IN THE CORONERS COURT
OF VICTORIA
AT MELBOURNE

Court Reference: COR 2019 1598

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:	Ann-Maree Manno
Date of birth:	10 August 1961
Date of death:	30 March 2019
Cause of death:	1(a) Pulmonary thromboembolism
Place of death:	34 Underbank Boulevard, Bacchus March, Victoria

INTRODUCTION

1. On 30 March 2019, Ann-Maree Manno was 57 years old when she died from pulmonary thromboembolism following laparoscopic gastric band surgery. At the time of her death, Mrs Manno lived at Bacchus Marsh.

THE CORONIAL INVESTIGATION

2. Mrs Manno'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. As part of my investigation, I obtained Mrs Manno's medical records and statements from her treating clinician and from the hospital that provided treatment to her shortly before her death. I thereafter sought advice from the Court's Health and Medical Investigation Team regarding the medical treatment and care Mrs Manno received before her death.

6. This finding draws on the totality of the coronial investigation into Mrs Manno's death. 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]

[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.

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

Identity of the deceased

7. On 30 March 2019, Ann-Maree Manno, born 10 August 1961, was visually identified by her daughter, Sharna Manno.

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 2 April 2019 and provided a written report of his/her/their findings dated 13 May 2019.

10. The post-mortem examination revealed a large thromboembolism (blood clot) obstructing the pulmonary arteries. Dr Glengarry explained that the pulmonary arteries are the outflow source of blood from the right side of the heart to the lungs and a sudden blockage of these (such as by a pulmonary thromboembolism) may result in a sudden rapid death.

11. Dr Glengarry noted that the most common source of a pulmonary thromboembolism is a deep vein thrombosis (**DVT**), which is a blood clot in the veins of the legs or pelvis. No deep vein thrombi were identified by the examination; however, when the clot burden is large (as in this case), it is not uncommon that these are now absent in the deep veins.

12. Dr Glengarry explained that common risk factors for the development of deep vein thrombi and pulmonary thromboemboli include obesity, inherited thrombophilias, surgery, prolonged immobilisation, smoking, long haul air travel, limb trauma, or malignancy. Dr Glengarry noted Mrs Manno's history of recent surgery. Additionally, Mrs Manno's body mass index (a ratio of body weight to height used to categorise stature) classified her as 'obese' by World Health Organization criteria.

13. Despite maximal medical therapy, large pulmonary thromboemboli such as these are commonly fatal.

14. Dr Glengarry noted the operation site was free of complication.

15. Toxicological analysis of post-mortem samples did not identify the presence of any alcohol or any commons drugs or poisons.

16. Dr Glengarry provided an opinion that the medical cause of death was *"1(a) Pulmonary thromboembolism"* and due to natural causes.

17. I accept Dr Glengarry's opinion.

Circumstances in which the death occurred

18. Mrs Manno's medical history included osteoarthritis, psoriasis, unprovoked[2] DVT in her lower legs in 2007 and 2016, right knee arthroscopy, and obesity with a BMI[3] of 37.9.

Mrs Manno's history of deep venous thromboses

19. Mrs Manno had previously experienced two separate episodes of unprovoked DVT. She was placed on anticoagulant medication for a period of six months from January 2017, but this was stopped by her haematologist, Dr Sophie Lee, in July 2017. Investigation of the DVTs did not find any underlying predisposing condition or reason to explain a tendency to form abnormal clots.

20. Dr Lee recommended that Mrs Manno receive prophylactic clexane (enoxaparin) in a dose of 40mg per day at times of increased risk of thrombosis, such as long-haul flights or after surgery. This recommendation was contained in a letter to Mrs Manno's general practitioner at Bacchus Marsh Medical Centre in 2017.

Preparation for her gastric band surgery

21. In January 2019, a specialist respiratory physician, Dr Ai-Ming Wong, conducted a pre-operative assessment for planned lap band surgery.

22. Dr Wong's assessment was that it was safe to proceed with surgery, but specifically noted Mrs Manno's propensity for developing clots and noted the surgical team was to take their *"usual"* DVT prophylaxis measures in hospital. There was no recommendation regarding prophylaxis out of hospital and it is unclear whether Dr Wong was aware of Dr Lee's previous advice.

[2] Deep vein thrombosis (**DVT**) or pulmonary embolism (**PE**) are considered unprovoked when they are not associated with a recognized risk factor for DVT or PE. Recognised risk factors include cancer, oestrogen hormone use, injury or surgery, immobility, pregnancy, and an inherited disorder of clotting.

[3] Body mass index (**BMI**) is a value derived from the mass and height of a person and is defined as the body mass divided by the square of the body height and is universally expressed in units of kg/m², resulting from mass in kilograms and height in metres. A BMI of 37 to 40 is considered severely obese.

Surgery and discharge

23. On 22 March 2019, Mrs Manno underwent elective gastric band surgery[4] performed by Associate Professor Peter Nottle at the Avenue Private Hospital.

24. During the operation, a hiatus hernia[5] was discovered, and this was repaired prior to inserting the gastric band.

25. Associate Professor Nottle stated that Mrs Manno was to receive venous thromboembolism (**VTE**)[6] prophylaxis in the form of 5000 units of heparin[7] subcutaneously in the evening following her surgery. She had undergone sequential calf compression[8] whilst undergoing surgery and had TED[9] stockings once ambulatory.

26. Mrs Manno was discharged on 23 March 2019. The discharge summary records that she was not discharged on anticoagulant medication (VTE prophylaxis), nor was she wearing TED stockings on discharge.

Post discharge

27. On 25 and 29 March 2019, Mrs Manno consulted general practitioners at Bacchus Marsh Medical Centre for a review of her operative wounds and an unrelated matter. There are no comments in the medical notes regarding Mrs Manno complaining of symptoms of a DVT or pulmonary embolism (**PE**) at these attendances.

28. On 30 March 2019, Mrs Manno suddenly collapsed at home. Ambulance paramedics attended but Mrs Manno was unable to be resuscitated.

[4] Gastric or lap band surgery involves the placement of an adjustable (by means of a fluid filled compartment) band around the body of the stomach, effectively producing a smaller upper stomach pouch. Adjusting the band alters the 'ease; with which the upper pouch empties and the feeling of fullness.
[5] A hiatus hernia occurs when the upper part of the stomach passes through the hiatus (opening for the oesophagus) in the diaphragm and up into the chest.
[6] Venous thrombo-embolism (**VTE**) is a term that covers abnormal blood clots in the venous system, i.e. DVT and PE.
[7] Heparin (unfractionated heparin) is a naturally occurring (animal) polysaccharide that is used as an anticoagulant to reduce the formation of blood clots, or to limit the extension of existing clots. Unfractionated heparin consists of a mixture of molecular chains of various lengths.
[8] Sequential calf compression is performed by a pneumatic device that sequentially inflates/deflates on the lower limbs whilst the patient is undergoing surgery in order to prevent or reduce the formation of blood clots in the leg veins during surgery.
[9] Thrombo-embolic deterrent (**TED**) stockings are stockings designed and worn to support the venous and lymphatic drainage of the leg, with the aim of preventing the formation of DVTs, especially in postoperative patients.

FURTHER INVESTIGATIONS AND REVIEW OF CARE

29. Given Mrs Manno passed away shortly after undergoing surgery, I obtained assistance from the Court's Health and Medical Investigation Team (**HMIT**) in reviewing the medical treatment and care she received before her death.

30. The HMIT 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.

31. As my investigation progressed, it became apparent there was a lack of mutual agreement between Associate Professor Nottle and Jeninne Smith, the Director of Clinical Services at The Avenue Hospital, regarding his preferred practises. Multiple statements were required to clarify these issues, which are outlined below.

Whether Associate Professor Nottle was aware Dr Lee's recommendation

32. As noted above, in 2017 Dr Lee recommended that Mrs Manno receive prophylactic clexane (enoxaparin) in a dose of 40mg per day at times of increased risk of thrombosis, such as after surgery.

33. Associate Professor Nottle confirmed he was not aware of this recommendation and it was not information conveyed by Mrs Manno or her general practitioner prior to her surgery.[10]

Whether Mrs Manno was at high risk of venous thromboembolism

34. Associate Professor Nottle noted that any patient undergoing any surgical procedure is at risk of thromboembolism. This risk increases when the patient is severely obese, which necessitates appropriate thromboembolism prophylaxis. He went on to note that while this reduces the risk of DVT and PE, it never entirely eliminates the risk.[11]

35. Based on the information available at the time of his assessment he did not assess Mrs Manno as being in a 'high-risk'. A pre-operative assessment by a physician did not identify any particular warning signs regarding Mrs Manno's risk of venous thromboemboli beyond those of which he was already aware. He was thus recommended to undertake his usual prophylactic

[10] Statement of Associate Professor Peter Nottle, dated 5 March 2021, p 1.
[11] Statement of Associate Professor Peter Nottle, dated 19 November 2019, p 3.

measures, which included post-operative heparin twice daily while in hospital, intra and post-operative sequential calf compression, and discharge with TED stockings for two weeks.[12]

36. Associate Professor Nottle assessed Mrs Manno to be in the moderate-risk group because:[13]

    (a) her BMI was lower than 40;

    (b) she had only had calf DVTs in the past;

    (c) her surgery was only about an hour in duration;

    (d) she was able to ambulate early due to lower risk and shorter surgery; and

    (e) recent arthropathy with no post-operative DVT and no prolonged post-operative thromboprophylaxis.

37. He noted that there are a wide variety of clinical factors to consider when assessing a patient's risk of DVT. He particularly noted that Mrs Manno did not have a BMI greater than 45 and she did not undergo prolonged surgery. He maintained that she fell into a moderate-risk group rather than a higher-risk group.[14]

Associate Professor Nottle's usual practices for patients undergoing bariatric surgery

38. Associate Professor Nottle outlined his usual preoperative assessments, which included assessment by a physician, dietician, and psychologist.[15] He outlined the January 2019 assessment by Dr Ai-Ming Wong, which noted the usual DVT prophylactic measures should be carried out.[16]

39. Prior to surgery, TED stockings were applied. Sequential calf compression during and post-surgery was used until Mrs Manno was ambulatory and she thereafter used TED stockings. Chemical DVT prophylaxis (sodium heparin 5000 units) was also ordered with the first dose to be given at 8.00pm on the day of surgery. He noted that Mrs Manno was up and walking on the afternoon of surgery and had an uneventful in-hospital recovery.[17]

[12] Statement of Associate Professor Peter Nottle, dated 5 March 2021, p 1.
[13] Statement of Associate Professor Peter Nottle, dated 5 March 2021, p 2.
[14] Statement of Associate Professor Peter Nottle, dated 5 March 2021, p 2.
[15] Statement of Associate Professor Peter Nottle, dated 19 November 2019, p 1.
[16] Statement of Associate Professor Peter Nottle, dated 19 November 2019, p 2.
[17] Statement of Associate Professor Peter Nottle, dated 19 November 2019, pp 2-3.

40. Associate Professor Nottle provided me with a copy of the 'Guidelines for Perioperative Care in Bariatric Surgery: Enhanced Recovery after Surgery (ERAS) Society Recommendations'[18] upon which his usual practises were based.

Administration of thromboembolic prophylaxis

41. As noted above, while thromboembolic prophylaxis reduces the risk of DVT and PE, it never entirely eliminates the risk. Associate Professor Nottle also noted that it must also be borne in mind that these medications also increase the risk of post-operative bleeding. There is therefore always a balancing act between managing these competing risks.[19]

42. Upon reviewing the medical records while preparing his second statement, Associate Professor Nottle noted that whilst subcutaneous heparin was ordered for the evening after her surgery, it appeared that the medication was not administered until 8.00am on 23 March 2019. Given the medication should have been administered at 8.00am the previous evening, he described this as a *"significant departure from the normal protocol"*.[20]

43. Associate Professor Nottle otherwise stated that the administration of DVT prophylaxis only in hospital was appropriate as Mrs Manno was in the moderate-risk category and she was ambulating shorting after the surgery.[21] Mrs Manno was not advised to have venous thromboembolism prophylaxis post-surgery as she did not have a major coagulation issue.[22]

44. Jeninne Smith, Director of Clinical Services at The Avenue Hospital, noted that between 10.15am and 12.10pm on 22 March 2019, the anaesthetist prescribed sodium heparin 5000 units BD, which was due to commence at 8.00pm. However, for reasons unknown to her and not recorded in the medical notes, the medication was not administered until 8.00am on 23 March 2019. Mrs Manno was then discharged home with oxycodone, which she was instructed to take six-hourly as required for pain management.[23]

[18] 2016 World Journal of Surgery publication (2016) 40:2065-2083.
[19] Statement of Associate Professor Peter Nottle, dated 5 March 2021, p 2.
[20] Statement of Associate Professor Peter Nottle, dated 5 March 2021, p 2.
[21] Statement of Associate Professor Peter Nottle, dated 5 March 2021, p 2.
[22] Statement of Associate Professor Peter Nottle, dated 19 November 2019, p 3.
[23] Statement of Jeninne Smith, dated 3 May 2021, p 2.

Use of TED stockings

45. Associate Professor Nottle noted that his usual practise for TED stockings was for the patient to wear them following surgery and for the patient to be discharged with them. However, Mrs Manno was not wearing TED stockings at the time of her discharge.

46. In light of this, Associate Professor Nottle again reviewed the records and noted the following:[24]

    (a) the discharge day checklist dated 23 March 2019 revealed nursing staff had ticked a box that indicated Mrs Manno understood the need to keep mobilising and to continue wearing TED stockings for two weeks;

    (b) however, a printed discharge summary (which he had not seen before) completed by the Director of Clinical Services on 23 March 2019 noted that Mrs Manno did not need to wear TED stockings.

47. Associate Professor Nottle could not explain the printed discharge summary as he always recommended his patients to use TED stockings following this type of procedure.

48. Ms Smith confirmed that a printed discharge summary was completed by nursing staff, which indicated that Mrs Manno was not required to wear TED stockings. It was not clear to her whether this was at the direction of Associate Professor Nottle, but it was her expectation that a patient would only be instructed not to wear TED stockings at the direction of the admitting doctor.[25]

49. In preparing her statement, Ms Smith explained that she spoke to several senior and longstanding nurses who advised that it was previously Associate Professor Nottle's preference for *"his patients not to wear TED stockings post-operatively".* It was their understanding that this was because there had been issues with stockings fitting poorly and rolling down, which provide a tourniquet effect on patients' legs.[26]

50. Associate Professor Nottle was asked to comment on Ms Smith's understanding of his practises regarding post-operative TED stockings and he noted the following:[27]

[24] Statement of Associate Professor Peter Nottle, dated 5 March 2021, p 3.
[25] Statement of Associate Professor Peter Nottle, dated 5 March 2021, pp 2-3.
[26] Statement of Associate Professor Peter Nottle, dated 5 March 2021, p 3.
[27] Statement of Associate Professor Peter Nottle, dated 8 June 2021, pp 1-2.

(a) his clinical pathway document specifies sequential calf compression sleeves intraoperatively instead of TED stockings;

(b) on returning to the ward, patients are to have sequential sleeves rather than TED stockings; and

(c) for discharge, his clinical pathway requires education to be provided to the patient about the need to keep mobilising and to continue wearing TED stockings for two weeks.

51. Since becoming aware about the discrepancy between his advice and nursing practises, he has taken steps to clarify his clinical pathway (including his expectations regarding administration of DVT prophylaxis) with nursing staff. He has clarified and corrected his clinical pathway documentation, which had been changed without his knowledge.[28]

52. In response to Ms Smith's understanding of his apparent rationale for not wearing TED stockings (that is, the tourniquet effect), he noted that this was only a concern when the patient is not conscious and wearing a sequential compression device. For example, he does not require TED stockings in the operating theatre, and he did not want patients wearing TED stockings until they were sufficiently aware and ambulatory. Once the patient is ambulating, they are to receive TED stockings with which they are to be discharged.[29]

53. Ms Smith confirmed Associate Professor Nottle had advised staff that all of his patients are to wear TED stockings for two weeks after surgery and clinical pathways had been updated.[30]

Changes to Associate Professor Nottle's practices

54. Associate Professor Nottle noted that he had reflected on Mrs Manno's case and noted that he will now refer any patient with a history of thrombosis *"no matter how small"* to a physician for manage of their thromboprophylaxis throughout the *peri-operative* period according to the perceived risk of the patient. This ensures that one person manages the issue.[31]

[28] Statement of Associate Professor Peter Nottle, dated 8 June 2021, pp 2-3.
[29] Statement of Associate Professor Peter Nottle, dated 8 June 2021, p 3.
[30] Statement of Associate Professor Peter Nottle, dated 5 March 2021, p 3.
[31] Statement of Associate Professor Peter Nottle, dated 5 March 2021, p 4.

Internal review by the Avenue Hospital

55. Ms Smith noted that there has not been any internal review but Mrs Manno's case was considered at the Anaesthetic Morbidity and Mortality meeting on 31 May 2021, which produced the following outcomes:[32]

    (a) anaesthetists/ nursing staff will include additional information to ensure charted medication times are clearly understood; and

    (b) any variance when medication is or will be withheld is to be documented clearly and only with accepted codes.

56. Ms Smith noted the hospital has also commenced investigating methods of more clearly documenting medication orders and administration times in patient progress notes and education and training will be provided once finalised.

Lack of guidelines regarding VTE prophylaxis

57. During its review of the circumstances of Mrs Manno's death, the HMIT could not find any specific Australian national or Victorian state guidelines regarding the administration of VTE prophylaxis to patients undergoing bariatric surgery.

58. The latest Australian Commission on Safety and Quality in Healthcare standard on venous thromboembolism prevention[33] does not specifically refer to bariatric surgery but refers to the NSW Clinical Excellence Commission's VTE risk assessment tool,[34] which indicates that Mrs Manno had three risk factors for VTE, namely a history of VTE, obesity, and abdominal surgery.

59. Queensland Health's 'Guideline for the Prevention of Venous Thromboembolism in Adult Hospitalised Patients'[35] makes specific reference to bariatric surgery. It comments that no bariatric patients are low risk and places Mrs Manno in the high-risk category by virtue of her age and history of VTE. This guideline recommends considering using VTE prophylaxis for

[32] Statement of Jeninne Smith, dated 15 June 2021, p 1.
[33] Australian Commission on Safety and Quality in Health Care, Venous Thromboembolism Prevention Clinical Care Standard, 2018, available at: https://www.safetyandquality.gov.au/standards/clinical-care-standards/venous-thromboembolism-prevention-clinical-care-standard.
[34] NSW Government, Clinical Excellence Commission, Risk Assessment and Prophylaxis, 2019, available at: https://www.cec.health.nsw.gov.au/keep-patients-safe/medication-safety/vte-prevention/risk-assessment-and-prophylaxis.
[35] Queensland Health, Guideline for the Prevention of Venous Thromboembolism (VTE) in Adult Hospitalised Patients, 2018, available at: https://www.health.qld.gov.au/__data/assets/pdf_file/0031/812938/vte-prevention-guideline.pdf.

10 to 15 days after surgery although it is not clear if this refers to laparoscopic surgery or open surgery or to in-hospital or discharged patients or both.

60. A brief review of the surgical literature found general support for this approach based upon European guidelines.[36] These guidelines also noted that the lack of good quality randomised trials with a low risk of bias did not allow the authors to propose strong recommendations. A 'best evidence' topic[37] from 2015 concluded that *"on the basis of this analysis, we can conclude that there is some evidence to suggest that a prolonged duration of enoxaparin therapy of 10 days beyond hospital discharge is beneficial …".*

61. Associate Professor Nottle supported the suggestion that I make a recommendation for specific national or Victorian guidelines regarding the administration of VTE prophylaxis to patients undergoing bariatric surgery. However, he warned that the guidelines should not be overly prescriptive as prophylaxis should be tailored to the individual patient based on their individual risks and clinical picture.[38]

COMMENTS

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

62. This case serves to highlight the paucity of national and Victorian guidelines and the potential for inconsistency in the approach to the provision of VTE prophylaxis for patients undergoing bariatric surgery, even with individual surgeons, haematologists, and physicians.

63. In September 2017, the Coroners Prevention Unit (of which HMIT is part) (**CPU**) made a submission to the Australian Commission on Safety and Quality in Health Care. In summary, the CPU submission noted variations in VTE prophylaxis:

> *Unexpected death from Venous Thromboembolism (VTE) is a recurrent theme encountered by the Coroners Court of Victoria. Over the preceding years Coroners have asked the CPU to review deaths related specifically to venous thromboembolism (VTE). Many individuals died outside the hospital environment which has raised concerns as to how these deaths could be prevented.*

[36] Venclauskas L, Maleckas A, Arcelus JI; ESA VTE Guidelines Task Force. European guidelines on perioperative venous thromboembolism prophylaxis: Surgery in the obese patient. Eur J Anaesthesiology 2018 Feb;35(2):147-153.
[37] S.G. Parker et al. Enoxaparin venous thromboembolism prophylaxis in bariatric surgery: A best evidence topic. International Journal of Surgery 2015 Nov;23: 52-56.
[38] Statement of Associate Professor Peter Nottle, dated 5 March 2021, p 3.

64. A CPU review of the deaths and recommendations related to VTE prevention in the adult population from 2011 to 2017 identified the following areas of concern:

(a) VTE education and provision of education to patients on discharge;

(b) assessment of VTE risk including historical information and previous history of VTE;

(c) obesity and immobilisation; and

(d) recent surgery.

65. In recent years a series of coronial inquests has highlighted the following:

(a) the absence of a current guideline for VTE prophylaxis in Australian healthcare settings. The 2009 guidelines were rescinded in 2016 and have not been superseded;

(b) the absence, in previous guidelines, of advice regarding the utilisation of VTE prophylaxis in the outpatient setting, for example in 'at risk' emergency department patients discharged;

(c) the continuation of VTE prophylaxis measures post discharge from hospital in patients assessed to be at significant ongoing risk, particularly the obese and immobilised;

(d) the absence of evidence or advice regarding VTE prophylaxis utilisation and dosing when associated with lower limb immobilisation and obesity or other risk factors for VTE in the outpatient setting;

(e) variation in the application or utilisation of guidelines within some clinical settings, particularly orthopaedic surgery; and

(f) the provision of discharge advice to patients at increased risk of VTE.

66. Queensland Health's 'Guideline for the Prevention of Venous Thromboembolism (VTE) in Adult Hospitalised Patients' is comprehensive, makes specific reference to bariatric surgery and is based upon European guidelines. Its recommendations are in keeping with the guidelines referred to by Associate Professor Nottle, although the anticoagulant dose for high-risk patients is higher.

67. It is clear there is an opportunity for prevention intervention by the development of a standard approach to VTE prophylaxis in bariatric surgery patients (and more broadly in all hospital patients) as per the Queensland Health approach.

68. A guideline would provide a framework for a standard approach whilst allowing for individual variation if there are specific reasons for operating outside guidelines and if incorporated into a care pathway could be anticipated to improve awareness amongst all clinical staff caring for a patient, reduce variation, and encourage an assessment of individual risk factors and requirements so that the provision of VTE prophylaxis to patients such as Mrs Manno, becomes normal and failure to consider it becomes the exception.

69. Safer Care Victoria would appear to be the appropriate body in Victoria to undertake the development of an appropriate guideline and pathway and will make a recommendation in this regard.

70. While my investigation revealed issues regarding the timing of heparin administration and TED stockings, I cannot be satisfied that either issue, or both, directly led to Mrs Manno's death. I also cannot be satisfied that Mrs Manno's death could have been prevented if she had received ongoing VTE prophylaxis following surgery given a review of surgical literature framed this practise as *"beneficial"* at best. I accept Associate Professor Nottle's explanation for assessing Mrs Manno as a moderate risk.

FINDINGS AND CONCLUSION

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

    (a) the identity of the deceased was Ann-Maree Manno, born 10 August 1961;

    (b) the death occurred on 30 March 2019 at 34 Underbank Boulevard, Bacchus March, Victoria, from pulmonary thromboembolism; and

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

RECOMMENDATIONS

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

1. I recommend **Safer Care Victoria** develop an evidence-based guideline for VTE prophylaxis for bariatric surgery patients, which is consistent to the Queensland Health guideline, with the aim that it be incorporated into a standard care pathway for bariatric surgery to ensure that

appropriate consideration of VTE prophylaxis is given to all patients according to their level of risk.

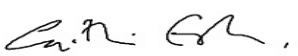
I convey my sincere condolences to Mrs Manno's family for their loss.

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:

Sharna Manno, senior next of kin (copy to Slater and Gordon Lawyers)
Adjunct Professor Peter Nottle (care of Avant Law Pty Ltd)
Ms Jeninne Smith, Director of Clinical Services, The Avenue Hospital
Professor Michael Roberts, Chief Executive Officer, Safer Care Victoria
Adjunct Professor Debora Picone, Chief Executive Officer, Australian Commission on Safety and Quality in Health Care
Professor Wendy Brown, Clinical Lead, Bariatric Surgery Registry
Leading Senior Constable Fiona Anderson, Victoria Police, reporting member

Signature:



Caitlin English, Deputy State Coroner

Date: 20 January 2022

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.