IN THE CORONERS COURT

OF VICTORIA

AT MELBOURNE

Court Reference: COR 2017 5173

FINDING INTO DEATH WITHOUT INQUEST

Form 38 Rule 63(2)

Section 67 of the Coroners Act 2008

Findings of:	**AUDREY JAMIESON, CORONER**
Deceased:	**JOHN HAYLE**
Date of birth:	**21 November 1940**
Date of death:	**10 October 2017**
Cause of death:	**1(a) Bronchopneumonia in a man with ischaemic heart disease and treated spinal crush fractures** **2. Alzheimer's disease**
Place of death:	**Alfred Health - Caulfield Hospital** **260-294 Kooyong Road, Caulfield, Victoria 3162**

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

1. John Hayle was 76 years of age and lived with his wife Andrea Hayle in Frankston South at the time of his death.

2. On 21 May 2017, Mr Hayle fell in his home. He was admitted to hospital, where he was found to have suffered a spinal fracture. On 27 May 2017, Mr Hayle was again admitted to hospital for pain management. This marked the start of an extended stay in hospital, including multiple transfers between Alfred Health[1] and Peninsula Health,[2] as well as Ramsay Health Care.[3]

3. Mr Hayle's health deteriorated throughout hospitalisation and he died on 10 October 2017.

INVESTIGATIONS

Forensic pathology investigation

4. Dr Linda Iles, Forensic Pathologist at the Victorian Institute of Forensic Medicine (VIFM), performed an autopsy upon the body of Mr Hayle, reviewed a post mortem computed tomography (CT) scan, E-Medical Deposition: Alfred Health- Caulfield Hospital and referred to the Victoria Police Report of Death, Form 83.

5. Dr Iles commented that post mortem examination demonstrated features of ischaemic heart disease and treated peripheral vascular disease. There was also bilateral bronchopneumonia present. There is no evidence of a complication related to his thoracolumbar spinal stabilisation surgery.

6. A pressure ulcer was identified about the sacrum but there was no evidence of acute inflammation or associated cellulitis.

7. No acute central nervous system pathology was identified, that is there was no evidence of infection contributing to Mr Hayle's delirium and cognitive decline. There were features of Alzheimer's disease (NIA-AA score A2 B3 C3). Further, there was evidence

[1] Mr Hayle stayed intermittently at Alfred Health's the Alfred Hospital and Caulfield Hospital.

[2] Mr Hayle stayed intermittently at Peninsula Health's Frankston Hospital and Mornington Centre.

[3] Mr Hayle stayed intermittently at Ramsay Health Care's Beleura Private Hospital.

of Lewy body dementia and Dr Iles informed me that this may have contributed to Mr Hayle's cognitive decline along with his well-established Alzheimer's disease.

8. Dr Iles noted a number of potential contributors to Mr Hayle's delirium, including Lewy body dementia. She also stated that Mr Hayle's neuropathological changes of dementia were relatively advanced and, in Mr Hayle's setting, minor systemic insults could have produced delirium. Mr Hayle was also on a drug trial for his Alzheimer's disease. However, Dr Iles noted that medication thought to be possibly contributing to his delirium and cognitive decline was ceased with nil effect to his cognitive status.

9. Dr Iles ascribed the medical cause of Mr Hayle's death to bronchopneumonia in a man with ischaemic heart disease and treated spinal crush fractures, with Alzheimer's disease as a contributing factor.

Family Concerns

10. During the early stages of my investigation, Mr Hayle's family raised concerns regarding the adequacy of care afforded to him in the period proximate to his death. They were specifically concerned about inadequate nutrition and a perceived delay in diagnosing his spinal cord injury and subsequent surgery.

Coronial Prevention Unit Investigation

11. Mr Hayle's case was reviewed by the Coroners Prevention Unit (CPU).[4] The CPU considered medical records and statements from treating clinicians in evaluating the adequacy of medical care afforded to Mr Hayle in the period proximate to his death. Specifically, I requested that the CPU review the family's letter of concern regarding Mr Hayle's multiple falls, delirium, inadequate nutrition and subsequent weight loss in hospital and delay to investigation of his spinal cord injury.

12. There were multiple delays to the CPU's investigation due to the inadequacy of the medical records provided by Alfred Health. There were three requests to Alfred Health

[4] The Coroners Prevention Unit (CPU) was established in 2008 to strengthen the prevention role of the coroner. The unit assists the coroner with research in matters related to public health and safety and in relation to the formulation of prevention recommendations, as well as assisting in monitoring and evaluating the effectiveness of the recommendations. The CPU comprises a team with training in medicine, nursing, law, public health and the social sciences.

between March and May 2019. In May 2019, I directed that a Form 4 *Requirement to give Document or Prepared Statement to a Coroner* [Form 4] be sent to Alfred Health pursuant to section 42 of the *Coroners Act 2008* (Vic) [the Act]. In September 2019, Alfred Health provided a response to the Form 4, which included a statement from a neurosurgeon who indicated earlier intervention may have been warranted. On 9 October 2019, I requested statements from Peninsula Health regarding Mr Hayle's medical management

Relevant Medical History

13. During the investigation, the CPU identified that Mr Hayle had a medical history that included significant ischaemic heart disease with a coronary artery bypass graft in 2009, Alzheimer's dementia, for which he was on MK8931 trial drug, peripheral arterial disease and bilateral common iliac artery stents. He also suffered obstructive sleep apnoea and was noted as being poorly compliant with his CPAP machine. Mr Hayle was an ex-smoker.

14. On 21 May 2017, Mr Hayle suffered a fall in his home. He presented to Peninsula Health's Frankston Hospital Emergency Department (ED) and was found to have sustained a stable T12 superior endplate fracture. Mr Hayle was discharged home with analgesia.

15. On 27 May 2017, Mr Hayle was admitted to Beleura Private Hospital for pain relief and continuing care.

16. On 5 June 2017, Mr Hayle was transferred to the Mornington Centre of Peninsula Health for rehabilitation. Mr Hayle's admission documentation noted that he was hallucinating, and the hallucinations were considered possibly secondary to analgesia.

17. On 9 June 2017, Mr Hayle suffered another fall after slipping on a wet floor. Mrs Hayle stated that she was told a CT scan could not be performed over the long-weekend, and that her husband would be kept on "spinal watch" until the coming Tuesday.

18. On 13 June 2017, Mr Hayle was transferred to Frankston Hospital for a CT scan. The results showed a T11/12 flexion/distraction Chance fracture.[5] Mr Hayle was transferred to the Alfred Hospital spinal unit for assessment on 14 June 2017. Mr Hayle's Alfred Hospital admission notes detail that he was suffering from visual hallucinations. It was considered a possibility that these hallucinations may have contributed to his fall.

19. Assessments determined that Mr Hayle's lower limb neurology was normal, as was his septic screen. His delirium was noted and investigated by the ortho-geriatric team, however, no cause was established. Mr Hayle's trial drug MK8931 was ceased due to suspicion that it may have been the cause, however, his delirium continued throughout his stay. It was determined that Mr Hayle was not a good candidate for surgical management and the conservative approach by way of a Boston Overlap Brace (BOB) was actioned.[6]

20. On 19 June 2017, Mr Hayle was transferred back to Frankston Hospital.

21. On 22 June 2017, Mrs Hayle noticed that her husband's legs were weak. She stated that no one attended to this. The Frankston Hospital medical record on this date states that Mr Hayle was '*not lifting his legs off the bed*' and '*minimally moving ankles*'.

22. On 28 June 2017, a physiotherapist's examination identified the strength of Mr Hayle's legs to be decreased at 2/5 power.

23. On 2 July 2017, the medical team reviewed Mr Hayle due to concerns expressed by nursing staff about worsening leg weakness. The examination revealed the same 2/5 power and decreased reflexes as on 28 June 2017. It was noted that assessment of Mr Hayle was difficult due to his ongoing delirium.

24. On 3 July 2017, Mr Hayle was transferred to the Mornington Centre for rehabilitation. On 4 July 2017, opiates and antidepressant medication were ceased due to excessive drowsiness and delirium.

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[5] A Chance fracture is a type of vertebral fracture that results from excessive flexion of the spin.

[6] A BOB is fitted to control the alignment and reduce the movement of the wearer's lower thoracic and lumbar spine.

25. On 7 July 2017, Mr Hayle's brother expressed concern about the possibility of further back injury as he had been moved without his brace three days prior to the transfer. The treating clinician noted that there had not been an examination on 2 July 2017.

26. It was noted at the Mornington Centre that Mr Hayle's delirium was slightly improved but that there was no spontaneous movement of his lower limbs and some withdrawal pain. His reflexes and anal tone were normal. An assessment was conducted and staff determined that Mr Hayle's lower limb weakness was long standing and partially due to muscle wasting and that there were no new neurological findings.

27. On 8 July 2017, Mrs Hayle requested another review. The findings of this review were that Mr Hayle's leg power was 1/5. Clinicians considered these findings to have been influenced by his delirium. It was further noted that Mr Hayle had been observed moving his legs the day prior.

28. On 9 July 2017, Mr Hayle was reviewed by the geriatric registrar. He was noted to have ongoing confusion but was sitting out of bed, eating his lunch.

29. On 10 July 2017, Mrs Hayle stated that she expressed concerns regarding the weakness in her husband's legs. Mr Hayle was examined. A 1/5 power rating was again noted. The treating clinician queried whether these results were new or old and called the Alfred Hospital to confirm Mr Hayle's neurological outcome at the time he had been discharged by that service; he had a normal neurological outcome at that time.

30. Mr Hayle was transferred back to the Alfred Hospital by Ambulance Victoria, where urgent Magnetic Resonance Imaging (MRI) was performed. Mr Hayle presented with progressively worsening bilateral lower weakness that had been present in the preceding three weeks and delirium of four weeks duration. Mr Hayle was admitted under the neurosurgery unit. Upon assessment, he had 0/5 to 1/5 power of all muscle groups in both legs. The assessment also noted continuing delirium and significant weight loss over the preceding three months. A pre-existing sacral pressure wound was also identified. Imaging studies confirmed a T11/ 12 fracture dislocation with spinal cord compression.

31. Mr Hayle underwent a T9-L2 posterior fusion[7] and T10-L1 laminectomy.[8] The sacral wound was monitored but deteriorated.

32. The Alfred Hospital's medical record documents that Mr Hayle's delirium continued post-operatively, with no reversable causes identified. In the setting of his delirium, Mr Hayle's oral intake also declined and nasogastric feeding was commenced.

33. On 13 July 2017, a Medical Emergency Team call was made due to hypoxia. His left lower pneumonia was treated with IV piperacillin and tazobactam. A wound nurse reviewed his ulcer on 17 July 2017 and additional pressure measures were added.

34. On 25 July 2017, Mr Hayle was transferred to Caulfield Hospital. He fell out of bed and was immediately transferred back to the Alfred Hospital for neck X-rays.

35. On 26 July 2017, he was transferred again to Caulfield Hospital and suffered another fall out of bed. During his stay at Caulfield Hospital, Mr Hayle experienced ongoing bilateral leg weakness requiring hoist transfers, prolonged delirium with no reversible causes, recurrent aspiration pneumonia, difficulties swallowing, malnutrition and significant weight loss with multiple nasogastric tube insertions and a stage 4 pressure sore.

36. On 3 October 2017, Mr Hayle was referred to palliative care and he died on 10 October 2017.

Review and Assessment of Contributing Factors

Recognising deteriorating neurological function

37. Alfred Hospital Director of Neurosurgery Associate Professor (A/Prof) Martin Hunn, wrote that Mr Hayle's deterioration was not sudden, and had occurred over a period of three weeks prior to his re-presentation to the Alfred Hospital. This was concluded from the history given by Mrs Hayle and the Frankston Hospital records. This period appears to have been from approximately the 22 June to 10 July 2017.

[7] Joining of the bones from the back to prevent further movement.

[8] Removal of parts of the bony spinal canal to reduce spinal cord compression.

38. A/Prof Hunn concluded that, although there were many reasons for difficulty in recognition of the decline, most importantly Mr Hayle's delirium made a neurological assessment very difficult.

39. Head of Geriatric Medicine at Peninsula Health Dr Anjali Khushu was asked to provide an overview of Mr Hayle's care and to describe the neurological assessments of Mr Hayle's lower limbs. She wrote that during the period 5 July 2017 to 10 July 2017 while at the Mornington Centre, Mr Hayle had a fluctuating conscious state with periods of drowsiness and agitations; he regularly removed his brace. Opioids and antidepressants were ceased to improve Mr Hayle's delirium.

40. Dr Khushu wrote that, on 7 July 2017, the registrar conducted a fresh neurological examination and the results were similar to the previously documented results; there was no new weakness or change. Mr Hayle's power was documented at 4/5, his reflexes were present and anal tone was normal. The registrar handed over to the doctor covering the next day (weekend) to conduct another examination.

41. On the 8 July 2017, the covering registrar's neurological examination identified that Mr Hayle's strength rating was lower than the previous day. However, the registrar noted that Mr Hayle's delirious state and inability to fully obey commands effected the examination.

42. On 10 July 2017, there were two separate examinations which raised concerns about Mr Hayle's neurological progression, as he had no detectable movement distally[9] on his left side. Consequently, Peninsula Health staff made urgent contact was made with the Alfred Hospital to arrange a transfer to that facility.

Potential for improved outcome

43. A/Prof Hunn stated that the neurological outcome is likely to have been better if surgery had been performed earlier. He opined that surgery was required as soon as Mr Hayle's lower limb power was noticed to be deteriorating, for any potentially better outcome. However, A/Prof Hunn acknowledged that this was major surgery in an elderly

[9] "Proximal" and "distal" may be used in reference to relative locations of parts or places on the limbs. Proximal refers to something closer to the torso while distal refers to parts and places away from the torso.

deconditioned[10] man with multiple co-morbidities and Mr Hayle may have ultimately succumbed to complications of his condition and/or from surgery.

Summary of contributing factors

44. Mr Hayle's delirium was evidently a major difficulty in the assessment of his lower limb neurological function.

45. Mrs Hayle wrote that she noted her husband's deterioration from 22 June 2017. Whereas the first clinical note of Mr Hayle's deteriorating leg strength was six days later on 28 June 2017. Consequent upon the concerns of nursing staff, the first medical note of this decline was subsequent to examination on 2 July 2017. After this time, assessment was difficult and repeated examinations recorded 2/5 power.

46. The CPU postulated that different medical practitioners from Frankston Hospital and the Mornington Centre may have compared their findings with other recent assessments, without recognising that Mr Hayle had been discharged from the Alfred with normal neurology.

47. On 8 July and 10 July 2017, the neurological examination was recognised as different from previously and action was taken on 10 July.

48. The CPU informed me that impingement of a spinal fracture onto the spinal cord may cause permanent damage to the spinal cord from the moment it occurs. While surgical intervention should occur as soon as possible, there is no certainty regarding return of neurological function, even with immediate surgery.

49. The CPU noted that the Alfred Hospital had undertaken a review of Mr Hayle's death, determining that it was an example of a poor outcome with conservative management; there was no identification of lapses in care. The CPU informed me that Frankston Hospital had not undertaken a review of Mr Hayle's death as he had died in another health service.

[10] A process of physiological change following a period of inactivity or bedrest that results in a decrease in muscle mass, weakness, functional decline and the inability to perform daily living activities.

COMMENTS

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

1. Mr Hayle's neurological deterioration appears to have been present from somewhere around 28 June 2017 and a two-week period elapsed before definitive surgery. The investigation has identified that Mr Hayle's neurological outcome or the ultimate outcome of his death may have differed with earlier surgical intervention. However, this cannot be definitively determined, and the CPU have informed me that seeking further, expert opinion is unlikely to provide greater clarity on this point.

2. The delay in recognition of Mr Hayle's deteriorating state was multifactorial: in the first instance, examination was affected by Mr Hayle's delirium; secondly, there was an apparent lack of recognition by Frankston Hospital staff that Mr Hayle's neurological function was normal when he was previously discharged from the Alfred Hospital. The second point palpably pertains to difficulties in patient care and continuity when transferring cross-institutionally.

3. The investigation has identified that there was a missed opportunity to intervene in Mr Hayle's clinical course. However, it is not clear whether earlier intervention would have improved Mr Hayle's neurological outcome at all nor whether it would have prevented his death. Consequently, I do not intend to make any adverse finding about the relationship between Mr Hayle's medical management and the cause of his death. However, it is clear that restorative and preventative measures may be taken to better the medical management of future patients who clinically present similarly to Mr Hayle and especially those who are transferred cross institutionally. A pertinent recommendation will follow.

RECOMMENDATIONS

Pursuant to section 72(2) of the *Coroners Act 2008* (Vic), I make the following recommendations:

1. With the aim of promoting public health and safety and preventing like deaths, I recommend that Frankston Hospital of Peninsula Health undertake a review of John Hayle's death with particular emphasis on the delayed recognition of his deteriorating health, including difficulties in the transfer of patients between health services and any preventative measures that may be instigated to prevent these delays and difficulties in the future.

FINDINGS

1. I find that John Hayle, born 21 November 1940, died on 10 October 2017 at Caulfield Hospital, 260-294 Kooyong Road, Caulfield, Victoria 3162.

2. I find that the recognition of John Hayle's deteriorated neurological state was delayed by the inherent difficulties of examining a patient with delirium.

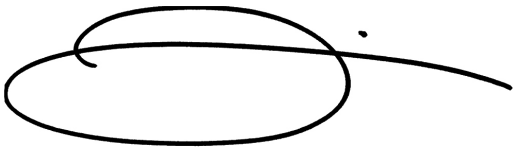
3. AND I find that the delayed recognition of John Hayle's deteriorated neurological state was contributed to by a failure of Frankston Hospital staff to identify that his neurological state upon transfer from Alfred Health had been normal.

4. I further find that the investigation has identified equivocal evidence on whether earlier recognition of his deteriorated neurological state and consequently earlier surgical intervention, would have produced a better outcome for John Hayle.

5. I accept and adopt the cause of death ascribed by Dr Linda Iles and I find that the cause of John Hayle's death was bronchopneumonia in a man with ischaemic heart disease and treated spinal crush fractures, with Alzheimer's disease as a contributing factor.

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

I direct that a copy of this finding be provided to the following:
Andrea Hayle
Karen Day, Director, Clinical and Enterprise Risk Management, Alfred Health
Amber Salter, Clinical Risk and Legal Services, Peninsula Health
Danielle Wooltorton, Office of the Deputy Secretary, Community Services Operations Division, Department of Health and Human Services
Chief Executive Officer, Safer Care Victoria



AUDREY JAMIESON
CORONER
Date**: 5 May 2020**