IN THE CORONERS COURT
OF VICTORIA
AT MELBOURNE

Court Reference: **COR 2017 3850**

FINDING INTO DEATH WITHOUT INQUEST

Form 38 Rule 60(2)
Section 67 of the Coroners Act 2008

Findings of:	**MR JOHN OLLE, CORONER**
Deceased:	**DARREN ANDREW TEMPLETON**
Date of birth:	**27 SEPTEMBER 1965**
Date of death:	**6 AUGUST 2017**
Cause of death:	**I(a) PULMONARY THROMBOEMBOLUS** **I(b) LEFT DEEP VEIN THROMBOSIS**
Place of death:	**44 E GIBBONS ROAD** **HAMILTON VICTORIA 3300**

HIS HONOUR:

BACKGROUND

1. Darren Andrew Templeton was born on 27 September 1965. He was 51 years old at the time of his death. Darren lived with his family in Hamilton and was the Executive Officer of Australian Wool Handling.

2. Darren's medical history included lower back pain, obesity (his weight was 108kg and Body Mass Index (BMI)[1] was 31.5 kg/m^2), gout and a previous left total knee replacement surgery in 2015.

3. Darren injured his left knee in June 2016 and was later treated regularly with oral and intravenous antibiotics for a localised infection. In March 2017, Darren underwent a first stage revision (with temporary prosthesis implantation) for a left total knee replacement by Orthopaedic Surgeon Mr Hayden Morris at St Vincent's Private Hospital in East Melbourne. On 21 July 2017, Darren underwent a left knee arthroscope lavage[2] and synovectomy[3] by Mr Morris. The procedure took 25 minutes and Darren stayed in hospital overnight.

THE PURPOSE OF A CORONIAL INVESTIGATION

4. Darren's death constituted a '*reportable death*' under the *Coroners Act 2008* (Vic), as his death occurred in Victoria, following a medical procedure where the death is or may causally be 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 jurisdiction of the Coroners Court of Victoria is inquisitorial[5]. The purpose of a coronial investigation is independently to investigate a reportable death to ascertain, if possible, the identity of the deceased person, the cause of death and the circumstances in which death occurred.

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[1] Body Mass Index (BMI) is an index of weight-for-height that is commonly used to classify underweight, overweight and obese adults. BMI is defined as the weight in kilograms divided by the square of the height in metres (kg/m^2). According to the World Health Organisation, the normal range for BMI in adults is 18.5 to 24.99 kg/m^2. A BMI of 25-29.99 kg/m^2 is overweight; a BMI of 30 to 34.99 kg/m^2 is Grade I obesity; a BMI of 35 to 39.99 kg/m^2 is Grade II (severe) obesity; a BMI of greater than 40 kg/m^2 is Grade III (morbid) obesity; a BMI of greater than 50 kg/m^2 is Grade IV (super) obesity.

[2] Washout of the knee joint cavity.

[3] Removal of the membranous joint lining.

[4] Section 4, definition of 'Reportable death', *Coroners Act 2008.*

[5] Section 89(4) *Coroners Act 2008.*

6. It is not the role of the coroner to lay or apportion blame, but to establish the facts.[6] It is not the coroner's role to determine criminal or civil liability arising from the death under investigation, or to determine disciplinary matters.

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

8. For coronial purposes, the circumstances in which death occurred 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.

9. 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. This is generally referred to as the 'prevention' role.

10. Coroners are also empowered:

    (a) to report to the Attorney-General on a death;

    (b) to comment on any matter connected with the death they have investigated, including matters of public health or safety and the administration of justice; and

    (c) to make recommendations to any Minister or public statutory authority on any matter connected with the death, including public health or safety or the administration of justice. These powers are the vehicles by which the prevention role may be advanced.

11. All coronial findings must be made based on proof of relevant facts on the balance of probabilities. 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.

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[6] *Keown v Khan* (1999) 1 VR 69.
[7] (1938) 60 CLR 336.

MATTERS IN WHICH THE CORONER MUST, IF POSSIBLE, MAKE A FINDING

Identity of the Deceased pursuant to section 67(1)(a) of the *Coroners Act 2008*

12. Darren Andrew Templeton was visually identified by his wife Kylie Templeton on 6 August 2017. Identity was not in issue and required no further investigation.

Medical cause of death pursuant to section 67(1)(b) of the *Coroners Act 2008*

13. On 9 August 2017, Dr Malcolm Dodd, Senior Forensic Pathologist at the Victorian Institute of Forensic Medicine, conducted an examination on Darren's body and provided written report dated 27 November 2017, concluding a reasonable cause of death to be "I(a) Pulmonary thromboembolus and I(b) Left deep vein thrombosis". I accept his opinion in relation to the cause of death.

14. Toxicological analysis of post mortem specimens detected oxycodone[8] in urine and paracetamol in blood (~5 mg/L) and detected in urine. Toxicological analysis of the body fluids was non-contributory.

15. Dr Dodd noted the internal examination showed the presence of a large saddle type pulmonary thromboembolus in tandem with a left deep vein thrombosis. In addition, cardiac enlargement (cardiomegaly) was demonstrated and an incidental finding of adenocarcinoma of the prostate gland.

Circumstances in which the death occurred pursuant to section 67(1)(c) of the *Coroners Act 2008*

16. On 24 July 2017, Mr Morris performed the second stage revision of the left total knee replacement surgery at St Vincent's Private Hospital in Kew.

17. In his pre-admission health questionnaire, Darren's BMI was calculated to be 31.5 kg/m^2. At admission, the venous thromboembolism (VTE)[9] Risk Assessment Form (MR 10E) and medication chart VTE risk assessment section were not completed. There were no notes documenting any discussions regarding additional pharmacological prophylaxis[10] for VTE prevention. While in hospital, Darren received aspirin 100mg daily and mechanical VTE

[8] Oxycodone is a semi-synthetic opiate narcotic analgesic related to morphine used clinically to treat moderate to severe pain.
[9] Venous thromboembolism (VTE) is when a blood clot forms in a blood vessel and dislodges to occlude smaller blood vessels. DVT and PE are types of VTE.
[10] Pharmacological prophylaxis is the use of an anticoagulant medication to prevent the formation of blood clots..

prophylaxis[11] in the form of anti-embolic stockings[12] and a pneumatic foot compression system[13].

18. Mr Morris outlined in his statement that this was his routine VTE prophylaxis management for patients undergoing a total knee replacement. Of note, Mr Morris's routine VTE prophylaxis management was not consistent with the current St Vincent's Private's VTE Prevention Policy which would have recommended pharmacological prophylaxis in Darren's case. Mr Morris reported that there were no contraindications to pharmacological prophylaxis however he stated that in general, he avoided the use of heparin[14] based medication, given the risks to the patient's knee with regards to bleeding, swelling and infection. He did not believe that Darren was at increased risk of venous thromboprophylaxis over and above normal total knee replacement surgery.

19. Darren recovered well following the surgery. He had mild to moderate pain, which was well controlled with oral analgesia[15], and he reported feeling well. He mobilised early and ambulated with confidence with use of a two-wheeled frame and later crutches. Darren was reviewed by the hospital physiotherapist daily. Darren initially had a large fluid output from the surgical site drain tube, but this diminished by the second post-operative day. An elevated temperature of up to 38.3 degrees Celsius was investigated and treated appropriately. Darren was discharged home on 30 July 2017. At the time of discharge, Darren did not have symptoms[16] of VTE.

20. In a standard post discharge follow-up phone call by a hospital nurse on 4 August 2017[17] at 2.14pm, Darren advised that he was doing well and feeling better each day. Darren reported having less pain and that he was taking his multiple prescribed analgesic medications. No concerns were documented at this time. There is no record of Darren reporting any difficulty breathing, a symptom of pulmonary embolism (PE)[18]. On 5 August 2017, Darren was visited by the district nurse who replaced his surgical bandages.

21. In the Victoria Police Report of Death for the Coroner, Darren's wife reported to Senior Constable Sandi Mitton, that since his discharge from hospital Darren had episodes of difficulty in breathing. Darren told his wife that he would be okay and did not seek further medical review for his symptoms.

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[11] Physical devices used to prevent blood clots. This is distinguished from pharmacological prophylaxis which involves the use of medications.
[12] Compression stockings for mechanical prophylaxis against blood clots.
[13] An electrical pneumatic pump system is used to deliver leg compressions to improve lower limb blood flow and hence reduce the formation of blood clots.
[14] An anticoagulant medication to prevent VTE. See section 2.3 for further details.
[15] Pain relief medications.
[16] Symptoms of DVT include leg pain and swelling. Symptoms of PE include shortness of breath, chest pain or light-headedness.
[17] Or possibly 3 August 2017, due to unclear documentation.
[18] A blood clot in the lungs.

22. At approximately 9.00am on 6 August 2017, Darren was walking down the hallway at home and about to start his daily exercises when he collapsed and briefly lost consciousness. Darren complained of feeling dizzy and appeared very dazed.

23. Ambulance Victoria were called and attended at approximately 9.40am, at which time Darren was conscious but distressed. As he was lifted onto the ambulance stretcher, Darren suffered a cardiac arrest. Resuscitation was attempted for approximately one hour but was unsuccessful. Darren was declared deceased at 10.56am on 6 August 2017.

Review and Assessment of Contributing Factors

24. I sought the assistance of the Coroners Prevention Unit (CPU) to review and assess the contributing factors surrounding Darren's death. The CPU is a specialist service for coroners created to strengthen the prevention role of the Court and provide professional assistance on issues pertaining to public health and safety. The Health and Medical Management Team assist in the investigation and development of recommendations surrounding deaths occurring during the provision of health care and notably to assist in identifying factors that may help patient safety and risk management in such settings.

Venous thromboembolism

25. The autopsy determined that Darren had a left leg DVT and a large saddle type PE. DVT and PE are two manifestations of venous thromboembolism (VTE).

26. DVT refers to the development of a blood clot in the legs. Sluggish or poor venous blood flow (venous stasis) in the lower limbs increases the risk of blood clots forming. Symptoms of DVT include leg pain and swelling.

27. PE refers to an obstruction of the pulmonary artery or one of its branches by an embolus (for example a blood clot) that originated elsewhere in the body. The clinical presentation of PE is variable and often non-specific making the diagnosis challenging. Symptoms of PE include shortness of breath, chest pain or light-headedness. Surgery and in particular major orthopaedic surgery involving the lower limbs is a prominent risk factor for VTE.[19]

[19] Haas S. Prevention of venous thromboembolism: recommendations based on the international consensus and the American College of Chest Physicians sixth consensus conference on antithrombotic therapy: Clinical Application Thrombo Haemostasis 2001; 7:171-177.

Risk Factors for VTE and Review of Adequacy of VTE Risk Assessment

28. There are numerous risk factors[20] for the development of VTE in surgical patients, including advanced age, the type and extent of surgery or trauma, duration of hospital stay, a history of previous VTE or cancer, immobility, recent sepsis (blood infection), presence of a central venous access device, pregnancy or the postpartum period, and inherited or acquired diseases which increase the risk of blood clots.[21]

29. Darren was at high risk of VTE due to the type of surgery conducted; a knee arthroplasty (joint replacement surgery) and his additional risk factor was the presence of obesity with a BMI of greater than 30 kg/m^2. Although unknown at the time of surgery, the autopsy incidentally found the presence of prostate cancer. Cancer is an additional risk factor for VTE.

30. Darren's case was investigated with a Root Cause Analysis (**RCA**) by St Vincent's Private Hospital. The RCA identified that the VTE Risk Assessment Form (MR 10E) was not completed by nursing staff on admission. There was a perception amongst nursing staff that all orthopaedic patients admitted to the first-floor orthopaedic ward (where Darren was admitted) were deemed as 'high risk' for VTE management and thus did not warrant completion of the VTE Risk Assessment Form (MR 10E). In addition, a second reminder for VTE risk assessment was found on the St Vincent's Private Hospital medication charts in the 'VTE risk assessed' section. This section was also not completed for Darren. St Vincent's Private VTE Prevention Policy does not mandate that this section is completed by the treating medical practitioner.

31. The RCA resulted in the following recommendations; "A review of the VTE Prevention Policy and the VTE Risk Management process was recommended. This review will be undertaken in conjunction with St Vincent's Hospital Melbourne and managed by the Medication Safety Working Party and the Medical Director of St Vincent's Private Hospital. A working party will be established to ensure a robust ongoing VTE audit. Orthopaedic surgeons will then be consulted with a view to hopefully reach a consensus regarding acceptable methods of VTE prophylaxis". Dr Katherine Worsely, Medical Director at St Vincent's Private Hospital, did not provide a specific timeframe for which their RCA recommendation was to be completed.

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[20] Gould MK, Garcia DA, Wren SM, et al. 'Prevention of VTE in non-orthopaedic surgical patients: antithrombotic therapy and prevention of thrombosis', 9th edition: American College of Chest Physicians evidence-based clinical practical guidelines. Chest 2012; 141.

[21] Menaka P and Douketis J. 'Prevention of venous thromboembolic disease in surgical patients' Accessed in the Up to Date clinical database, October 2015.

32. The current St Vincent's Private Hospital VTE Prevention Policy was not followed in Darren's case and there was an absence of documentation of a formal pre-operative VTE assessment by the orthopaedic surgeon Mr Morris and nursing staff involved in Darren's care. The VTE Risk Assessment form would have put Darren in the High-Risk category for VTE.

VTE Prophylaxis and Review of VTE Prophylaxis and Management

General VTE Prophylaxis

33. Current VTE prophylaxis options are divided into pharmacological prophylaxis and mechanical prophylaxis. Pharmacological prophylaxis is the use of an anticoagulant medication to prevent the formation of blood clots within blood vessels (VTE). Recommended medications included low molecular weight heparin, fondaparinux, dabigatran or rivaroxaban. Mechanical prophylaxis is usually provided in the form of antiembolic stockings (compression stockings) or intermittent pneumatic leg compression. Multimodal VTE prophylaxis is ideally started during hospitalisation, either before, or shortly after surgery, and continued at least until the person is fully ambulatory.

34. Of note, Darren's VTE prophylaxis management included aspirin 100mg daily. The Australian Commission on Safety and Quality in Health Care[22] VTE Prevention Clinical Care Standard[23] (subsequently referred to as the Clinical Care Standard) released in October 2018 states that (note the bolded text is in direct replication of the original quote format): "The use of aspirin for the primary prevention of VTE specifically in hip and knee replacement surgery is **controversial**. Aspirin in combination with mechanical compression **may be appropriate** in patients undergoing hip or knee replacement surgery with no additional risk factors for VTE or postoperative bleeding".

35. Aspirin may only have a weak protective effect against DVT in some people and hence is often not recommended as pharmacological VTE prophylaxis. Aspirin is still commonly prescribed post-operatively despite the controversy. This highlights the wide variation in current VTE prophylaxis management and in particular, the wide variation in practices of individual orthopaedic surgeons.

[22] The Australian Commission on Safety and Quality in Health Care are the agency leading the national review of prioritisation of clinical practice guideline development in Australia.
[23] https://www.safetyandquality.gov.au/our-work/clinical-care-standards/venous-thromboembolism-prevention-clinical-care-standard/

Current Guidelines

36. Several international and national guidelines have been developed to provide recommendations for VTE prophylaxis and there have been several systematic reviews of the different modalities used in the prevention of VTE. Despite this, there is currently no clinical practice guidelines consensus on best practice for VTE prophylaxis. In particular, there is no consensus on when and what pharmacological prophylaxis is required.

37. The key clinical practice guideline in Australia for VTE prevention in hospitalised patients was published by the National Health and Medical Research Council (NHMRC)[24] in 2009. The NHMRC rescinded this guideline in 2016 due to the need for its revision.

38. The NHMRC 2009 guideline recommended that all patients admitted to hospital for total knee replacement should receive pharmacological thromboprophylaxis following surgery. Patients undergoing total knee replacement surgery were reported to be in one of the highest risk categories for VTE on the basis of the procedure itself. The St Vincent's Private Hospital VTE Prevention Policy followed similar recommendations to this guideline.

39. At the time of Darren's surgery, both the NHMRC and St Vincent's Private Hospital VTE prevention recommendations were outdated and did not reflect current evidence. However, at the time, there was no current accepted Australian guideline of best practice.

40. In October 2018, the Australian Commission on Safety and Quality in Health Care released the VTE Prevention Clinical Care Standard. The goal of the Clinical Care Standard was to ensure all hospitalised adults have an assessment of VTE risk which is formally documented and aims to ensure that VTE prevention is appropriately prescribed. However, as stated in the Clinical Care Standard document: "A clinical care standard differs from, and is therefore not intended to be, a clinical practice guideline… …Clinicians are advised to use clinical judgement and consider an individual patient's circumstances, in consultation with the patient and/or their carer or guardian, when applying the information in the clinical care standard".

41. Of note the Clinical Care Standard does not provide a specific guideline and continues to state that, "There is no consensus among evidence-based guidelines regarding the preferred method of VTE assessment and there is no evidence suggesting that one assessment tool is better than another". Instead, the Clinical Care Standard provided a list of 19 published

[24] The National Health and Medical Research Council is Australia's peak funding body for medical research, with a budget of roughly $900 million a year. The Council was established to develop and maintain health standards and is responsible for implementing the National Health and Medical Research Council Act 1992.

guidelines and 11 VTE risk assessment tools and did not provide any recommendation into which guideline was preferred.

42. The Clinical Care Standard has essentially provided a summary of the current research but has left the onus on the individual health service to create their own guideline.

St Vincent's Private VTE Prevention Policy

43. The St Vincent's Private VTE Prevention Policy and their VTE Risk Assessment Form (MR 10E) are appropriate and evidence-based. The policy is very similar to the NSW Clinical Excellence Commission: Adult VTE Risk Assessment Tool, which is one of the locally endorsed evidence-based tools recommended in the Clinical Care Standard. Both tools would rate Darren as high risk for VTE.

Criticisms of Current Guidelines

44. This issue has been addressed in past Coroners' cases and currently there is no still standard Australian guideline.

45. In 2016, an expert orthopaedic surgeon Associate Professor Andrew Bucknill was commissioned to review the case of Anna Bowditch (COR 2014 4262). Ms Bowditch died of a stroke caused by a clot dislodging from a leg DVT after operative fixation of an ankle fracture. Associate Professor Bucknill provided evidence regarding several misconceptions about DVT, PE and pharmacological VTE prophylaxis. He stated that the current 2009 NHMRC guidelines are based on assumptions that are not supported by contemporary evidence.

46. He stated that the risks of PE, even following major orthopaedic surgery are low and may not be related to increased rates of lower limb DVT. That is, a DVT and PE are two different problems, with DVT being due to stasis (sluggish blood flow) of the venous circulation and PE due to a systemic response to surgical trauma. He also stated that there is no proof that pharmacological prophylaxis leads to lower mortality from PE and that the risks of pharmacological prophylaxis is underestimated, especially in the case of complications[25] of orthopaedic surgery.

[25] Risk of bleeding and infection.

Variation in practice and lack of adherence to local guidelines

47. Based on Mr Morris' statement, it appears that he consistently does not follow the St Vincent's Private Hospital VTE Prevention Policy recommendations. Mr Morris stated that his routine VTE prophylaxis management for a total knee replacement was aspirin 100mg daily, mechanical VTE prophylaxis and in general, he avoided heparin-based medications. This practice varies significantly from the hospital recommendations.

48. Given the controversies and criticisms of current VTE prophylaxis management and the lack of a standard Australian guideline, I am unable to criticise Mr Morris for not following the hospital policy given that the hospital policy was outdated at the time. In addition, Mr Morris' management choices were supported by clinical judgement[26] and evidence[27]. I again wish to highlight this as an example of the wide variation in practices of individual orthopaedic surgeons.

Previous Coroners Recommendations

49. On 20 July 2015, Coroner English made recommendations in the Finding into Death without Inquest of Hazel Bampton (COR 2011 4846). Ms Bampton died of a PE secondary to DVT in the convalescent phase of left lower leg trauma.

> Recommendation 1
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> The NHMRC should consider commissioning a working group, to collate and analyse evidence concerning thromboprophylaxis for outpatients who have a body mass index over 30. This would include those at increased risk of venous thrombo-embolism, such people with trauma, requiring limb immobilisation. This evidence should be collated and analysed with a view to creating guidelines for hospitals and the health care system regarding their treatment and management of such patients.
>
> Recommendation 2
>
> The Victorian Health Department should consider a public education campaign to raise awareness of the potential risk of venous thrombo-embolism and the importance of early mobilisation for people who have a body mass index over 30 and find themselves immobilised after discharge from hospital for any other reason.

50. The NHMRC provided a response to these recommendations on 13 October 2015. The NHMRC requested that the Australian Commission on Safety and Quality in Health Care

[26] Mr Morris avoided heparin-based medication due to risks of bleeding, swelling and infection.
[27] See section on General VTE Prophylaxis and the use of aspirin. Evidence supporting this is also in the Australian Commission on Safety and Quality in Health Care VTE Prevention Clinical Care Standard.

take over the role of creating VTE prevention guidelines. However, as stated above, they were unable to produce a standard Australian clinical practice guideline for VTE prophylaxis.

Conclusions

51. The incidence of VTE among hospitalised patients is 100 times greater than in the community[28] and the risk of developing VTE also continues after discharge from hospital. Hospitalisation is a major risk factor for VTE, with about 74% of VTE cases occurring up to three months after hospital discharge[29].

52. Despite this significant burden of disease, there is still no current Australian best practice guideline for VTE prophylaxis management. The newly published Australian Commission on Safety and Quality in Health Care VTE Prevention Clinical Care Standard provides a summary of current evidence and leaves the onus on the individual clinician to choose the management plan.

53. It appears that due to the wide range of evidence-based clinical guidelines available locally and internationally, a single consensus guideline cannot be agreed upon and 'there is no evidence suggesting that one assessment tool is better than another.'[30]

54. I am unable to criticise the VTE prophylaxis chosen in Darren's case. In addition, it cannot be stated with certainty that an escalation in Darren's VTE prevention, to include pharmacological prophylaxis, would have prevented his death, therefore I am unable to make any related recommendations for specific changes in medical management to prevent this death.

55. I would like to reiterate one of the goals of the Australian Commission on Safety and Quality in Health Care VTE Prevention Clinical Care Standard which is: "To ensure all hospitalised adults have an assessment of VTE risk which is formally documented". This did not occur in Darren's case. The documentation of Darren's increased BMI and categorisation in the High-Risk group may have changed Mr Morris's choice of VTE management; however, this cannot be said with certainty. A formally documented risk assessment ensures that all patients have their VTE prophylaxis management individually reviewed.

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[28] Heit JA, Melton LJ, III, Lohse CM, Petterson TM, Silverstein MD, Mohr DN, et al. Incidence of venous thromboembolism in hospitalized patients vs community residents. Mayo Clinic Proceedings. 2001.76(11):1102-10.

[29] Spencer FA, Lessard D, Emery C, Reed G, Goldberg RJ. Venous thromboembolism in the outpatient setting. Archives of Internal Medicine. 2007;167(14):1471-5.

[30] Quoted from the Australian Commission on Safety and Quality in Health Care VTE Prevention Clinical Care Standard

FINDINGS

56. Having investigated the death of Darren Andrew Templeton and having considered all of the available evidence, I am satisfied that no further investigation is required.

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

    (a) that the identity of the deceased was Darren Andrew Templeton, born 27 September 1965;

    (b) that Darren Andrew Templeton died on 6 August 2017, at 44 E Gibbons Road, Hamilton, Victoria from pulmonary thromboembolus and left deep vein thrombosis.

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

RECOMMENDATIONS

58. Pursuant to section 72(2) of the ***Coroners Act 2008***, I make the following recommendations connected with the death:

    1. St Vincent's Private Hospital RCA should review their VTE prevention policy and in particular the plan to consult orthopaedic surgeons in order to reach a consensus and address the issue of wide variations in VTE prophylaxis practices of individual physicans.

    2. St Vincent's Private Hospital should ensure completion of their VTE prevention policy review in a timely manner and establishment a specific timeframe for completion.

    3. St Vincent's Private Hospital VTE Prevention Policy should be updated to improve and ensure staff adherence in completion and documentation of VTE risk assessment in all hospitalised patients. The prescribed management should also be clearly documented by the treating medical practitioner and should be supported by one of the Clinical Care Standard's listed evidence-based guidelines. While awaiting an updated policy, St Vincent's Private Hospital should increase staff education and awareness of the risks of VTE in all hospitalised patients.

    4. The Victorian Department of Health and Human Services should consider a public education campaign to raise awareness of the potential risk of VTE and the importance of early mobilisation for people, particularly in people who have a BMI

over 30, are immobilised or recently discharged from hospital, as previously recommended by Coroner English.

59. I convey my sincerest sympathy to Darren's family and friends.

60. Pursuant to section 73(1) of the *Coroners Act 2008,* I order that this Finding be published on the internet.

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

(a) Darren's family, senior next of kin;

(b) Dr Katherine Worsely, Medical Director St Vincent's Private Hospital;

(c) Mr Hayden Morris, Orthopaedic Surgeon;

(d) Australian Commission on Safety and Quality in Health Care;

(e) National Health and Medical Research Council;

(f) Royal Australasian College of Surgeons;

(g) Department of Health and Human Services;

(h) Investigating Member, Victoria Police; and

(i) Interested Parties.

Signature:

MR JOHN OLLE
CORONER
Date: 9 May 2019

Coroners Court of Victoria