IN THE CORONERS COURT
OF VICTORIA
AT MELBOURNE

COR 2020 001147

FINDING INTO DEATH WITHOUT INQUEST

Form 38 Rule 63(2)

*Section 67 of the **Coroners Act 2008***

Findings of:	AUDREY JAMIESON, Coroner
Deceased:	Edis Vytas Brenner
Date of birth:	18 February 1942
Date of death:	27 February 2020
Cause of death:	1(a) Multiorgan failure consequent upon pulmonary lacerations and haemorrhage sustained during the operative treatment of severe mitral and tricuspid valve disease
Place of death:	St John of God Geelong Hospital, 80 Meyers Street, Geelong, Victoria, 3220
Keywords:	Medical, cardiovascular surgery, post-surgical complication, St John of God Hospital, valvular disease.

INTRODUCTION

1. On 27 February 2020, Edis Vytas Brenner was 78 years old when he died at St John of God Hospital Geelong six days after having undergone cardiovascular surgery.

2. At the time of his death, Mr Brenner lived with his wife, Mrs Vida Brenner in Anglesea, Victoria.

3. Mr Brenner had a significant medical history including congestive cardiac failure secondary to mitral[1] and tricuspid[2] valve regurgitation, slow atrial fibrillation requiring permanent pacemaker insertion, hypertension, obstructive sleep apnoea, pulmonary hypertension, chronic renal failure, diverticular disease requiring a hemicolectomy and osteoarthritis.[3]

THE CORONIAL INVESTIGATION

4. Mr Brenner'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. Reportable deaths also include deaths following a medical procedure where the death is or may be causally related to the medical procedure, and a registered medical practitioner would not, immediately before the procedure was undertaken, have reasonably expected the death.[4]

5. 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.

6. 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.

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[1] Mitral valve regurgitation is a condition in which the valve between the heart's left ventricle and left atrium doesn't close properly, allowing blood to flow back up the heart's upper left atrium. Symptoms occur only when regurgitation is severe and include exertional shortness of breath and fatigue.

[2] Tricuspid valve regurgitation is a condition in which the valve between the heart's right ventricle and right atrium doesn't close properly, allowing blood to flow back up the heart's upper right atrium. Symptoms occur only when regurgitation is severe and include exertional shortness of breath and fatigue.

[3] Court file (**CF**), St John of God medical records.

[4] Section 4(2)(b)(ii) of the Coroners Act 2008 (Vic).

7. This finding draws on the totality of the coronial investigation into the death of Edis Vytas Brenner including evidence contained in the court file. 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.[5]

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

Circumstances in which the death occurred

8. Mr Brenner had been informed by his cardiologist, Dr Thomas Yip, that the nature of his valvular disease was such that he would have a progressive worsening of symptoms of congestive cardiac failure (including shortness of breath, fatigue and presyncope[6]) despite medical therapy.

9. On 4 February 2020, Dr Yip referred Mr Brenner to cardiothoracic surgeon Dr Cheng-Hon Yap for consideration of mitral and tricuspid valve surgery. Dr Yip had previously recommended to Mr Brenner that he undergo the surgery, though Mr Brenner wished to defer this for personal reasons.[7]

10. On 6 February 2020 Dr Yap consulted with Mr Brenner. He recommended a tissue mitral valve replacement, tricuspid valve repair and a Maze procedure[8]. Dr Yap explained the recovery process, indications, benefits and risks with Mr Brenner and encouraged him carefully consider the information and discuss it with his family. Mr Brenner later called Dr Yap's rooms to book in the surgery.[9] He provided signed consent which estimated the risks as *"mortality/stroke 5-10%, bleeding, infection, (need for) renal replacement therapy".*[10]

11. At 3pm on 20 February 2020 Mr Brenner was admitted to St John of God Hospital Geelong with surgery scheduled for the following day.

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[5] 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.

[6] Feeling that one is about to feint.

[7] Statement of Dr Cheng-Hon Yap dated 20 April 2021.

[8] A surgical treatment of atrial fibrillation where the surgeon makes a series of incisions in a maze-like pattern in the atrial to stop the aberrant electrical conduction of atrial fibrillation (that is, block off opportunity for electrical activity to divert from normal pathway). The reason why this procedure would have been offered in addition to the valvular surgery is that the poorly coordinated contraction that occurs with atrial fibrillation results in reduction in cardiac output and thus symptoms of heart failure.

[9] Statement of Dr Cheng-Hon Yap dated 20 April 2021.

[10] CF, St John of God medical records.

12. On 21 February 2020 Mr Brenner underwent surgery as planned. According to Dr Yap the surgery was uneventful with no unexpecting findings or procedures.[11] This assessment was reflected in the surgical, nursing and anaesthetic records made at the time.[12]

13. At 6:50pm Mr Brenner was transferred from the operating theatre to the Intensive Care Unit (**ICU**). It was noted over the next hours that there was a higher than usual volume of blood draining from Mr Brenner's surgical drains. Clinicians initiated the hospital's massive transfusion protocol, commenced vasoactive medications[13] and called Dr Yap.

14. At 8:30pm Mr Brenner was returned to the operating theatre where Dr Yap re-opened the chest cavity. The source of the bleeding was determined to be a superficial, small laceration to the right aspect of the right lower lobe of the lung, which was controlled by surgical stapling and oversewing. According to the surgical record, the estimated total blood loss was three litres, which was replaced by the ICU and anaesthetic teams prior to and during surgery.[14]

15. The surgery lasted until 12.15am on 22 February 2020, at which time Mr Brenner was returned to the ICU. He remained profoundly vasoplegic which the treating intensivist Dr Green ascribed to the combination of prolonged cardiac bypass during surgery, a massive transfusion of blood products and his limited pre-operative physiological reserve.

16. At around 7:30am on 22 February 2020, Dr Green discussed the previous day's events, prognosis and Mr Brenner's wishes with Mrs Brenner and Anthony Brenner, his son. It was decided that if Mr Brenner was to arrest, cardiopulmonary resuscitation (**CPR**) was not to be attempted.

17. Over the next three days Mr Brenner continued to develop worsening vasoplegia and multi-organ dysfunction and was showing early signs of Disseminated Intravascular Coagulation (DIC)[15]. He was treated with supportive care including high-dose inotropes and vasopressors, renal replacement therapy, ventilatory support and antibiotics.[16]

[11] Statement of Dr Cheng-Hon Yap dated 20 April 2021.
[12] CF, St John of God medical records.
[13] Vasoactive medications are administered intravenously to maintain blood pressure while blood products are being given.
[14] CF, St John of God medical records.
[15] An abnormal reactive response of the coagulation system where all the body's coagulation factors activate in the blood stream causing simultaneous blocking off small blood vessels causing damage while simultaneously causing bleeding because of a lack of normally functioning clotting factors. Treatment is based at treating the underlying cause.
[16] Statement of Dr Cheng-Hon Yap dated 20 April 2021.

18. During this period Dr Yap consulted with the ICU on a daily basis and met with Mr Brenner's family on a number of occasions during which they discussed his "critical and precarious condition".[17]

19. On 26 February 2020, Extra Corporeal Membrane Oxygenation (ECMO) was considered by the treating intensivist but after consultation with other intensivists, it was determined it would be unlikely to be of benefit.

20. On 27 February 2020, in light of continuing clinical and physiological deterioration, a family meeting was arranged, and Mr Brenner's care was transitioned to palliation. Mr Brenner sadly died at 10:23pm.[18]

Identity of the deceased

21. On 27 February 2020, Edis Vytas Brenner, born 18 February 1942, was visually identified by his wife, Vida Brenner, who completed a Statement of Identification.

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

Medical cause of death

23. Forensic Pathologist Dr Joanna Moira Glengarry from the Victorian Institute of Forensic Medicine (**VIFM**) conducted a partial autopsy on the chest of Edis Brenner on 4 March 2020 and provided a written report of her findings dated 15 May 2020. Prior to autopsy, Dr Glengarry considered the following materials:

    a) Victoria Police Report of Death (Form 83)

    b) Post-mortem computed tomography (**CT**) scan

    c) Preliminary examination report

    d) Coronial Admissions and Enquiries contact log

    e) Medical records from Belmont Bulk Billing Clinic

    f) Email of concerns from Anthony Brenner

[17] Statement of Dr Cheng-Hon Yap dated 20 April 2021.
[18] CF, E-Medical Deposition Form.

24. Following autopsy, Dr Glengarry was provided with medical records from St John of God Hospital.

25. The post-mortem examination revealed a number of findings following the mitral valve replacement, tricuspid valve repair and MAZE procedure, including

    a) Fibrinous pericarditis

    b) Epicardial haemorrhage, pericardial haemorrhage

    c) Mitral valve replacement, uncomplicated

    d) Tricuspid valve repair, uncomplicated

    e) Interatrial septum subendocardial haemorrhage

    f) Left atrial appendage surgically occluded

    g) Right haemopneumothorax

    h) Left haemothorax (clot)

    i) Pleural lacerations and pulmonary haemorrhage, right middle lobe (repaired), right lower lobe (repaired) and left upper lobe (no repair)

    j) Diffuse alveolar damage

26. The examination further revealed cardiomegaly, mild coronary artery atherosclerosis, moderate aortic atherosclerosis, and a pacemaker in situ.

27. Although the autopsy was limited to the chest and not intended to address multiorgan failure, Dr Glengarry noted that there was nothing to disprove the presence of multiorgan failure as was clinically diagnosed.

28. Dr Glengarry provided an opinion that the medical cause of death was 1 (a) MULTIORGAN FAILURE CONSEQUENT UPON PULMONARY LACERATIONS AND HAEMORRHAGE SUSTAINED DURING THE OPERATIVE TREATMENT OF SEVERE MITRAL AND TRICUSPID VALVE DISEASE.

FAMILY CONCERNS

29. On 2 March 2020 by way of email to the Coronial Admissions and Enquires department at the VIFM, Anthony Brenner raised concerns regarding his father's death.[19] Anthony stated *"there is a grey area between the mishap in the original surgery that require answers".*

30. He noted that Dr Yap had communicated with him and his mother following the initial, planned surgery to report that it had been successful, and Mr Brenner was in recovery. Neither Dr Yap nor St John of God Geelong had been able to provide the family with an answer as to what complications had occurred during the initial surgery that led to Mr Brenner's eventual death.

CPU REVIEW

31. After reviewing the material available to me at the preliminary stages of the investigation, including the Medical Examiner's Report of Dr Glengarry and the concerns raised by Anthony Brenner, I referred the matter to the Coroners Prevention Unit[20] for review. I specifically requested that the CPU review whether Mr Brenner's intra-operative complications should have been recognised earlier, and whether the subsequent treatment provided was appropriate, with a view to considering any available prevention opportunities.

32. As part of their investigation, the CPU sought a statement from Dr Cheng-Hon Yap. Dr Yap provided a fulsome account of his treatment of Mr Brenner both prior, during and post-surgery and answered several questions posed by CPU regarding the hospital's internal review of the incident and anything arise from the same.

<u>Surgical complications and response</u>

33. The CPU advised that post-operative bleeding is a risk in all surgeries, more so in major cardiovascular surgeries. Whilst all efforts are made to minimise these risks bleeding can still occur. In his statement to the Court, Dr Yap similarly noted that bleeding is a known complication of cardiac surgery occurring in around 5% of cases, however his own bleeding rate has been 2-3% or less for the past nine years.[21]

[19] CF, Email from Anthony Brenner to Coronial Admissions and Enquiries dated 2 March 2020.
[20] 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.
[21] Statement of Dr Cheng-Hon Yap dated 20 April 2021.

34. Dr Yap correctly identified the small but real risk of bleeding and death during his consent process with Mr Brenner, which was thorough and encouraged him to carefully consider the surgery and discuss his decision with family. Mr Brenner provided signed consent having apparently understood the risks of the procedure.

35. As bleeding is a known risk in these surgeries, recognising and responding to deterioration is key to stabilising the patient. As soon as Mr Brenner's unexpected deterioration was identified, Mr Yap responded in a timely and proactive manner, returning him to theatre to identify the cause of, and treat the bleeding.

36. While the surgery was successful in its goals, massive bleeding and its subsequent treatment triggered a cascade of physiological responses resulting in multiorgan dysfunction which could not be reversed by intensive efforts. Unfortunately, despite the appropriate care and management, Mr Brenner's life could not be saved.

Response to family concerns

37. The CPU considers that the family's concerns and questions as to the complications that led to Mr Brenner's death have been adequately addressed by Dr Yap in his statement.[22]

What was most unexpected in Mr Brenner's case is the source of bleeding, this being from a relatively small and superficial tear in the surface of the right lung. […] I can only assume that the process of sucking out the pleural space[23] or the placement of a chest drain in the case of Mr Brenner caused the tear in the lung. I personally, in my own practice of cardiac surgery, have not encountered a case of torn lung causing severe bleeding. […] It has always been my practice to perform manoeuvres in the pleural space gently and cautiously.

Also unexpected, was the severity of bleeding from such a relatively minor tear in the lung. Minor and superficial laceration of the surface of the lung is often observed by the surgeon when operating within the chest cavity […]. It very rarely results in significant bleeding. If bleeding is observed it is often minor and ceases of its own accord. It almost never requires surgical repair.

The other unexpected element […] was the severity of his vasoplegia and multi-organ dysfunction. Multi-organ impairment and a degree of vasodilatation is a stress response to injury and is universally seen to some degree after major surgery. […] Bleeding and the

[22] Ibid.
[23] The potential space between the lining of the lung (pleura) and the cavity it is in (the chest and the other thoracic organs that lungs inflate around).

consequent high transfusion requirement to treat this is known to pose an additional stress to an individual who has just undergone cardiac surgery. However, the extent to which Mr Brenner exhibited very severe levels of vasoplegia and multi-organ dysfunction was surprising and unexpected.

Hospital's review of case

38. Mr Brenner's death was not reported to Safer Care Victoria as St John of God Hospital did not deem the case to be sentinel event. It appears that this is at odds with the Category 11 of the reporting criteria for sentinel events which requires all Victorian health services to report "all other adverse patient safety events resulting in serious harm or death."[24]

39. The sentinel event program is a state-wide adverse incident reporting and investigation program run by Safer Care Victoria in both public and private health services. Incidents deemed as sentinel events are investigated by way of a formal process (Root Cause Analysis) with panel member external to the health service recommended by SCV. The report is then submitted to SCV for feedback.

40. Whilst sentinel event notifications occur following an incident or death and as such cannot prevent that death from occurring, the lack of notification in this instance represents a missed opportunity for learnings and the potential for identification of future prevention opportunities. This is particularly pertinent given Dr Yap's assertion that no such similar incidents have occurred in the past in his practice or in the cardiac surgical service of St John of God Hospital.

RECOMMENDATIONS

Pursuant to section 72(2) of the Act, I make the following recommendations:

1. With the aim of promoting public health and safety and preventing like deaths, I recommend that St John of God Hospital's clinical governance unit discuss all unexpected deaths that occur in relation to surgery with Safer Care Victoria's Patient Safety Review Team to ascertain whether the incident meets the criteria for a sentinel event notification and make any necessary notifications accordingly.

FINDINGS AND CONCLUSION

1. Pursuant to section 67(1) of the *Coroners Act 2008* I make the following findings:

[24] https://www.safercare.vic.gov.au/notify-us/sentinel-events/what-to-report

a) the identity of the deceased was Edis Vytas Brenner, born 18 February 1942;

b) the death occurred on 27 February 2020 at St John of God Geelong Hospital, 80 Meyers Street, Geelong, Victoria, 3220,

c) I accept and adopt the medical cause of death as ascribed by Dr Joanna Glengarry and find that Edis Vytas Brenner died from multiorgan failure consequent upon pulmonary lacerations and haemorrhage sustained during the operative treatment of severe mitral and tricuspid valve disease;

2. AND, I find that the death of Edis Vytas Brenner occurred due to an uncommon but known risk of cardiovascular surgery, despite receiving timely and appropriate treatment in an attempt to change his clinical course. Accordingly, I make no adverse comments about any person or entity involved in Edis Vytas Brenner's care.

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

Pursuant to section 73(1B) 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:

Vida Brenner

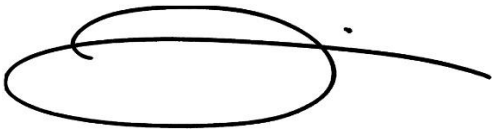
Anthony Brenner

St John of God Hospital

Safer Care Victoria

Senior Constable Samuel McLeod, Coroner's Investigator

Signature:



AUDREY JAMIESON

CORONER

Date: 23 June 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.