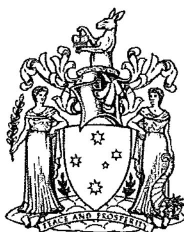

IN THE CORONERS COURT
OF VICTORIA
AT MELBOURNE

Court Reference: COR 2012 5516

FINDING INTO DEATH WITH INQUEST

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

Findings of:	**AUDREY JAMIESON, CORONER**
Deceased:	**ANDREW MICHAEL O'DONNELL**
Delivered on:	**25 October 2016**
Delivered at:	Coroners Court of Victoria, 65 Kavanagh Street, Southbank
Hearing date:	4 February 2016, 5 February 2016 and 21 April 2016
Police Coronial Support Unit:	Acting Sergeant Amanda Maybury, Assisting the Coroner[1]
Representation:	Mr D. Seeman of Counsel on behalf of the O'Donnell family. Mr S. Cash of Counsel on behalf of Monash Health.

[1] Acting Sergeant Remo Antolini from PCSU assisted the Coroner on 21 April 2016 for final submissions.

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RECOMMENDATIONS

I, AUDREY JAMIESON, Coroner having investigated the death of **ANDREW MICHAEL O'DONNELL**

AND having held an inquest in relation to this death on 4 February 2016, 5 February 2016 and 21 April 2016

at Southbank

find that the identity of the deceased was **ANDREW MICHAEL O'DONNELL**

born on 5 June 1966

and the death occurred on 26 December 2012

at Dandenong Hospital, 135 David Street, Dandenong, Victoria 3175

from:

1 (a) PULMONARY THROMBOEMBOLISM COMPLICATING LEFT CALF DEEP VENOUS THROMBOSIS

in the following summary of circumstances:

Andrew Michael O'Donnell presented to the Emergency Department (ED) of Dandenong Hospital, on 26 December 2012 at 4.38 pm with a two-day history of pain and swelling to the left calf. He had no known pre-existing medical conditions, nor was he taking any medications. He was triaged at 4.45 pm to be seen by the Fast Track Team, and seen by an Emergency Physician at 4.56 pm. An ultrasound was not performed as the service was not available on Boxing Day but a diagnosis of a left calf deep venous thrombosis was made. He was administered low molecular weight heparin, enoxaparin and discharged home at 6.30 pm with an appointment to return the following day for a departmental ultrasound. At 10.00 pm that evening he became disorientated and collapsed. Cardio-pulmonary resuscitation (CPR) was initiated and maintained during transportation by ambulance to Dandenong Hospital ED. Resuscitation measures ceased soon after his arrival. He was declared deceased at 11.50 pm.

BACKGROUND CIRCUMSTANCES

1. Andrew Michael O'Donnell[2] was 46 years of age at the time of his death. He lived in Hallam with his wife Jody O'Donnell (**Mrs O'Donnell**) and worked as a warehouse supervisor. Andy was keen on sport and had played cricket for a number of years, which

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[2] During the course of the Inquest Andrew Michael O'Donnell was referred to as Andy. For consistency, I have, in most part, avoided formality and also referred to him only as Andy throughout the Finding.

included training twice weekly during the season. He also helped out with training the local junior football team.[3]

SURROUNDING CIRCUMSTANCES

2. On the morning of 26 December 2012 Andy woke with extreme pain in his left leg. Mrs O'Donnell said that his leg was hot and red and swollen but he did not have a temperature.[4] Andy and Mrs O'Donnell consulted a medical book and discussed his pain and the possibility that his pain and symptoms related to a blood clot, in the context that they had a lot of family commitments on that day because it was Boxing Day. Andy decided to wait a couple of hours before seeking medical treatment, hoping that the pain might improve. By mid-afternoon the pain had increased to severe; he was experiencing difficulty in lifting his leg and he was *running short of breath*.[5] Mrs O'Donnell and Andy decided to go the hospital. At approximately 4.38 pm, Andy and Mrs O'Donnell arrived at the Dandenong Hospital ED.

3. At 4.45 pm Andy was seen by the triage nurse who took a history from Andy of two days of left calf pain, swelling and numbness. The triage nurse recoded that Andy's temperature was 37 degrees, pulse 85 beats per minute (bpm) and his oxygen saturation level 96% on room air. She also noted that pedal pules were present. A notation was made that Andy was slightly short of breath (SOB) and that his pain was 7 out of 10 in severity. The triage nurse decided to send Andy to the Fast Track department because although his vital signs were within the normal range, she considered that he needed prompt treatment because his pain levels were quite high.[6] Andy was given two Panadeine Forte for the pain.[7]

4. Andy was taken to the Fast Track department and at approximately 5.00 pm, a registered nurse took blood from Andy for testing and performed another set of observations. Andy's

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[3] Transcript (T) @ p 37.

[4] T @ p 44.

[5] Exhibit 1 – Letter from Jody O'Donnell dated 9 February 2013.

[6] Exhibit 2 – Statement of Alicia Mitchell (as amended) dated 16 December 2015.

[7] I note that Alicia Mitchell did not remember providing Panadeine Forte, and the medical records did not reflect that any had been given. However, I have no reason to doubt Mrs O'Donnell's evidence, noting that Andy's pain was later recorded as reduced in severity.

blood pressure was recorded as 130/74, pulse 72 bpm and regular, temperature 36.4°C, respirations 18/min, oxygen saturation was 95% and his pain was recorded as zero.[8] Subsequently, Andy was examined by an ED doctor in the Fast Track department, and prescribed and administered Clexane. As it was a public holiday there was no ultrasound scanning service available. Andy was sent home with a referral for a Doppler ultrasound for the following day.

5. Mrs O'Donnell and Andy returned home sometime after 6.00 pm. The couple had dinner and watched television. Andy complained of a severe headache, for which he took two Nurofen tablets. At about 10.00 pm, Andy got in the shower and almost immediately fell out, stating that the shower was burning. He collapsed soon after and was observed by Mrs O'Donnell to be convulsing and struggling to breathe. He stopped breathing soon after and lost consciousness. Mrs O'Donnell initiated first aid and called Emergency Services on 000.

6. An ambulance arrived at approximately 10.35 pm and paramedics initiated resuscitation as Andy was in cardiac arrest by this stage. Andy was conveyed to Dandenong Hospital but was unable to be revived. He was pronounced deceased at 11.50 pm.

JURISDICTION

7. Andy's death was determined to be a reportable death under section 4 of the *Coroners Act 2008*, because it occurred in Victoria and was considered unexpected, unnatural or to have resulted, directly or indirectly, from an accident or injury.

8. The e-Medical Deposition Form completed by Dr Narendra Duggirala, Senior Emergency Registrar at the Dandenong Hospital, ascribed the possible cause of death to *unknown/?PE*. Dr Duggirala did not indicate within the Form any issues to be addressed by the forensic pathologist. Dr Ananth Sundaralingam, specialist in Emergency Medicine was identified as the primary treating consultant.

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[8] Emergency Department Nursing Observation/Flow Chart – Inquest Brief @ p 169.

PURPOSE OF THE CORONIAL INVESTIGATION

9. The Coroners Court of Victoria is an inquisitorial jurisdiction.[9] The purpose of a coronial investigation is to independently 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.[10] The cause of death refers to the medical cause of death, incorporating where possible the mode or mechanism of death. For coronial purposes, the circumstances in which death occurred refers to the context or background and surrounding circumstances, but is confined to those circumstances sufficiently proximate and causally relevant to the death and not merely all circumstances which might form part of a narrative culminating in death.[11]

10. The broader purpose of coronial investigations is to contribute to the reduction of the number of preventable deaths through the findings of the investigation and the making of recommendations by coroners, generally referred to as the 'prevention' role.[12] Coroners are also empowered to report to the Attorney-General on a death; 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 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.[13] These are effectively the vehicles by which the prevention role may be advanced.[14]

11. It is not the Coroner's role to determine criminal or civil liability arising from the death under investigation. Nor is it the Coroner's role to determine disciplinary matters.

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[9] Section 89(4) *Coroners Act 2008*.
[10] Section 67(1) of the *Coroners Act 2008*.
[11] This is the effect of the authorities- see for example *Harmsworth v The State Coroner* [1989] VR 989; *Clancy v West* (Unreported 17/08/1994, Supreme Court of Victoria, Harper J).
[12] The 'prevention' role is now explicitly articulated in the Preamble and purposes of the Act, in contrast to the *Coroners Act 1985* where this role was generally accepted as 'implicit'.
[13] See sections 72(1), 67(3) and 72(2) of the Act regarding reports, comments and recommendations respectively.
[14] See also sections 73(1) and 72(5) of the Act which requires publication of coronial findings, comments and recommendations and responses respectively; section 72(3) and (4) which oblige the recipient of a coronial recommendation to respond within three months, specifying a statement of action which has or will be taken in relation to the recommendation.

12. Section 52(2) of the Act provides that it is mandatory for a coroner to hold an inquest into a death if the death or cause of death occurred in Victoria and a coroner suspects the death was as a result of homicide, or the deceased was, immediately before death, a person placed in custody or care, or the identity of the deceased is unknown.

13. Andy's identity was not in dispute, he was not a person placed in "*custody or care*" as defined by section 3 of the Act and his death was not considered to be a homicide. Therefore, it was not mandatory to conduct an inquest into the circumstances of his death. However, I exercised my discretion, pursuant to section 52(1) of the Act, to hold an inquest because I had identified matters of public health and safety that required further investigation

14. This finding draws on the totality of the material; the product of the coronial investigation of Paul's death. That is, the court records maintained during the coronial investigation, the Inquest brief and the evidence obtained at the Inquest, including submissions of legal counsel and counsel assist.

15. In writing this finding, I do not purport to summarise all of the evidence, but refer to it only in such detail as appears warranted by its forensic significance and the interests of narrative clarity. The absence of reference to any particular aspect of the evidence, either obtained through a witness or tendered in evidence does not infer that it has not been considered.

STANDARD OF PROOF

16. All coronial findings must be made based on proof of relevant facts on the balance of probabilities. In determining whether a matter is proven to that standard, I should give effect to the principles enunciated in *Briginshaw v Briginshaw*.[15] These principles state that in deciding whether a matter is proven on the balance of probabilities, in considering the weight of the evidence, I should bear in mind:

    - the nature and consequence of the facts to be proved;
    - the seriousness of an allegation made;

[15] (1938) 60 CLR 336.

- the inherent unlikelihood of the occurrence alleged;
- the gravity of the consequences flowing from an adverse finding; and
- if the allegation involves conduct of a criminal nature, weight must be given to the presumption of innocence, and the court should not be satisfied by inexact proofs, indefinite testimony or indirect inferences.

17. The effect of the 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.

FORENSIC INVESTIGATION

Identification

18. A Statement of Identification was completed by Andy's daughter Samantha O'Donnell, at the Dandenong Hospital on 27 December 2012.

19. Andy's identity was not in dispute and required no further investigation.

Medical cause of death

Autopsy

20. On 1 January 2013, at the Victorian Institute of Forensic Medicine (VIFM), Dr Matthew Lynch (**Dr Lynch**) Forensic Pathologist performed an autopsy on the body of Andy. Autopsy findings included:

    - Left calf DVT.
    - Pulmonary thromboembolism.
    - Obesity with body mass index of 34.94 kg/m^2.
    - Heart weight upper limit of normal.
    - Pulmonary oedema.
    - Hepatomegaly.

- Left sided rib fractures consistent with attempted resuscitation.
- Diverticular disease.
- Epididymal cyst.

21. Dr Lynch reported that at autopsy there was evidence of left calf deep venous thrombosis and also evidence of pulmonary thromboembolism. He reported that there was evidence of thromboembolus occluding branches of the pulmonary arterial tree on both the right and left proximally and laminated thromboembolus occluded the origins of both pulmonary arteries. The pulmonary thromboembolism showed organisational changes which Dr Lynch said suggested a process of at least some days duration. Dr Lynch also commented that at autopsy there was significant natural disease noted in the form of obesity (defined as a body mass index exceeding 30) with the BMI in Andy's instance being 34.94 kg/m^2. Toxicological analysis detected codeine and paracetamol. Dr Lynch ascribed the cause of Andy's death to natural causes, being pulmonary thromboembolism complicating left calf deep venous thrombosis.

Coroners Prevention Unit[16]

22. The Coroners Prevention Unit (**CPU**) was requested to review the circumstances of Andy's death on my behalf. In particular, the CPU was requested to review the standard of care received by Andy at the Dandenong Hospital ED, the decision to discharge him home following diagnosis of a Deep Venous Thrombosis (**DVT**), and to review the response time from Mrs O'Donnell's call to Emergency Services on the night of 26 December 2012 to the arrival of an ambulance.

Inquest brief

23. Leading Senior Constable Amanda Maybury from the Police Coronial Support Unit (PCSU)

[16] The Coroners Prevention Unit (CPU) was established in 2008 to strengthen the prevention role of the coroner. The unit assists the coroner with research and formulation of prevention recommendations, as well as assisting in monitoring and evaluating the effectiveness of the recommendations.

was nominated to be the coroner's investigator[17] and she prepared the Inquest brief.

THE INQUEST

Mention Hearing

24. On 11 December 2014, I conducted a Mention Hearing to discuss identified issues to assist in my determination whether or not to hold an Inquest. The interested parties present were:

    - The O'Donnell family represented by Ms Michelle Britbart of Counsel;
    - Ambulance Victoria (**AV**) represented by Mr Colin Grant;
    - Emergency Services Telecommunications Authority (**ESTA**) represented by Mr William Southey;
    - Monash Health represented by Mr John Snowden;
    - Ms Jodie Burns, Senior In-House Solicitor appeared as Counsel Assisting.

25. Disparate views were expressed as to what the relevant issues were and whether they warranted a public hearing. At the conclusion of the Mention Hearing, I requested that the interested parties provide me with written submissions on whether or not to proceed within an Inquest in order to fulfil my statutory role under the *Coroners Act 2008.* I also requested that the parties provide me with any expert opinions on which they were intending on relying.

26. In February 2015, I received the requested submissions from AV and ESTA and from Jody O'Donnell I received a Form 26, Request for Inquest accompanied by an expert opinion from Associate Professor John Raftos (Senior Specialist in Emergency Medicine at Sydney Hospital) dated 20 September 2013. In May 2015, I received an expert report and supplementary report from Dr David Hart (Respiratory Physician) dated 28 July 2014 and 26 January 2015 respectively, on behalf of Monash Health. A Court appointed expert

[17] A coroner's investigator is a member of the police force nominated by the Chief Commissioner of Police or any other person nominated by the coroner to assist the coroner with his/her investigation into a reportable death. The coroner's investigator takes instructions directly from a coroner and carries out the role subject to the direction of a coroner.

opinion was subsequently obtained from Dr David Eddey, Emergency Physician. Further material/responses were requested from ESTA and AV.

Directions Hearing

27. Directions Hearings were conducted on 16 October 2015 and 9 November 2015.

28. At the Directions Hearing on 9 November 2015 the interested parties present were:

    - The O'Donnell family represented by Ms Michelle Britbart of Counsel;
    - Ambulance Victoria represented by Ms Maggy Samaan;
    - Monash Health represented by Mr John Snowden;
    - Emergency Services Telecommunications Authority represented by Mr Fatmir Badali;
    - Leading Senior Constable (LSC) King Taylor from the Police Coronial Support Unit (PCSU) was Counsel Assisting.

29. On 11 November 2015, Coroner's Solicitor Ms Amira Kafka communicated with the Interested Parties on my behalf, confirming a number of matters but not limited to, that I had excused the ESTA and AV from being Interested Parties at the Inquest, that there had been agreement that the Clexane dose provided to Andy at Dandenong Hospital on 26 December 2012 whilst relevant to factual matrix, would not be pursued as a causative factor to his death, and the scope of the Inquest would be:

    - Whether Andy should have been admitted as an inpatient to Dandenong Hospital at his 26 December 2012 presentation;
    - Whether an inpatient admission would or could have prevented his death; and
    - Whether Andy's allocation to the Emergency Department's Fast Track impacted on his clinical assessment and/or the decision whether or not to admit him.

30. This correspondence also confirmed the witness list for the Inquest, including that on the second day of the Inquest a panel of three experts would provide concurrent evidence.

Evidence at the Inquest

31. *Viva voce* evidence was obtained from the following witnesses at Inquest:

- Mrs Jody O'Donnell
- Ms Alicia Mitchell, Triage Nurse
- Dr Igor Tulchinsky, Emergency Physician
- Concurrent evidence[18] was obtained from:
  i. Dr David Eddey, Emergency Physician, Barwon Health, Geelong Hospital – Court appointed expert.
  ii. Dr David Hart – Respiratory Physician, St. Vincent's Hospital, Melbourne.
  iii. Associate Professor John Raftos – Senior Specialist in Emergency Medicine, Sydney Hospital.

Andy's presentation and Triage assessment in the ED

32. Registered Nurse, Alicia Mitchell (**Nurse Mitchell**) was working as a Triage Nurse in the ED at Dandenong Hospital when Andy and Mrs O'Donnell arrived on 26 December 2012 at approximately 4.30 pm. Mrs O'Donnell said that they were not waiting very long to see the Triage Nurse – *it was only moments.*[19] Mrs O'Donnell recalled telling Nurse Mitchell that they believed that Andy had a clot in his left leg, that it was not cellulitis because she had seen that condition in members of her own family and that Andy had a family history of the problem of clots in the leg, specifically that his father had died after not seeking medical attention for similar symptoms.[20] Mrs O'Donnell was endeavouring to emphasise the urgency of Andy's condition. Nurse Mitchell examined Andy's leg and asked him a range of questions, including whether he had travelled, had an injury to the leg or had a recent

[18] Concurrent evidence is when a number of expert witnesses are called to give evidence at the same time. In this case, three experts were all provided with the Inquest brief and a number of questions. They met prior to the Inquest to discuss the issues and were sworn in and asked for their responses to each question to determine if there was a possibility of consensus on any of the questions.

[19] T @ p 34.

[20] Exhibit 1 – letter from Jody O'Donnell dated 9 February 2013, T @ p 8. Through her legal Counsel Mr Seeman, I was informed on Day 2 of the Inquest that Mrs O'Donnell had perhaps had some of the conversations that she referred to as being with Nurse Mitchell that they may have in fact occurred with the Receptionist on their arrival at the ED – T @ p 174.

operation.[21] She told Andy that he would be seen very quickly and provided him with two Panadeine Forte for his pain. Nurse Mitchell's notes reflect that Andy's complaints were: *left calf pain and swelling onset 2/7, slight SOB, nil analgesia taken, pedal pulses present, slight numbness, good cap. refill, ambulant.*[22]

33. Mrs O'Donnell felt that that Nurse Mitchell had listened to their concerns and was taking their concerns seriously, but she did not ask Andy about whether he was experiencing shortness of breath and he did not advise her about these symptoms.[23]

34. Nurse Mitchell could not recall if she had made the notation about "*slight SOB*" because she had formed the opinion that Andy was short of breath or whether he had told her he was feeling short of breath.[24] Regardless, she did suspect that Andy had a DVT[25] and she was aware of the complication or possible complication of pulmonary embolism (**PE**) however, Andy's oxygen saturation level of 96% and his skin colouring did not suggest the presence of PE.[26] Nurse Mitchell maintained that Fast Track was the appropriate clinical pathway for Andy's presenting signs and symptoms, and acknowledged that the Fast Track principles state that:

    The primary aim of fast stream is to reduce the waiting times and length of stay for patient's whose assessment and initial ED management is not expected to be complex or time consuming.[27]

35. Nurse Mitchell stated that Andy would not have gone to Fast Track if he was severely short of breath and complaining of chest pain as these symptoms may indicate that *there was something more going on*.[28] She also said that if she had known of a family history of DVT,

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[21] T @ p 12.

[22] Inquest Brief @ p 167.

[23] T @ p 20.

[24] Exhibit 2 – Statement of Alicia Mitchell dated 16 December 2015, T @ p 53, 64.

[25] T @ p 51.

[26] T @ pp 52-53.

[27] Inquest Brief @ p 156.

[28] T @ p 56, 74.

she would have noted it in her triage notes. Nurse Mitchell said that in the circumstances of a patient being severely short of breath with associated chest pain, she would have triaged to the mainstream pathway and potentially triaged Andy to the mainstream pathway with the knowledge of a family history because *that is a big risk factor*.[29] Nurse Mitchell said she was not told of a family history[30] or of complaints of thigh pain,[31] otherwise she would have recorded these. Knowledge of either would have potentially changed her assessment on where to send Andy. She did however state that triage to the mainstream does not necessarily equate to admission to the hospital and likewise, the Fast Track pathway does not exclude admission to the hospital. Nurse Mitchell stated that the Triage Nurse is not responsible for the admission of a patient, that is a decision for the doctors,[32] but she opined that in the 2-3 minutes she spent with Andy she did not believe that he needed admission at that point in time.[33]

36. Mrs O'Donnell said that Nurse Mitchell *was the only one who seemed to be paying attention*.[34] She also believed that following the assessment by Nurse Mitchell that Andy would be admitted.[35]

Assessment of Andy in the Fast Track department

37. Emergency Physician, Dr Igor Tulchinsky, (**Dr Tulchinsky**) explained that being deemed suitable for the Fast Track:

> *...basically has nothing to do with who gets admitted, who gets discharged, it's basically the time spent with the clinician to make a diagnosis. So if we feel that it won't require a lot of time these people can be fast tracked through the system. If it's going to be a complex issue that requires a lot of time spent with a*

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[29] T @ pp 66-67.

[30] T @ p 77.

[31] T @ p 75.

[32] T @ p 64, 74.

[33] T @ p 78.

[34] T @ p 24.

[35] T @ pp 8 – 9, 13, 22.

clinician, then they're more appropriate for the mainstream. Also if the patient is in any way haemodynamically (sic) unstable, if they require continuous monitoring, they're also more inappropriate for fast track system. It's all about the time with the clinician.[36]

38. At 4.56 pm Dr Tulchinsky became available to examine Andy. He read Nurse Mitchell's Triage notes and requested that Andy be retrieved from the waiting room and brought into the Fast Track area and that another set of observations be taken.[37] Nurse Yawen Wu (**Nurse Wu**) performed these observations at 5.00 pm[38] and Dr Tulchinsky went into the cubicle to see Andy shortly thereafter. Clinically he thought the most likely diagnosis was DVT but said that it was not a definitive diagnosis in the absence of an ultrasound being undertaken.[39] There was however no sonographer on site to perform an ultrasound.– It was a public holiday and 5.00 pm and Dr Tulchinsky did not consider that the circumstances of Andy's presentation warranted an urgent ultrasound, which would necessitate him contacting the radiologist to get approval to call in the sonographer. Dr Tulchinsky explained that although there has been some extension to the availability to perform ultrasounds since Andy's death, one may still not be available for like circumstances of Andy's presentation including the combination of a public holiday and an early evening presentation.[40]

39. Mrs O'Donnell's account of Dr Tulchinsky's contact with Andy included that he too did not ask Andy specifically if he had been experiencing shortness of breath. She said that Dr Tulchinsky asked Andy to tell him the history of the pain in his leg and also asked if Andy had any chest pain. Andy told Dr Tulchinsky that he had not been experiencing chest pain but that he had been exhausted for the previous two weeks.[41] Andy also started to tell Dr

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[36] T @ p 100.

[37] T @ p 102.

[38] Inquest Brief @ pp 167 and 169.

[39] T @ p 111.

[40] T @ p 111.

[41] T @ p 20. Later in her evidence, Mrs O'Donnell said that Andy *indicated to the doctor (sic) he'd been having trouble breathing for two weeks.* – T @ p 31, and that Andy had used the words *breathless and exhausted* to Dr Tulchinsky – T @ p 32.

Tulchinsky about his family history of blood clots but according to Mrs O'Donnell, Dr Tulchinsky told Andy he was not interested in his family history.[42] Mrs O'Donnell said that Dr Tulchinsky did not ask Andy any questions of substance related to his presentation at the ED. There was just *small talk* and *there wasn't much conversation about anything.*[43] She did however concede in her *viva voce* evidence that Dr Tulchinsky had asked Andy whether he had recently flown in an aeroplane.[44] Mrs O'Donnell said that Dr Tulchinsky did not examine Andy's thigh or his calf, both of which were swollen. She said that you could see that Andy's calf was swollen but that Dr Tulchinsky did not *actually physically come over and look at Andy's calf.*[45]

40. Dr Tulchinsky's account of his meeting and assessment of Andy varied somewhat to that of Mrs O'Donnell's. Dr Tulchinsky stated that his examination of a patient begins from when he lays eyes on the patient and in this case, Andy did not appear short of breath.[46] He was not using accessory muscles, did not appear to be breathing very fast and was talking in full sentences, all indicators that he was not short of breath.[47] He said that he recalls that Andy's leg and foot were swollen and that he had pitting oedema,[48] he had looked at Andy's leg including *at least half the thigh* which was revealed as Andy's shorts had ridden up when he had sat down.[49] Dr Tulchinsky said that he had a vague recollection of Andy telling him that his father had died from a heart attack but no recollection of Andy telling him his father had died from a PE. He went on to explain that even if Andy had told him about his family history of PE, it would not have played any part *in anything at all* because the clinical predictive rules for a PE are based on the Wells criteria/score and this does not include a

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[42] T @ p 28, 31.

[43] T @ p 29.

[44] T @ p 29.

[45] T @ p 39.

[46] T @ p117.

[47] T @ p 156.

[48] T @ p114.

[49] T @ p 121.

score for a family history of PE.[50] Dr Tulchinsky said that everybody uses the Wells criteria and it tells a clinician:

> *..what the probability in this person of a DVT is, whether it's low, moderate or high and the scoring system depends on some of the signs and some of the past history. There is no family history in the Wells' criteria because the family history per se has a very low positive predicting value.*[51]

41. Dr Tulchinsky said that any DVT can progress to a PE; whether it be a proximal or distal DVT, the risk is real. He said that he did not suspect that Andy had a PE but that he knew from the literature that he could have a PE because between 30 and 70 per cent of people presenting to an ED with either a diagnosis or a provisional diagnosis of DVT will have PE albeit that it is subclinical.[52] The test for PE is a pulmonary angiogram and although such a test could have been arranged to be undertaken that day, Dr Tulchinsky said that it was not undertaken because he *found no evidence of Mr O'Donnell having a PE. There was no shortness of breath and no other symptoms.....I didn't find numbness either.*[53] Dr Tulchinsky said that he did not disregard what Nurse Mitchell had recorded at Triage but that he made his own assessment and judgement based on what he found.[54] He stated that he had a low threshold to perform the test if on his own history and examination of the patient he gets a history of shortness of breath.[55] Dr Tulchinsky also said that if he had diagnosed a PE he would have admitted Andy but the treatment might have been exactly the same[56] and the outcome may have not been any different. He said that admission to hospital does not improve a patient's chances of survival if they suffer a cardiac arrest consequent to a pulmonary embolus.[57] Dr Tulchinsky explained that when a thrombus travels up blocking

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[50] T @ p 112, 152, 158.

[51] T @ pp 158-159.

[52] T @ pp 160-161.

[53] T @ pp 123 - 124.

[54] T @ p 125.

[55] T @ p 147.

[56] T @ p 143.

[57] T @ pp 1444-145.

both of the pulmonary arteries, such as in Andy's case,[58] both lungs are deprived of any blood flow and loss of consciousness or cardiac arrest can occur very quickly, in 10, 20 or 30 seconds.[59]

42. Dr Tulchinsky maintained his opinion that Andy's presentation on 26 December 2012 did not warrant his admission to hospital, that admission would not have prevented his death and that being triaged to the Fast Track stream had no impact on the clinical assessment of him.[60]

43. When Andy was discharged from the ED he was not given any written information brochure/leaflet about DVT[61] and was not told about the warning signs or things to look out for, he was just given an appointment letter to attend for an ultrasound on 27 December 2012[62] according to Mrs O'Donnell. Dr Tulchinsky said unfortunately he agreed this to be the case.[63] Since Andy's death Monash Health has developed a discharge brochure/leaflet for people suffering from DVT.[64]

Concurrent evidence

44. Concurrent evidence was obtained from Dr David Eddey, Associate Professor John Raftos and Dr David Hart.

45. The following questions were put to the panel of experts in the course of the concurrent evidence:

> *1. Andy's father reportedly died as a result of an apparently symptomatic DVT and ultimately PE:*
>
> *(a) Is family history relevant when diagnosing a possible pulmonary embolism? If so, in what way?*

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[58] It was identified post mortem that Andy had suffered from a saddle pulmonary embolus.

[59] T @ p 146.

[60] T @ p 154.

[61] T @ p 38.

[62] T @ p 38.

[63] T @ p 135.

[64] T @ p 139, Inquest Brief @ p 97.

46. Dr Hart responded on behalf of the panel that family history is relevant in the management of PE in that it might affect the duration of treatment and follow-up but that family history does not impact on assessing an individual in front of you as to whether they currently have a PE or DVT.[65]

(b) Is body weight or BMI a relevant factor in the diagnosis of a PE?

47. Dr Hart responded on behalf of the panel that being overweight is a risk factor for the development of PE and DVT but not of sufficient importance that it would alter a clinician's clinical judgement when assessing a patient.[66]

(c) Is it a risk factor for DVT and/or PE?

48. Dr Hart responded on behalf of the panel. The response was the same as to question 1b).

2. What are the symptoms of PE?

49. Dr Hart responded on behalf of the panel that many patients with a PE have no symptoms at all. When a PE becomes symptomatic it is usually because of breathlessness, chest pain, syncope or fainting and occasionally coughing up blood.

(a) How long can a person live with a PE?

50. Dr Hart responded on behalf of the panel that many people are not aware that they have had a PE and can survive a normal life. The size of the PE can influence survivability – if it is a small PE and does not block up much of the lung it is survivable even without treatment, that is, it can resolve itself. If on the other hand, the amount of the clot is severe and blocks a lot of the lung, the patient can die from the PE or require very serious treatment.[67]

(b) Can you develop a PE without having a proximal DVT?

51. Dr Hart responded on behalf of the panel in the affirmative and stated that PEs can develop from clots in the arm or clots confined to the calf (distal DVT) however, the risk of developing PE becomes more likely the more extensive the clot is. In the leg, if the clot goes above the knee or into the veins of the lower abdomen the risk of developing a PE becomes higher.[68]

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[65] T @ p 179.

[66] T @ p 180.

[67] T @ p 180.

[68] T @ p 181.

52. Dr Eddey added that some DVTs can develop without signs of peripheral or limb thrombosis and may develop from veins in the pelvis or abdomen.[69]

3. What are the symptoms of proximal DVT?

53. Dr Hart responded on behalf of the panel that the symptoms of DVT are usually pain, swelling and redness, generally in the calf and in circumstances where there is a very extensive clot that comes high up in the groin, the symptoms can be swelling and tenderness in the thigh. However, specifically in relation to a proximal DVT there may only be some swelling in the calf and no associated signs or symptoms in the thigh.[70]

(a) Dr Eddey states that a distal or calf DVT is usually asymptomatic – agree?

54. Dr Hart responded that the panel agreed in so much that the higher the clot extends the more likely the patient will have symptoms but that patients with a distal or calf DVT can also have symptoms.

(b) Is pain, swelling and tenderness below the knee generally an indicator of proximal DVT?

55. Dr Hart responded on behalf of the panel that this question prompted the same response to the above and said that it was a little more likely that there is proximal clot if there are signs and symptoms in the calf but that is also possible to have pain, swelling and tenderness below the knee with a distal DVT.[71]

(c) Is it possible that Andy had a proximal[72] DVT?

56. Dr Hart responded on behalf of the panel that there is no reliable way by examining the leg to determine with certainty whether the clot extends into the thigh or up as far as the groin.[73]

(d) The appropriateness of Andy's discharge if a proximal DVT had been diagnosed?

57. Dr Hart responded on behalf of the panel that in the last 10 – 15 years with the advent of Clexane and more recently oral anticoagulants, it has been widely adopted to send people

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[69] T @ p 181.

[70] T @ pp181-182.

[71] T @ p 182.

[72] The question was originally put to the panel in respect of a "distal" DVT but amended by Acting Sergeant Maybury during the course of the concurrent evidence.

[73] T @ p 183.

home who have a DVT.

58. Associate Professor Raftos (**A/P Raftos**) concurred with Dr Hart's comments, stating that the Australia-wide standard of care for patients with DVT with no evidence of PE, is that they are treated at home with either Clexane or one of the newer oral anticoagulants, hence it therefore reasonable to discharge someone home with a DVT only. A/P Raftos also commented on the policy at Dr Eddey's hospital of keeping the same such patients in overnight and until the ultrasound is performed[74] stating that he also considered this to be a cautious and reasonable policy, albeit that it was not the same as adopted in the majority of Australian hospitals.[75] A/P Raftos also sought to highlight that the treatment of this disease is difficult because it is dependent on the result of the ultrasound and this diagnostic modality is generally only available from 9.00 am to 5.00 pm on working days. Consequentially, EDs are significantly disadvantaged in treating patients with apparent DVT "out of hours" because the treatment with anticoagulation has substantial risks and people can come to harm with this treatment. Treatment of these patients in the absence of the ultrasound is thus imperfect but not *something we can necessarily do something about because there is a limited supply of ultrasonographers which restricts it largely to being an in-hours diagnostic modality.*[76]

> *(e) If a patient reports mild shortness of breath together with pain, swelling and tenderness below the knee, should this patient remain in hospital until a definitive test for PE can be performed?*

59. Dr Hart responded on behalf of the panel that the "mild shortness of breath" should act as a cue to take a wider history about breathlessness and should be assessed along with a more formal risk assessment about whether it is safe to discharge this patient based on the other signs and symptoms. "Mild shortness of breath" would not in itself be enough to make a clinical decision.

60. Dr Eddey added that there was nothing on Andy's observation chart that suggested he had a significant pulmonary embolism at the time. His respiratory rate of 18 per minute may be considered one or two breaths above what you might expect of a 40 year old man, but all other observations including oxygen saturation rate and heart rate were normal and he did

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[74] See: Exhibit 5 – Report of Dr David Eddey dated 22 May 2015.

[75] T @ p 184.

[76] T @ p 185.

not complain of chest pain.

61. A/P Raftos also added that if it was confirmed that the shortness of breath was of recent onset that should probably be sufficient to raise a suspicion of PE and to require the patient to stay in hospital. Doctors Eddey and Hart agreed.

4. If Andy had reported the above symptoms, mild shortness of breath and a 2 week history of being exhausted and breathless, should Dr Tulchinsky have kept Andy in hospital until a CT pulmonary angiogram could be performed?

62. Dr Hart responded on behalf of the panel that the post mortem findings identified clots distally or peripherally in the lungs which were likely to have been present for a couple of days prior to the terminal event, and could account for breathlessness for that time frame. The panel also thought it unlikely that any pulmonary emboli occurred prior to the onset of limb swelling which was recorded as having an onset of two to three days prior to Andy's presentation. The panel thus based its opinion on the post mortem findings and could not account for the 2 week history of being exhausted and breathless as depicted by Mrs O'Donnell.[77]

63. A/P Raftos added that the absence of reference to the two week history of lethargy and breathless in the medical records would suggest that the history was not given to either Nurse Mitchell or Dr Tulchinsky at the time. Dr Eddey also said that the one reference to slight shortness of breath only indicated that the more extensive history of breathlessness and exhaustion was not given.[78]

5. Dr Eddey states that in Barwon Health conditions for accepting DVT patients for outpatient management recognise the increased risk of a proximal DVT and include: "If the above knee DVT or PE is confirmed (or suspected), the patient must remain in hospital and have ward based care for a minimum of 24hrs, to ensure patient remains stable and any pain/hypoxia appropriately managed."

(a) Is this guideline a best practice approach or is it influenced by the outpatient resources available such as Hospital in the Home?

64. The panel felt that they had already addressed the substantive issues posed by this question but A/P Raftos also stated that patients in this category caused concern for the medical

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[77] T @ pp188-189.

[78] T @ p 189.

profession particularly when they were presenting out-of-hours. He said that the policy of keeping them in overnight so that an ultrasound can be performed the next day before discharge *would address a lot of insecurities that we have about the management of this disease but it would be resource expensive.*[79] Dr Hart added that the assumption implicit in the plan of treatment adopted at Barwon Health is that putting these patients in hospital does something different that would improve their survival. Dr Hart said that this was not the case except if there is a subsequent PE that is serious, the patient is in a place that something might be able to be done. He said:

> *But in terms of altering the natural history of the process and the likelihood of PE happening from that DVT, putting you in hospital doesn't confer any advantage at all.*[80]
>
> *6. Had Andy been admitted are you able to say whether:*
>
> *(a) He would still have suffered a cardiac arrest? If so, how are you able to say that?*

65. Dr Hart responded on behalf of the panel that they felt very strongly that admitting Andy to hospital would not have averted that event. He said that in big hospitals, options for treatment include involvement of the Code Blue or cardiac arrest team, in very big centres the option of emergency surgery on the clot from the saddle position, the administration of thrombolysis therapy in the hope of dissolving the clot and the pounding on the chest during CPR can occasionally fragment the clot such that it breaks into smaller pieces, unblocking the central passage of the saddle embolus. The outcome for the patient in hospital from the implementation of any one of these so called 'options of treatment' is, according to Dr Hart, dependent on how quickly after the event the patient is discovered. He said at best there is an estimated 4-5 percent success rate but this becomes *probably negligible* after more than a few minutes from event to discovery.[81] Dr Hart also emphasised that thrombolysis is not given for simple DVT or for a simple PE where the blood pressure and saturation is normal because of the risk of cerebral bleeding but would be the *kind of thing that you would do if Andy was collapsed without a blood pressure in front of you but with a very, very low*

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[79] T @ p 190.

[80] T @ p 192.

[81] T @ p 193.

expectation of success.[82]

7. Upon returning home Andy complained of a severe headache – is this a significant symptom of the PE?

66. Dr Hart responded on behalf of the panel that they could not see how this symptom was in anyway related to the DVT or PE.

(a) Is a warning in relation to this symptom something that should be included in the information given to patients who are sent home following a diagnosis of DVT?

67. Dr Hart responded on behalf of the panel that it was not a standard symptom and there was no reason why it should be included in the information brochure.[83]

8. In 2012, was it accepted amongst medical practitioners that there was risk of death as a result of a DVT/PE within 24 hours of diagnosis?

68. Dr Hart responded on behalf of the panel that it has been known even before 2012 that someone with a DVT can have a PE at any time, including the first 24 hours, and that it can be fatal.

Additional questions of the panel

69. I asked the panel to comment on the differing evidence between Mrs O'Donnell and Dr Tulchinsky regarding swelling in Andy's thigh. The evidence as it stood was difficult to reconcile as according to Mrs O'Donnell, Andy's upper thigh was very swollen whereas according to Dr Tulchinsky, he could see Andy's thigh because the shorts he was wearing had ridden up when he sat down and there was no swelling in the thigh, only his calf area.

70. A/P Raftos said that if the thigh was swollen that would indicate that the thigh or proximal veins were involved and probably the veins into the abdomen as well.

71. Dr Hart said that if this was the case it would imply that clotting is obstructing venous return from the leg at a higher level than just the calf and should most likely result in a decision to admit the patient. Dr Eddey agreed.

72. I asked the panel if the patient's parameters would be different than Andy's if a proximal

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[82] T @ pp 194-195, 197.

[83] T @ p 196.

DVT was present.

73. Dr Eddey said that he would not expect to see any change to the cardiovascular respiratory parameters if it is just a localised proximal DVT.

74. On the question of whether Dr Eddey's hospital represented best or ideal practice that is, that admission should occur for all DVT or suspected DVT, Dr Eddey himself said that there is a body of evidence around managing these patients safely and that is as an outpatient with outpatient anticoagulation and review in programmes in the hospital and in the home.[84] Dr Raftos said that if we were to keep this class of patient in hospital we *would be addressing an emotive issue more than improvement in outcome.*[85] Dr Hart also said that there is not really convincing evidence that hospitalisation offers better survival.[86]

75. Mr Cash invited the panel to accept that it is common practice for a consultant in the ED to have regard to "collateral evidence" like the triage nurse's notes but prefer to rely on the history and examination performed by themselves.

76. Dr Eddey agreed by explaining that the triage process lasts only a few minutes and is really only a risk stratification process, so it is anticipated that the ED doctors would take into account the triage nurses' notes and the like of for example, ambulance notes but that they are *beholden to taking their own history and performing their own examination.*[87] A/P Raftos agreed.

COMMENTS

Pursuant to section 67(3) of the **Coroners Act 2008**, I make the following comment(s) connected with the death:

1. The circumstances of Andy's presentation to the ED at Dandenong Hospital on 26 December 2012 highlight the difficulties experienced by both patients and clinicians in this environment. The patient is anxious by the mere fact that they are feeling unwell, but this

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[84] T @ p 202.

[85] T @ p 202.

[86] T @ p 203.

[87] T @ p 206.

anxiety is exacerbated by the fact that they have assessed that their level of unwellness necessitates urgent attendance at an ED. This anxiety may influence their ability to convey to the clinicians an accurate and consistent history. This cohort of patients are often poor historians. It is not unusual to hear that the history provided by the patient to the Triage Nurse changes somewhat by the time they speak to a doctor. Clinicians attempt to synthesise the information being provided by the patient and then rank it in its significance within the clinical assessment of the patient's presentation. By the nature of the triage system, the priorities of the different clinicians will vary. The lack of any one particular question or the failure to ask a particular question, for example about shortness of breath or breathlessness does not *prima facie* equate to a gross departure from acceptable standards. An examination of the medical management of the patient has to consider what were the recorded clinical observations, differential diagnoses, diagnosis and findings from investigations and is not limited to what was or was not asked of the patient. On any analysis of the recorded clinical observations it is also necessary to examine them in the context in which they were taken. For example, by a medical practitioner or the triage nurse who spends 2-3 minutes making the initial assessment of the presenting patient and who, according to the evidence of Nurse Mitchell, has limited characters on the computer generated observation charts to record succinctly but as accurately as possible, the most important of the information gleaned from the patient.

2. Nurse Mitchell's recording at triage that Andy had *slight SOB* highlights the limitations of the triage nurse's observations made and taken in a very short space of time. The contemporaneous record validates Nurse Mitchell's contact and observations of Andy on his arrival at the health service but the recordings do not of themselves act as an *aid memoire* to Nurse Mitchell as to whether she observed Andy being short of breath or whether he told her that he had been short of breath. Nurse Mitchell's qualification by reference to *slight* before the reference to *SOB* renders the entirety of the observation about shortness of breath even more difficult to assess as to its significance in Andy's clinical presentation. Confounding the clinical significance is that some 25 minutes later, Dr Tulchinsky neither observed nor

obtained a history from Andy about any shortness of breath.

3. Mrs O'Donnell's evidence about Andy's signs and symptoms and the information they both conveyed to the clinicians at Dandenong Hospital is difficult to reconcile with that of the *viva voce* evidence of Nurse Mitchell and Dr Tulchinsky. In assessing the veracity of her evidence I am cognisant of her uncontrolled grief and general emotional state at the loss of her husband. This at times understandably presented in the form of anger and emotional outbursts. In addition, and this is not a criticism of her, Mrs O'Donnell does not have the advantage of medical training to equip her with equal standing with the other witnesses in describing Andy's symptoms or indeed fully comprehending the decisions being made around her husband on 26 December 2012. Nevertheless, the observations and recollections of a family member directly involved in the immediate surrounding circumstances cannot be ignored. Arguably the recollection of the events of a loved one such as Mrs O'Donnell could be the more accurate due to their direct involvement with someone close and loved when compared with that of the clinician, who is likely to have treated many hundreds if not thousands of other patients since their contact with the now deceased. Unfortunately, in this matter I formed the view that Mrs O'Donnell's anger and emotional state influenced her depiction or recollection of the circumstances with such effect that she has retrospectively reconstructed some of the signs and/or symptoms and/or conversations that were had with the clinicians at the hospital. In the circumstances, the evidence of Nurse Mitchell and Dr Tulchinsky is to be preferred.

4. I am reassured about a process for assessing, examining and treating patients at an ED that involves not only the Triage which attempts to direct patients down a path that will enable them to be further investigated/cared for in the most timely way but in a way that also involves an ongoing assessment after Triage. In Andy's case, an additional and separate examination by Dr Tulchinsky after Triage was appropriate and was anticipated in the overall patient management process. Had Dr Tulchinsky only relied on the observations of Nurse Mitchell and not seen and examined Andy himself, I suspect he and the patient management process at Dandenong Hospital would be open to a separate and more intense

line of criticism. In Andy's case it was Dr Tulchinsky's evidence that he had regard to Nurse Mitchell's triage observations and notes and this is why he sent Nurse Wu to perform a second set of observations and why he personally asked Andy about shortness of breath. Dr Tulchinsky was consistent in his responses to questions in this regard and I have no reason not to accept them. There is precious little time in the ED for a doctor to develop a rapport with a patient. Dr Tulchinsky's mannerisms and presentation in Court did not depict a clinician that one could predict with any degree of certainty, as possessing a "good bedside manner" however, such traits or the lack thereof, are not to be confused with clinical acumen or application.

5. The question of what constitutes reasonable medical practice is generally one for the profession. What constitutes reasonable and appropriate investigations for a patient presenting with signs and symptoms indicative of a DVT, but absent obvious signs and symptoms of PE, must again be a question for the medical profession. "Best practice" should be developed from empirical evidence that the benefits outweigh the risks and not developed because the benefit of hindsight tells us that if Andy had had a CT pulmonary angiogram, it is most likely a pulmonary embolism would have been diagnosed. Having an accurate diagnosis undoubtedly is advantageous for the patient and the doctor as treatment becomes specifically focused to the diagnosis, compared with the situation where the diagnosis is suspected or there is a range of differential diagnoses. But a CT pulmonary angiogram is an invasive procedure that carries with it a range of associated risks which cannot be ignored. Best practice cannot be developed and implemented just on the basis of the proposition that there is a test we can do so we should do it every time. Similarly, the practice adopted by Barwon Health to admit all patients presenting with suspected proximal DVT or PE for a period of 24 hours sounds like best practice by providing a period of time to obtain definitive diagnoses and commence treatment while under the watchful eye of medically trained personnel. However, the implementation of this practice at Barwon Health was based on a "similar case" not on empirical evidence that it improves outcomes and has not as far as I am able to discern, been taken up or even acknowledged as best practice by

other major tertiary hospitals. Indeed, I was informed that there is no convincing evidence that admission to hospital offers a better survival rate for these patients. Ultimately, I am not convinced that it is appropriate for me, based on the circumstances identified in this investigation to make recommendations either about when a CT pulmonary angiogram should be performed or that all major tertiary hospitals should admit all patients presenting with a suspected DVT for 24 hours. There is not clear and cogent evidence from the investigation into the death of Andy that would support the making of such recommendations. The policy of the hospital to adopt a cautionary approach and admit the patient if there is suspicion of PE is appropriate.

FINDINGS

I find the identity of the deceased is Andrew Michael O'Donnell born 5 June 1966 and that his death occurred on 26 December 2012 at the Dandenong Hospital, Dandenong.

I accept and adopt the medical cause of death as ascribed by Dr Matthew Lynch and I find that Andrew Michael O'Donnell died from pulmonary thromboembolism complicating left calf deep venous thrombosis.

I find that Andrew Michael O'Donnell was appropriately triaged at the Dandenong Hospital on 26 December 2012 and that referral into the Fast Track was appropriate and in accordance with the hospital's guidelines. I am satisfied that assigning a patient into the Fast Track does not represent a predetermined decision to discharge home or the provision of a lesser standard of care.

The weight of the evidence does not enable me to find on the balance of probabilities with a comfortable degree of satisfaction that Andy had and/or complained of pain and swelling in his thigh or that he gave a history of 2 weeks of experiencing exhaustion and breathlessness or shortness of breath or that his clinical presentation in the ED was that of a man with clinically apparent shortness of breath. I accept that his clinical presentation was not one of pulmonary embolism.

AND I further find that in the absence of a suspicion of pulmonary embolism the decision to discharge Andy home following the administration of Clexane and with the arrangements in place

for follow up the next day was both appropriate in the circumstances and in keeping with accepted clinical practice for the treatment of DVT.

AND I am unable to find that hospitalisation/admission of Andy on the 26 December 2012 following his presentation to the ED at Dandenong Hospital would have prevented his death. I find that the nature and position of the pulmonary embolus identified post mortem and identified as the medical cause of his death was such that the outcome was likely to have been the same whether he was an in-patient or as he was, in his own home. The position and size of this pulmonary embolism was such that I am satisfied that the presence of and availability of medically trained personnel would most likely not have offered any additional benefit or indeed altered the outcome. In all of the circumstances I am unable to find that his death was preventable.

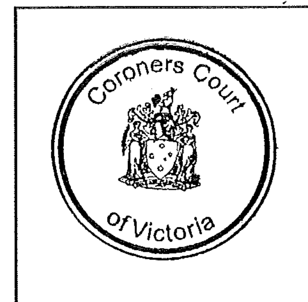
RECOMMENDATIONS

I make no recommendations pursuant to section 72(2) of the Coroners Act 2008, connected with the death for reasons indicated above in Comments and on the grounds that I am satisfied that the hospital has addressed the identified shortcomings by its own volition.

To enable compliance with sections 72(5) and 73(1) of the *Coroners Act 2008* (Vic), I direct that these Findings will be published on the internet.

I direct that a copy of this finding be provided to the following:
Mrs Jody Ann O'Donnell
Ms Keshia Noronha, Zaparas Lawyers
Ms Abby Neylon, TressCox Lawyers
Emergency Services Telecommunications Authority
Ambulance Victoria

Signature:



AUDREY JAMIESON
CORONER

Date: **25 October 2016**