IN THE CORONERS COURT
OF VICTORIA
AT MELBOURNE

Court Reference: COR 2013 005229

FINDING INTO DEATH WITHOUT INQUEST

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

I, ROSEMARY CARLIN, Coroner having investigated the death of FRANK DAY
without holding an inquest:
find that the identity of the deceased was FRANK DAY
born on 19 February 1953
and the death occurred on 16 November 2013
at Upwey, Victoria, 3158
from:

1(a) PULMONARY THROMBOEMBOLISM IN A MAN WITH DEEP VEIN THROMBOSIS FOLLOWING A FRACTURED ANKLE SUSTAINED IN A MOTORCYCLE INCIDENT

Pursuant to section 67(1) of the Coroners Act 2008, I make findings with respect to the following circumstances:

1. Mr Frank Day was born on 19 February 1953 and was 60 years old when he died. Mr Day resided in Upwey with his partner, Melinda Pryor.

2. Victoria Police provided a brief to the Coroner that included statements from Mr Day's partner, various medical clinicians, witnesses and experts. I subsequently obtained further statements from Mr Day's treating clinicians and reviewed those statements and his medical records with the assistance of the Coroners Prevention Unit[1]. I have drawn on all material as to the factual matters in this finding.

[1] The Coroners Prevention Unit (CPU) is a specialist service that assists coroners during the course of an investigation, particularly in fulfilling their prevention role. The CPU is staffed by a range of professionals including researchers and medical professionals. Further information about CPU is available on the Coroners Court Website.

3. Mr Day's past medical history included severe arthritis in his cervical spine and shoulders, hypertension, dyslipidemia, gastro-oesophageal reflux disease, glaucoma and vitamin D deficiency. He was hearing impaired and had a significantly high Body Mass Index (**BMI**).[2] Lifestyle interventions had previously been discussed by his General Practitioner (**GP**) and he had been taking a range of medications as treatment for his conditions.

4. On Wednesday 30 October 2013, Mr Day was riding his motorcycle along Ferntree Gully Road in Ferntree Gully, Victoria. He stopped at a red traffic signal at the intersection of Ferntree Gully Road and Burwood Highway. He was in the right hand turn lane. The weather was good and the traffic signals were functioning correctly.

5. When the signal facing him turned green, Mr Day rode slowly into the intersection to turn right into Burwood Highway. As he did, he was struck by a car on his left. Mr Edoardo D'Amico had been driving on Burwood Highway and had entered the intersection against a red traffic signal. His vehicle struck the back of Mr Day's motorcycle at low speed, causing the motorcycle to fall to the ground.[3]

6. Witnesses telephoned emergency services and Mr Day was conveyed to Maroondah Hospital where he was found to have sustained a fracture to his right ankle, in addition to bruising to his ribs and wrist. In the Emergency Department (**ED**) he developed nausea and vomiting following the administration of intravenous morphine. The nausea was treated by the administration of the anti-emetic ondansetron.

7. Following a review and discussion with the orthopaedic registrar, Dr Helen Laurence, the Emergency Consultant, applied a plaster of Paris backslab to Mr Day's right ankle. Dr Laurence stated that it was her routine when applying plaster to any patient to advise the patient that if any swelling, tingling, increase in pain or change in colour of toes occurred to seek medical advice or return to the ED.[4] At that time she did not explain the possible causes of these symptoms. Ms Pryor reported that Mr Day was told to keep off his foot completely.[5]

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[2] This was calculated to be 33 at the time of his death.

[3] Mr D'Amico was diagnosed with a brain tumour following the collision and his doctors believe that the tumour would have caused his driving to be impaired at the time of the collision.

[4] Statement of Dr Helen Laurence dated 11 February 2015, page 2.

[5] Statement of Melinda Pryor dated 21 August 2014, page 3.

8. Mr Day was assessed as able to mobilise safely and was discharged home that evening for follow up in the outpatient clinic on 6 November 2013. He was also given a social worker referral as he had limited supports in Melbourne. Ms Pryor stated that after his discharge Mr Day's right foot felt very cold, but they did not seek medical advice.

9. On 3 November 2013, shortly after midnight, Mr Day experienced chest pains and was transported to The Angliss Hospital ED by ambulance. Ambulance records indicate he denied any nausea, vomiting, shortness of breath, dizziness, diaphoresis or changes in foot sensation. When assessed in the ED he complained of 'generalised pain' over his whole body. He reported pain in both hands where he had braced himself on the road during the motorcycle collision. His other pains were described as central chest pain radiating to his ribs, and lower limb pain. Serial ECGs and troponin levels were normal and he was diagnosed with likely musculoskeletal pain. He was discharged home with analgesia.

10. On 6 November 2013, Mr Day attended Maroondah Hospital for his follow up appointment at the outpatient orthopaedic fracture clinic. His ankle was observed to be healing well. A below knee plaster of Paris cast was reapplied and a review was planned in one week with repeat imaging. Ms Pryor stated that the doctor reviewing Mr Day advised that he should spend no more than two hours each day on his foot.

11. In the days following this appointment, Mr Day complained to Ms Pryor that he had intermittent sharp pains in his right calf of short duration. Again, Mr Day and Ms Pryor did not seek medical advice.

12. On 13 November 2013, Mr Day re-attended the outpatient orthopaedic fracture clinic. His ankle was noted to be healing well and he was advised to remain non-weight bearing for a further six weeks until his next review.

13. On 14 November 2013, Mr Day attended his GP complaining of flare up of neck pain. He had a long-standing history of chronic neck pain and was prescribed tramadol for use as required.

14. On 16 November 2013, at approximately 1 a.m. in the morning, Mr Day woke to use the toilet. Ms Pryor heard him groan and complain of not being able to breathe. She went to the bathroom and saw that he had collapsed. She telephoned emergency services and commenced Cardio Pulmonary Resuscitation, however Mr Day become unresponsive. Paramedics arrived shortly after and confirmed that Mr Day was deceased.

15. An autopsy of Mr Day's body was undertaken by Dr Sarah Parsons, Forensic Pathologist with the Victorian Institute of Forensic Medicine. The autopsy revealed that Mr Day had pulmonary embolus secondary to deep vein thrombosis in his right calf. Dr Parsons reported that the risk factors for the development of thromboembolism in Mr Day were his recent fracture of long bone combined with immobility.[6] Post-mortem toxicology revealed tramadol in blood at levels consistent with therapeutic use. Dr Parsons reported the cause of death as 1(a) pulmonary thromboembolism in a man with deep vein thrombosis following a fractured ankle sustained in a motorcycle incident.

16. Mr D'Amico was administered a preliminary breath test after the collision, which was negative. Although he drove through a red light, Mr D'Amico was not charged with any offence. This was because it was discovered immediately after the collision that he had a significant and previously undiagnosed medical condition which would have affected his driving ability.

17. Following concerns raised by Ms Pryor, I reviewed the medical and clinical management of Mr Day with the assistance of the CPU.

18. Although obesity and leg immobilisation are known risk factors for the development of a deep vein thrombosis and pulmonary embolism, there no guidelines to support the use of thromboprophylaxis in outpatients with lower limb fractures. In patients with risk factors, the possible benefits of commencing thromboprophylaxis are usually outweighed by the lack of any clear benefit to the patient and the risk of exposing the patient to significant adverse risks, such as bleeding. The decision not to administer thromboprophylaxis to Mr Day was therefore reasonable.

19. Mr Day's presentation to the Angliss Hospital on 3 November 2013 was not suggestive of a deep vein thrombosis or pulmonary embolism. At this presentation, the diagnosis of inadequately managed musculoskeletal pain, following a significant traumatic injury was appropriate. The ECG at this time did not reveal any changes typical of a pulmonary embolism. It is probable that the pulmonary embolism was not yet established. At this time,

[6] General risk factors for the development of thromboembolism include carcinoma, obesity, recent surgery, smoking, prolonged periods of immobility, familial clotting disorder such as anti-thrombin C syndrome, protein C deficiency, sepsis, dehydration and major fractures.

and during the later orthopaedic and GP medical reviews, there was no evidence of a concern with chest pain or shortness of breath.

20. When Mr Day was discharged from Maroondah Hospital he was not given any written information about signs and symptoms of deep vein thrombosis or pulmonary embolism. Ms Pryor stated:

> *At no time did we inform the medical staff at both outpatient visits about the cold foot or on the second visit the pain to Frank's calf. This was because we both believed that it was normal with this injury. I believe had the doctor asked Frank or I then we would have mentioned it, or both. We were never informed by any of the medical staff that there could be the possibility of a deep vein thrombosis developing due to this injury. It just did not occur to us.*

21. Dr Laurence advised that since Mr Day's death, she informs all patients that she places in lower limb casts specifically about the signs and symptoms of deep vein thrombosis and pulmonary embolus.

22. The CPU advised that they had identified a small emerging cohort of deaths where the development of a deep vein thrombosis and pulmonary embolism was associated with a lower limb fracture and lack of weight bearing. The National Health and Medical Research Council produces a brochure called '*Stop the Clot*' which was developed as part of a program to improve the prevention of blood clots in hospitalised patients. According to Eastern Health this leaflet is available on its intranet, but is considered mainly directed at post surgical patients.

23. Given the emerging cohort identified by CPU, it would be prudent for hospitals to consider providing written information regarding the risk and symptoms of deep vein thrombosis and pulmonary embolism to patients with lower limb injuries requiring immobilisation, particularly if they have additional risk factors. Such patients may be seen in Emergency Departments and never admitted to hospital (as with Mr Day) or may be admitted to a ward for a period of time.

24. I am satisfied having considered the evidence before me that no further investigation is required. I am satisfied that the medical care and management of Mr Day following his motorcycle collision was reasonable and appropriate.

25. I find that Mr Frank Day died on 16 November 2013 from pulmonary thromboembolism in a man with deep vein thrombosis following a fractured ankle sustained in a motorcycle incident.

26. I direct that this Finding be published on the internet.

RECOMMENDATIONS

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

1. That the Department of Health and Human Services consider the need for hospital Emergency Departments to provide written information regarding the risk and symptoms of deep vein thrombosis and pulmonary embolism to patients who present with lower limb injuries requiring immobilisation, particularly if they have additional risk factors.

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

The family of Mrs Marjorie St Clair;
Investigating Member, Victoria Police;
Dr Yvette Kozielski, Eastern Health;
The National Health and Medical Research Council;
The Secretary, Department of Health and Human Services; and
The Interested parties.

Signature:

ROSEMARY CARLIN
CORONER
26 August 2015