Professor Gunja concluded that after reviewing the evidence, he believed that Mr Vaz '*...was at risk of adverse cardio-respiratory events due to the administration of multiple sedative and anti-psychotic agents. The post-sedation monitoring and response to clinical deterioration was likely inadequate and inconsistent with Eastern Health guidelines. The elevated post-mortem zuclopenthixol concentration was more likely a result of PMR, although overdose and poor metabolism cannot be ruled out. The potential causes of death may be multi-factorial – including over-sedation and hypoventilation, upper airway dystonia*

exacerbating obstructive sleep apnoea, and cardiac arrhythmia from multiple QT-prolonging anti-psychotic drugs.' [13]

Eastern Health internal review

84. After Mr Vaz's death, Eastern Health conducted an internal review, which acknowledged:

> *... the challenges of providing the appropriate environment in which to manage acutely unwell mental health patients with known medical comorbidities and the need for recognising and responding to physiological deterioration in such patient cohorts. Mental health patients with multiple co-morbidities or treatment-related risks are likely to need more frequent monitoring and observation in the inpatient setting.*

85. Several recommendations arose out of the internal review. These were:

(a) review clinical practice related to the management and transfer of mental health patients requiring acute interdisciplinary care to ensure timely and appropriate care. Interdisciplinary care has now been incorporated into training for mental health staff and a perioperative and mental health liaison medicine unit has been established at Box Hill Hospital to facilitate close monitoring of mental health inpatients and improve the pathways of escalation in relation to the interdisciplinary care of those patients;

(b) provide training to nursing staff in acute mental health settings and junior medical staff in regarding how to recognise and respond to patient deterioration. This training has been implemented; and

(c) educate mental health medical and nursing staff regarding the neurological observations practice guideline. This training has been implemented.

COMMENTS PURSUANT TO SECTION 67(3) OF THE ACT

86. During his admission to Maroondah Hospital, Mr Vaz had instances of breathlessness, hypotension, sleep apnoea, and low oxygen saturation.

87. The Eastern Health sedation guidelines note the significance of physical observations, state that monitoring should continue for 72 hours, and raises awareness of the increased risks associated with sleep apnoea, snoring, and respiratory conditions.

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[13] Coronial Brief page 65.

88. I note that zuclopenthixol acetate was administered to Mr Vaz at 11.25am on 3 April 2015. According to the guidelines, observations were required as follows:

(a) two-hourly until 5.25pm on 3 April 2015;

(b) then one-hourly until 3.35am on 4 April 2015;

(c) then two-hourly until 11.25am on 4 April 2015;

(d) then four-hourly until 11.35am on 5 April 2015; and

(e) then six-hourly until 11:35am on 6 April 2015.

89. For reasons that still remain unknown, the last noted vital sign observation occurred at 7.45am on 4 April 2015.

90. Eastern Health utilises the Adult Observation and Response Chart in accordance with the nationally recommended track and trigger observation and response chart.[14] The purpose of a track and trigger chart for recording physical observations is the early detection of deterioration of a patient's physical health and subsequent intervention. The track and trigger chart for Mr Vaz had no entries beyond 7.45am on 4 April 2015 and, even acknowledging a review by the medical registrar at 1.00pm on 4 April 2015, there were no further observations recorded either in the chart or the medical records.

91. In the absence of physical observations by any clinician after 7.45am on 4 April 2015, it cannot be determined whether Mr Vaz's deterioration was over some hours or of sudden onset. If Eastern Health guidelines were adhered to, then any deterioration to Mr Vaz's condition may have been detected earlier.

92. The recognised issues associated with the safe use of zuclopenthixol acetate are recognised in Eastern Health's own guidelines. If the guidelines had been followed, more robust physical observations would have been recorded and may have increased the opportunities for earlier detection of Mr Vaz's physical deterioration.

93. I cannot be satisfied that more frequent physical observations would have prevented Mr Vaz's untimely death. However, I am satisfied that Eastern Health did not follow its own guidelines in relation to this aspect of the care it provided to Mr Vaz.

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[14] Australian Commission for Safety and Quality in Health Care. National Safety and Quality Health Care Standards, Safety and Quality Improvement Guide Standard 9: Recognising and Responding to Clinical Deterioration in Acute Health Care (October 2012). Sydney. ACSQHC, 2012. Standard 9.3 and pages 44, 45, and 46.

94. In accordance with natural justice, Eastern Health was provided with my proposed comments. By letter dated 17 June 2020, Associate Professor Jeremy Couper from Eastern Health advised that Eastern Health accepted my conclusion at paragraph 91 above.

95. Dr Couper provided information about education within the Eastern Mental Health Program and stated:

'*The training reinforces the importance of adhering to the observations guidelines and contemporaneously at relevant time-points the physical observations done, or the efforts to make physical observations where it is impossible to complete all the prescribed physical observations due to aggression or violence on the part of the patient. Also a policy is now in place where ECG's that are performed according to the Eastern Health Sedation Guidelines 24 hours after Zuclopenthixal Acetate injection are administered are checked by the duty psychiatry registrar at the time the ECG is performed and then reviewed and signed off by the attending medical registrar on a daily basis as well. All inpatient mental health nursing and medical staff members now have a high level of awareness of the need to perform ECG's as per relevant guidelines and the process of checking and reviewing post-Zuclopenthixal Acetate injection ECG's has been formalized into routine clinical practice.*'

96. I note this response directly addresses the concerns identified by the CPU above at paragraph 65.

97. I do not intend to make any recommendations in this case. Eastern Health already has appropriate guidelines in place and Associate Professor Katz and Dr Couper have conceded staff did not follow those guidelines. The recommendations and actions that have come out of Eastern Health's internal review are appropriate.

98. It is trite to say that there is no point in having effective and fulsome guidelines in place if those guidelines are not followed.

FINDINGS AND CONCLUSION

99. Having investigated the death, and by holding an inquest, I find pursuant to section 67(1) of the *Coroners Act 2008* that Gerard Guy Vaz, born 7 October 1953, died on 5 April 2015 at Maroondah Hospital, 1 Davey Street, Ringwood East, Victoria, from an undetermined cause in the circumstances described above.

100. I convey my sincere condolences to Mr Vaz's family for their loss.

101. Pursuant to section 73(1) I direct this finding be published on the Internet.

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

Elisabeth Rottmann, Senior Next of Kin
Helena Vaz-Mecoy
Maurice Vaz
Eastern Health
Office of the Chief Psychiatrist
Safer Care Victoria
Senior Constable Elizabeth Davies, Victoria Police, Coroner's Investigator.

Signature:

CAITLIN ENGLISH
DEPUTY STATE CORONER
Date: 14 July 2020