IN THE CORONERS COURT
OF VICTORIA
AT MELBOURNE

Court Reference: COR 2011 2037

FINDING INTO DEATH WITHOUT INQUEST

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

I, AUDREY JAMIESON, Coroner having investigated the death of TREVOR HAMMOND without holding an inquest
find that the identity of the deceased was TREVOR EDWARD HAMMOND
born on 21 July 1938
and the death occurred on 4 June 2011
at 48 Burgess Drive, Langwarrin, Victoria 3910
from:

1 (a) ISCHAEMIC HEART DISEASE
1 (b) CORONARY ARTERY DISEASE

Pursuant to section 67(2) of the **Coroners Act 2008**, I make findings with respect to **the following circumstances**:

1. Mr Trevor Edward Hammond was 72 years of age at the time of his death. He lived at 48 Burgess Drive, Langwarrin, with his wife, Lorraine Hammond. He was retired butcher but continued to work as an entertainer.

2. Mr Hammond had a medical history which included hypercholesterolaemia, a high body mass index, depression and an atonic bladder following transurethral resection of the prostate (TURP).

3. On 2 June 2011 at 4.40pm, Mr Hammond attended his General Practitioner (GP) at the Langwarrin Medical Centre. The GP performed vital signs and an Electrocardiogram (ECG), which indicated there were no acute cardiac changes. The GP referred Mr Hammond to Frankston Hospital with a queried pulmonary embolus.

4. At 5.53pm Mr Hammond presented to the Frankston Hospital Emergency Department (ED) with anterior upper chest pain and atrial fibrillation. The working diagnosis was a suspected pulmonary embolus or musculoskeletal strain, on the basis that his pain appeared pleuritic as Mr Hammond described it as being worse on deep inspiration.

5. Mr Hammond was triage category 3 in the Emergency Department[1], but changed to a category 2 and followed the chest pain pathway. An ED medical examination at 7.55pm showed Mr Hammond was administered a loading dose of digoxin for atrial fibrillation and referred to the cardiology treating team. He commenced thrombo prophylaxis with a therapeutic dose of Clexane administered. Tests performed in the ED included a full blood examination (FBE), positive d-dimer test[2] performed at 8.21pm and a chest X-Ray. There were no blood tests ordered for the cardiac enzyme Troponin [3].

6. On 3 June 2011, a CT pulmonary angiogram[4] (CPTA) performed was negative for a pulmonary embolus. Mr Hammond was discharged home at 4.59pm. There was a documented plan to be reviewed by a cardiologist.

7. On 4 June 2011, Mr Hammond died at home. According to a family letter of concern, dated 30 September 2011, there was no information provided at discharge from hospital regarding what to do if symptoms persisted.

Investigation

8. Dr Nada Dickinson, Registrar in anatomical pathology performed an autopsy on the body of Mr Hammond under the supervision of Forensic Pathologist, Dr Henrich Bouwer. The post mortem examination revealed an obese man with cardiomegaly and significant triple vessel coronary artery disease with critical stenosis of the left anterior descending and left circumflex

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[1] Triage category 2 in the Emergency Department, assessment and treatment within 10; category 3 within 30 minutes.

[2] D-dimer is a fibrin degradation product (or FDP), a small protein fragment present in the blood after a blood clot is degraded by fibrinolysis. D-dimer tests are ordered, along with other laboratory tests and imaging scans, to help rule out the presence of a thrombus.

[3] Troponin is used to differentiate between unstable angina and myocardial infarction (heart attack) in patients with chest pain or acute coronary syndrome. A person who had suffered from a myocardial infarction would have an area of damaged heart muscle and so would have elevated cardiac Troponin levels in the blood.

[4] CPTA is a diagnostic test that employs computed tomography to obtain an image of the pulmonary arteries. Its main use is to diagnose pulmonary embolism (PE). It is a preferred choice of imaging in the diagnosis of PE due to its minimally invasive nature for the patient, whose only requirement for the scan is an intravenous line.

arteries. Early ischaemic changes were present in the myocardium. Dr Dickinson reported that the likely mechanism of death was an arrhythmia triggered by myocardial ischaemia and she attributed the cause of Mr Hammond's death to myocardial ischaemia secondary to severe coronary artery disease. Toxicological analysis of blood revealed digoxin and clomipramine within therapeutic limits.

9. On 30 September 2011, the Court received a letter from Ms Nichola Street, grand-daughter on behalf of Lorraine Hammond, raising concerns about the medical management of Mr Hammond in Frankston Hospital ED the day before his death. The family had recently attended a meeting at the hospital.

10. The Health and Medical Investigation Team (HMIT)[5] was requested to assist the coroner in the review of the medical management of Mr Hammond in the Frankston Hospital ED in June 2011. To understand the clinical diagnosis decision making, the HMIT requested statements from the treating doctors, Dr Adefemi Adelaja, ED Registrar and Dr Bhupendra Pathik, Consultant Physician with a specific request for Dr Adelaja to address why cardiac enzymes/Troponin were not requested. In his response, Dr Adelaja stated that he did not consider ordering a Troponin blood test with the other Full Blood Examination (FBE) tests as Mr Hammond's chest pain was atypical for acute coronary syndrome and was instead, pleuritic in nature. A d-dimer test was elevated and so he queried whether Mr Hammond had a pulmonary embolus and so commenced clexane thromboprophylaxis. Dr Adelaja followed the cardiology diagnostic pathway after CT pulmonary angiogram (CTPA) was negative for a pulmonary embolus.

11. The consultant physician Dr Pathik, outlined a plan once pulmonary embolus was excluded by the negative CPTA. He also stated he was satisfied Mr Hammond did not have an acute coronary syndrome, as his ECG was normal, the pain was atypical for cardiac ischaemic pain and was therefore, most likely to be musculoskeletal in nature.

[5] The HMIT sits within the Coroners Prevention Unit (CPU), which was established in 2008 to strengthen the prevention role of the coroner. The unit assists the coroner in relation to the formulation of prevention recommendations, as well as assisting in monitoring and evaluating the effectiveness of the recommendations. HMIT personnel are comprised of practising Physicians and Nurses who draw on their medical, nursing and research experiences, skills and knowledge to independently evaluate clinical evidence for the investigation of healthcare deaths and to assist in identifying remediable factors that may assist in prevention and risk management in health services settings.

12. The statements describe a plan to discharge Mr Hammond on Aspirin and to review him in a week. This plan included the performance of an echocardiogram, Holter monitor and coronary angiogram to exclude myocardial ischaemia or other causes of cardiac arrhythmia, given his history of hypercholesterolaemia and obesity. Dr Pathik indicated ischaemic heart disease was one of the differential diagnoses considered, but given the pain was atypical along with a positive d-dimer result led the clinicians down the pulmonary embolus diagnostic pathway.

Interim Findings

13. The review of the medical management of Mr Hammond appeared reasonable save for the absence of an order for cardiac enzymes/Troponin level. As the performance of Troponin is reported to be a simple and cheap blood test, the rationale for not performing the measurement was not clear. It may have been intentional decision or an oversight in the overall investigative plan.

Mention Hearing

14. A Mention Hearing was held on 14 June 2013. The purpose of the Mention hearing was to inform the hospital of the likelihood of adverse comment regarding the absence of the performance of the Troponin measurement and thus to afford them the opportunity to be heard. Equally, the Mention Hearing was to advise Mr Hammond's family of the limitations of my jurisdictional role, the issue of concern identified in my investigation and that subject to the position of the hospital regarding a possible adverse finding, I did not consider that the investigation should proceed to an Inquest.

15. Frankston Hospital as a division of Peninsula Health, was represented by their Corporate Counsel, Mr David Goldberg. Numerous members of the Hammond family including Lorraine Hammond were present.

16. Mr Goldberg indicated that Peninsula Health were prepared to accept the course proposed to finalise the investigation and did not seek to be heard on the issue save to say that they conceded that the Troponin measurement could have been undertaken and should have been undertaken while Mr Hammond was in the ED. He further stated that although it was considered by the clinicians to be necessary given Mr Hammond's presentation was with atypical cardiac chest pain, it would not have been unreasonable to perform the test.

17. Peninsula Health's concessions were reasonable and appropriate and I advised the Hammond family that I would not proceed to an Inquest.

FINDINGS

I accept and adopt the medical cause of death and find that Trevor Edward Hammond died from natural causes being ischaemic heart disease secondary to coronary artery disease.

AND I further find that Frankston Hospital could have and should have performed a Troponin measurement in the course of its investigations into the cause of Mr Hammond's chest pain and that it was a reasonable and appropriate, simple and inexpensive test to perform in the process of eliminating possible differential diagnoses.

AND although I am not able to find what the result of the Troponin measurement would have been, a positive Troponin result might have altered the outcome.

RECOMMENDATIONS

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

1. That Peninsula Health develop/review guidelines for clinicians in the Emergency Department for the management of patients presenting with chest pain that supports the performance of Troponin measurement in circumstances where the a definitive cause of the chest pain has not been identified.

Pursuant to rule 64(3) of the Coroners Court Rules 2009, I order that this Finding be published on the internet.

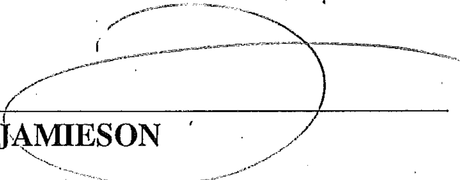
I direct that a copy of this finding be provided to the following:

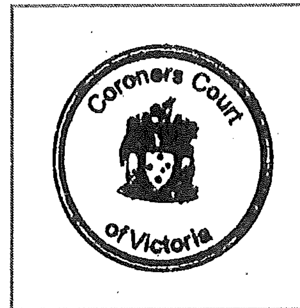
Mrs Lorraine Hammond

Mr David Goldberg
Medico Legal Officer
Peninsula Health

Langwarrin Medical Clinic

Signature:





AUDREY JAMIESON
Coroner
Date: 17 June 2013