IN THE CORONERS COURT
OF VICTORIA
AT MELBOURNE

Court Reference: COR 2018 3515

FINDING INTO DEATH WITHOUT INQUEST

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

Findings of:	Coroner Jacqui Hawkins
Deceased:	Francis John Stewart
Date of birth:	7 July 1980
Date of death:	Sometime between 16 and 19 July 2018
Cause of death:	I(a) Sepsis complicating bronchopneumonia and chest wall abscess in the setting of an adrenal crisis in a man with secondary endocrinopathy following chemoradiation for a medulloblastoma in childhood
Place of death:	2/49 Stenhouse Avenue, Brooklyn, Victoria, 3012

BACKGROUND

1. Francis John Stewart was 38 years old at the time of his death.

2. Mr Stewart passed away at his home in Brooklyn between 16 and 19 July 2018.

3. Mr Stewart's death was reported to the Coroner as it fell within the definition of a reportable death in the *Coroners Act 2008.*

4. The role of a coroner is to independently investigate reportable deaths to establish, if possible, identity, medical cause of death and with some exceptions, surrounding circumstances. Surrounding circumstances are limited to events which are sufficiently proximate and causally related to the death. The law is clear that coroners establish facts; they do not lay blame or determine criminal or civil liability.[1]

5. Victoria Police assigned an officer to be the Coroner's Investigator for the investigation into Mr Stewart's death.

6. In writing this Finding, I do not purport to summarise all the evidence but refer to it only in such detail as appears warranted by its forensic significance and the interests of narrative clarity.

MATTERS IN RELATION TO WHICH A FINDING MUST, IF POSSIBLE, BE MADE

Identity of the deceased

7. Francis John Stewart was visually identified by his father, Brendon Stewart, on 24 July 2018. Identity was not in issue and required no further investigation.

Medical cause of death

8. On 24 July 2018, Dr Heinrich Bouwer, Forensic Pathologist at the Victorian Institute of Forensic Medicine (**VIFM**) performed an autopsy on the body of Mr Stewart and reviewed the Form 83 Victoria Police Report of Death, the Peter MacCallum Cancer Institute records, Altona North Medical Group records and the post mortem computed tomography (**CT**) scan.

[1] In the coronial jurisdiction facts must be established on the balance of probabilities subject to the principles enunciated in *Briginshaw* v *Briginshaw* (1938) 60 CLR 336. The effect of this and similar authorities is that coroners should not make adverse findings against, or comments about, individuals unless the evidence provides a comfortable level of satisfaction as to those matters taking into account the consequences of such findings or comments.

9. Dr Bouwer identified an ulcerated abscess on the right chest with surrounding erythema[2] and a left forehead laceration with an underlying subgaleal haematoma with no skull fracture and no evidence of extradural, subdural or subarachnoid haemorrhage. Dr Bouwer also found evidence of marked endocrine dysfunction with mainly absent thyroid and pituitary tissue and atrophic testes and adrenal glands. He commented that this was the result of chemoradiotherapy for a medulloblastoma of the cerebellum at the age of two years.

10. Dr Bouwer commented that the autopsy revealed acute bronchopneumonia and a chest wall abscess, which was complicated by sepsis[3]. Dr Bouwer noted that a post mortem blood culture grew *staphylococcus epidermidis*, a common bacterium that can cause sepsis through skin infections such as abscesses. Dr Bouwer reported that markers of inflammation (C-reactive protein and procalcitonin), were markedly elevated, consistent with sepsis and infection. In addition, Dr Bouwer noted patchy focal meningitis at autopsy, which he considered was likely from haematogenous bacterial spread.

11. Toxicological analysis of post mortem specimens detected the presence of acetone. Dr Bouwer explained that acetone is an endogenous substance that increases in periods of fasting. Alcohol, common drugs and poisons were not detected.

12. Dr Bouwer concluded that Mr Stewart's death was due to natural causes and further provided an opinion that the medical cause of death was 1(a) Sepsis complicating bronchopneumonia and chest wall abscess in a man with secondary endocrinopathy following chemoradiation for a medulloblastoma in childhood.

13. As discussed later in this finding, and after considering the issues raised by the Coroners Prevention Unit including a recommendation to amend the cause of death, I propose to amend the cause of death to include reference to Mr Stewart suffering an adrenal crisis. Therefore, the cause of death will now be 1(a) Sepsis complicating bronchopneumonia and chest wall abscess *in the setting of an adrenal crisis* in a man with secondary endocrinopathy following chemoradiation for a medulloblastoma in childhood.

14. I will advise the Principal Registrar of the Coroners Court to write to the Registrar of Births, Deaths and Marriages to advise of this amendment.

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[2] Erythema is redness of the skin or mucous membranes caused by hyperemia (increased blood flow) in superficial capillaries. It occurs with any skin injury, infection, or inflammation.

[3] Sepsis is a potentially life-threatening condition caused by the body's response to an infection. The body normally releases chemicals into the bloodstream to fight an infection. Sepsis occurs when the body's response to these chemicals is out of balance, triggering changes that can damage multiple organ systems.

Past medical history

15. Mr Stewart had a past medical history of medulloblastoma, the most common brain tumour of childhood, which was treated at the age of two years with radiation therapy to the brain and abdomen. As a result of radiation therapy at an early age, Mr Stewart suffered damage to the pituitary gland and had developed 'hypopituitarism'. Hypopituitarism is a rare disorder in which the pituitary gland fails to produce one or more hormones or doesn't produce enough hormones. Affected people may have deficiencies in their thyroid gland, adrenal gland, reproductive function, growth and metabolism. Mr Stewart required lifelong hormone replacement therapies for thyroid and testosterone deficiencies and secondary adrenal insufficiency.

16. Mr Stewart's day to day medical care was managed by general practitioners at Altona North Medical Group. His regular GP was Dr Myles Sutton, and he had been a patient of the clinic since about December 2015. Mr Stewart also attended the 'Late Effects Clinic' at the Peter MacCallum Cancer Centre for long term follow up of his childhood cancer where he underwent review of his hypopituitarism, skin surveillance, thyroidectomy, hypertension and psycho-social wellbeing.

17. In December 2016, Mr Stewart was reviewed by endocrinologist Professor Margaret Zacharin at the Late Effects Clinic for further investigation of his pituitary function. Professor Zacharin noted at that time that Mr Stewart was not taking corticosteroid replacement, had a low level of cortisol and was only being administered Reandron[4] on a six monthly basis. Professor Zacharin commenced Mr Stewart on corticosteroid replacement therapy, directed his General Practitioner to administer Reandron on a 10-12 weekly basis and continued his thyroxine replacement therapy. Professor Zacharin reviewed Mr Stewart again in March 2017 and June 2017 and documented improvements in Mr Stewart's overall condition.

18. Mr Stewart was last seen by Professor Zacharin in March 2018, at which time she noted he had markedly improved with appropriate corticosteroid and androgen replacement. She recorded he had reached a *"near miraculous"* improvement, no longer needed to see his psychologist, was exercising, had good friends, was looking for some courses to do and was *"generally enjoying life"*.

19. In addition to hypopituitarism, Mr Stewart had memory problems secondary to brain irradiation and was noted to suffer from depression and adjustment disorder for which he had

[4] Reandron contains testosterone undecanoate and is used to replace the body's natural hormone testosterone when not enough is made by the body.

received psychological treatment. He also suffered from abscesses or cysts to his right chest wall which had required surgical incision and drainage in 2009, 2011 and 2015.

Circumstances in which the death occurred

20. In the days leading up to his death Mr Stewart had become unwell. He spoke to his sister Grace Stewart on 7 July 2018 and told her that he thought he was *"coming down with a cold"*. Mr Stewart had an appointment with Dr Sutton at Altona North Medical Group on 9 July 2018, but he did not attend.

21. On 10 July 2018, Mr Stewart saw Dr Sutton and complained of an infected lump on his left chest wall which had been present for four to five days. Dr Sutton noted that there was a large indurated area on Mr Stewart's chest measuring approximately 20 cm in diameter with a purulent central 'pointing' area, with no discharge. Dr Sutton diagnosed Mr Stewart with large abscess to his right wall. Mr Stewart was reportedly *"not keen"* on an incision and drainage and was therefore treated with oral antibiotics and a dressing designed to draw moisture from the area to assist the healing process. Clinical observations were not recorded.

22. Mr Stewart was reportedly 'not keen' on an incision and drainage and was therefore treated with oral antibiotics and a dressing designed to draw moisture from the area to assist the healing process.

23. On 13 July 2018, Mr Stewart was reviewed by Dr Sutton, at which time it was noted that Mr Stewart had increasing pain, difficulty sleeping and the abscess was now oozing. On examination, Dr Sutton recorded that the indurated area now measured 25 cm, with a draining central punctum with purulent material. Dr Sutton performed an incision, drainage and packing of the abscess cavity with the assistance of registered nurse Melissa Coleman. Clinical observations were not recorded and no specimens were sent to pathology for 'micro and culture' to diagnose the causative organism or to check antibiotic sensitivities.

24. According to Ms Stewart, she spoke to Mr Stewart after his medical appointment and disclosed to her that he had felt very sick on 9 July 2018, had spent the day in bed and had been too sick to see the doctor. Ms Stewart asked him if he was okay, and why he hadn't contacted her or called an ambulance. Mr Stewart reassured her that he was okay and was feeling better. Ms Stewart asked him to make sure he called her or a doctor next time and mentioned the Home Doctor service. Mr Stewart told her he had seen his doctor on 10 July 2018, who had then called Mr Stewart on 11 July 2018 to see how he was. According to Ms Stewart, Mr Stewart sounded in good health and spoke of the doctor's caring nature.

25. On 14 July 2018, Mr Stewart underwent wound care and review by Dr Nicholas Hudson at Altona North Medical Group. Dr Hudson had not previously treated Mr Stewart. Mr Stewart reported some gastro-intestinal upset with nausea without vomiting. Dr Hudson advised Mr Stewart that this was likely a side effect of the antibiotics and recommended a trial of probiotics. It should be noted that gastrointestinal upset can be a symptom of adrenal crisis.

26. Dr Hudson cleaned, packed and redressed the wound. He noted that capsule fragments and large volumes of purulent material were expressed from the abscess. He noted there was a 3 cm indurate penumbra surrounding the wound, but there were otherwise no spreading cellulitic changes. Dr Hudson later recalled that there was initially a 5mm opening with a penumbra of indurated tissue approximately 2 cm on each margin, with an area of inflammation or possible cellulitis extending a further 1 cm from this. Dr Hudson explained to Mr Stewart that it was likely further expressions and packings of the wound would be required and arranged for Mr Stewart to be reviewed again on 16 July 2018. Clinical observations were not recorded, but Dr Hudson later recalled that Mr Stewart *"appeared well"* systemically at the consultation.

27. On 16 July 2018, at about 9.55am, Mr Stewart attended Altona North Medical Group for wound care and review. Registered Nurse Lisa Robertson cleaned, packed and dressed the wound. She recorded that the chest abscess had *"leaked a bit"* since the previous review and noted that copious pus was expressed from the wound which caused discomfort when drained. Dr Hudson also reviewed Mr Stewart and recorded that there was no spreading infection. Mr Stewart continued to complain of gastrointestinal upset with some loss of appetite. Dr Hudson prescribed Mr Stewart Endone[5] for incidental pain and had suggested to Mr Stewart that he trial the pain medication one hour prior to the next dressing change. Clinical observations were not recorded, but Dr Hudson later recalled that Mr Stewart again appeared *"systemically well"* aside from nausea and was not experiencing pain between dressing changes.

28. Mr Stewart was scheduled to attend a further appointment on 17 July 2018 at 10.00am at Altona North Medical Group for a dressing change, but he did not attend.

29. On 19 July 2018, Mr Stewart was found deceased in his home by a visiting real estate agent. He was found in his bed, with a wound to his head and blood found on the face, clothes, and bedding of Mr Stewart, as well as on items throughout the room, on the floor of the ensuite

[5] Endone is a painkiller containing the active ingredient oxycodone hydrochloride.

bathroom and around the toilet. Ambulance paramedics attended and reportedly declared that some of the blood appeared more likely to have been vomited up, rather than coughed.

30. Victoria Police attended the scene of the incident and immediately commenced a coronial investigation. A full 10 pack of prescribed Endone and multiple empty Pandol Rapid Soluble tablets were located in Mr Stewart's bedroom.

Family concerns

31. On 29 October 2018 and 16 November 2018, the court received correspondence from Mr Stewart's sister, Grace Stewart, in which she raised several concerns regarding the medical care and management provided to Mr Stewart immediately prior to his passing.

Coroners Prevention Unit investigation

32. Mr Stewart's case was reviewed by the Coroners Prevention Unit (**CPU**). The role of the CPU is to assist coroners investigating deaths, particularly deaths which occur in a healthcare setting. The CPU is staffed by healthcare professionals, including practising physicians and nurses, who are independent of the health professionals and institutions under consideration. The CPU professionals draw on their medical, nursing and research experience to evaluate the clinical management and care provided in particular cases by reviewing the medical records, the autopsy report and any particular concerns which have been raised.

33. To formulate their advice, the CPU reviewed the Victoria Police Report of Death for the Coroner, Victorian Institute of Forensic Medicine Medical Examiner's Report, Medical Notes of Peter MacCallum Cancer Centre and Altona North Medical Centre and the letters of concern from Mr Stewart's family.

34. The CPU explained that Mr Stewart had an underlying endocrine condition that caused adrenal insufficiency, which required him to take long term steroid therapy. The CPU explained that Mr Stewart's adrenal insufficiency was a type referred to as 'secondary' adrenal insufficiency. Secondary adrenal insufficiency arises from pituitary of hypothalamic dysfunction or failure caused by tumours, irradiation, infiltration, trauma or surgery. Deficiency of the adrenal stimulating hormones leads to atrophy of the part of the adrenal gland that produces corticosteroid hormones resulting in glucocorticoid insufficiency.

35. The CPU explained that patients with adrenal insufficiency are at risk of an adrenal crisis, a life-threatening emergency caused by an acute relative insufficiency of adrenal hormones, which can present quite suddenly and cause collapse. An adrenal crisis may be precipitated by physiological stress in a susceptible patient, such as infection (especially septicaemia), surgery

or trauma, due to the inability to produce cortisol in response to those stressors.[6] The symptoms preceding a collapse are nonspecific, and patients may present with fatigue, nausea, vomiting, abdominal pain, loss of appetite, weight loss, hypotension and hypovolemia.[7] The incidence of adrenal crisis in chronic adrenal insufficiency is high and associated with substantial mortality.[8] Delayed recognition of an impending adrenal crisis and failure to give timely hydrocortisone therapy may have adverse and potentially fatal consequences.[9]

36. The CPU considered it was unlikely that Mr Stewart's death was related solely to the performance of the relatively minor incision and drainage procedure at the Altona North Medical Group clinic. It was noted that such a procedure would be relatively commonplace, within the scope of many general practitioners and reasonable to perform. It was correct treatment to drain a collection of pus and provide antibiotics. Mr Stewart had previously undergone similar treatment at the clinic in 2015 with no apparent complications.

37. The CPU noted that the wound to Mr Stewart's head, together with blood located throughout his bedroom and bathroom, suggested he may have fallen or collapsed prior to his death and injured his head. The CPU explained that low blood pressure and a fall or collapse can potentially occur in sepsis or adrenal crisis. The CPU considered that Mr Stewart's death was related to a combination of localised infection, generalised sepsis and adrenal insufficiency that may have combined to cause the critical illness, an 'adrenal crisis' that led to his death.

38. The CPU considered it was possible Mr Stewart's death may have been prevented with appropriate medical treatment, including additional steroid replacement therapy and careful monitoring of his condition. In light of this possibility, the CPU requested and reviewed statements from Professor Zacharin and Dr Sutton.

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[6] R Louise Rushworth, Bischoff, C and Torpy, D, 'Prevenitng adrenal crises: home-administered subcutaneous hydrocortisone is an option' (2017) 47(2) *Internal Medicine Jounral* 231, 231; R Louise Rushworth, Torpy, D J and Falhammar, H, 'Adrenal crises: perspectives and research directions' (2017) 55 Endocrine 336, 340; Susan O'Connell and Siafarikas, Aris, 'Addison disease: diagnosis and initial management' (2010) 39(11) *Australian Family Physician* 834, 835; Walter L Kemp, 'Addison disease: the first presentation of the condition may be at autopsy' (2016) 6(2) *Academic Forensic Pathology* 249, 253; Ashley B Grossman, 'Addison Disease (Primary or Chronic Adrenocortical Insufficiency' (2019) *MSD Manual Professional Edition* (https://www.msdmanuals.com/en-au/professional/endocrine-and-metabolic-disorders/adrenal-disorders/addison-disease, accessed 20 January 2020).

[7] Walter L Kemp, 'Addison disease: the first presentation of the condition may be at autopsy' (2016) 6(2) *Academic Forensic Pathology* 249, 255-6; R Louise Rushworth, Torpy D J and Falhammar, H, 'Adrenal crises: perspectives and research directions' (2017) 55 *Endocrine* 336, 338.

[8] S Hahner et al, 'High incidence of adrenal crisis in educated patients with chronic adrenal insufficiency: a prospective study' (215) 100(2) *The Journal of Clinical Endocrinology and Metabolism* 407, 415.

[9] A Gargya et al, 'Acute adrenal insufficiency: an aide-memoire of the critical importance of its recognition an dprevention' (2016) 46(3) *Internal Medicine Journal* 356, 357; Susan O'Connell and Aris Siafarikas, 'Addison disease: diagnosis and initial management' 92010) 39(11) *Australian Family Physician* 834, 834.

39. Professor Zacharin indicated that she first met Mr Stewart in 2017 at the Peter MacCallum Cancer Centre long-term follow up clinic and that he had responded dramatically to the commencement of corticosteroid medication for his previously untreated adrenal insufficiency, along with ongoing administration of testosterone and thyroxine at appropriate therapeutic levels.

40. In subsequent reviews by Professor Zacharin, Mr Stewart was noted to be taking his medication regularly and was aware of the need for additional cortisone to cover him during times of illness or stress. Professor Zacharin indicated that Mr Stewart was in possession of 'solu-cortef', which is a form of cortisone known as hydrocortisone administered as an emergency medication in patients with adrenal insufficiency. He had also been provided with a 'stress cover letter' to explain to medical clinicians his need for additional steroid cover during any episode of ill health.

41. Professor Zacharin explained that when a patient such as Mr Stewart becomes ill, they require extra steroid cover with an injection of solu-cortef, followed by a tripling of their regular cortisone medication for a number of days until recovery. Professor Zacharin was of the opinion that if Mr Stewart did not receive appropriate extra steroid medication during his illness, this would have "*contributed to shock and death and may even have been causative*" to his death.

42. According to Professor Zacharin, Mr Stewart was well informed about his adrenal insufficiency and the need for additional cortisone at times of illness. However, the CPU found no indication that Mr Stewart acted upon this knowledge during his illness. Further, the CPU found no record of him producing his 'stress cover letter' to Dr Sutton or other medical clinicians and it is not known whether they were aware of it.

43. Dr Sutton indicated that he was aware of Mr Stewart's adrenal insufficiency but was of the view "*that this was heavily managed by his Endocrine Specialist*". Professor Zacharin had corresponded with Altona North Medical Group and provided written updates regarding Mr Stewart's condition and treatment following her reviews. However, beyond confirming that Mr Stewart had been prescribed prednisolone due to extremely low levels of cortisol, it does not appear that Professor Zacharin specifically recorded in writing the need for Mr Stewart to be administered additional cortisone during times of illness or that he had been provided with a 'solu-cortef' and 'stress cover letter'.

44. The medical records and medication summary of Altona North Medical Group did not record either the diagnosis of adrenal insufficiency or the steroid replacement therapy using

prednisolone medication, although Dr Sutton had prescribed prednisolone to Mr Stewart once in September 2017. There also did not appear to be any alert or warning in Mr Stewart's medical records regarding the risks posed by his adrenal insufficiency or the requirement for extra steroid cover during times of illness. Similarly, a GP Management Plan (**GPMP**) completed by Dr Sutton on 19 March 2018 referred only to Mr Stewart's hypogonadism, and made no specific reference to his adrenal insufficiency or the risks of an adrenal crisis.

45. Dr Sutton commented that Mr Stewart did not describe any symptoms of being systemically unwell and that Mr Stewart was "*clinically systemically well on observation*" at the time of his reviews following drainage of the abscess. However, the CPU noted that there were no observations of vital signs recorded during Mr Stewart's consultations at the clinic on 10 July 2018, 13 July 2018, 14 July 2018 or 16 July 2018. Dr Sutton noted that Mr Stewart had reported experiencing some gastrointestinal upset on 14 July 2018 consistent with antibiotic use, and that he had no concerns of serious complications. However, as noted above, gastrointestinal upset can be a symptom of adrenal crisis.

46. After reviewing the statements of Professor Zacharin and Dr Sutton, the CPU highlighted concerns regarding Mr Stewart's medical management, and in particular a perceived failure to ensure that Mr Stewart took additional cortisone treatment when he presented with an obvious infection and subsequently underwent minor surgical treatment and antibiotic treatment. The CPU noted that some general practitioners with a greater awareness of adrenal insufficiency may have erred on the side of caution and referred Mr Stewart to hospital for management of both the infection and his underlying medical and endocrine problems.

47. The CPU also considered the notes of Altona North Medical Group were inadequate as there was no record of adrenal insufficiency in the current medical history, medical notes or GPMP and prednisolone was not recorded in the medical summary. The CPU considered that Mr Stewart's death was potentially preventable with appropriate medical treatment, including the provision of additional steroid replacement therapy as indicated by Professor Zacharin and careful monitoring of his condition.

Further response by Dr Sutton

48. By way of procedural fairness and further investigation, the court requested a further statement from Dr Sutton to provide clarification and a response to the issues raised by the CPU. Dr Sutton provided a response to the court dated 2 September 2019.

49. Dr Sutton explained that Mr Stewart was systemically well during his presentation on 10 July 2018. According to Dr Sutton, Mr Stewart appeared well in himself, was afebrile and

normotensive with a normal heart rate. Mr Stewart explained to Dr Sutton that he was not keen on significant intervention at that time. Dr Sutton explained that he strongly recommended that, at a minimum, Mr Stewart trial oral antibiotics, which he agreed to and Dr Sutton prescribed Augmentin Duo Forte 875/125mg to be taken twice daily and arranged a follow up appointment for 13 July 2018.

50. Dr Sutton stated that he instructed Mr Stewart on 10 July 2018 that should his symptoms worsen, or should his condition not improve as planned, he should attend his nearest hospital. Dr Sutton stated that he also reiterated to Mr Stewart that he increase his prednisolone as per his prior instructions from Professor Zacharin regarding his acute conditions. Mr Stewart reportedly told Dr Sutton that he did not require a prednisolone prescription, as he had prescriptions from Professor Zacharin already. Dr Sutton noted that Mr Stewart demonstrated prior understanding of how to manage his endocrine condition and how to respond to acute conditions accordingly with his prednisolone dose. He understood that Mr Stewart had been provided with specific written instructions on how to approach this at previous consultations with Professor Zacharin, as well as at his consultation with Dr Sutton on 10 July 2018. Dr Sutton reported that Mr Stewart was quick to acknowledge that he understood how to manage this.

51. Dr Sutton conceded that his lack of documentation of some of his examination findings and discussions was an oversight on his behalf and explained that he remains deeply regretful that his notes were not adequate. Dr Sutton explained that he has subsequently raised this issue in clinical discussions with his colleagues and changes have been made to ensure similar oversights do not occur in future. Dr Sutton reported that Altona North Medical Group was in the process of hiring a consultant to review practitioners clinical notes and provide individual feedback as to the adequacy of their note taking and how to improve them.

52. Dr Sutton expressed how deeply upset he and his colleagues were by the unfortunate and untimely death of Mr Stewart, to whom they had grown fond of at the clinic over the three years he had been attending.

53. I acknowledge the efforts taken by Altona North Medical Group to identify and improve the deficiencies in their note taking practices. I am satisfied with the response and explanation provided by Dr Sutton and therefore do not propose to make any adverse comment about his clinical care and management. However, I consider this case has highlighted a number of issues worthy of comment and recommendations with the aim of promoting public health and safety and preventing like deaths.

FINDINGS

54. Having investigated the death of Francis Stewart and having considered all of the available evidence, I am satisfied that no further investigation is required.

55. Pursuant to section 67(1) of the *Coroners Act 2008*, I make the following findings connected with the death:

    (a) the identity of the deceased was Francis John Stewart, born on 7 July 1980;

    (b) Mr Stewart died sometime between 16 and 19 July 2018 from 1(a) *Sepsis complicating bronchopneumonia and chest wall abscess in the setting of an adrenal crisis in a man with secondary endocrinopathy following chemoradiation for a medulloblastoma in childhood*; and

    (c) in the circumstances described above.

56. I find that it is possible Mr Stewart's death may have been prevented had he received additional steroid replacement therapy and careful monitoring of his condition, particularly in relation to his adrenal insufficiency and cortisol levels.

57. I find that when someone like Mr Stewart has a serious underlying medical condition such as adrenal insufficiency that this should be adequately recorded as a warning or alert on a patient's medical record to ensure this information is made clear to treating practitioners.

58. I wish to express my sincere condolences to Mr Stewart's family. I acknowledge the grief and devastation that you have endured as a result of your loss.

COMMENTS PURSUANT TO SECTION 67(3) OF THE ACT

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

    (a) Adrenal insufficiency is a rare, but serious condition that can have serious and potentially fatal consequences. Early recognition and prompt treatment of an impending adrenal crisis is critical to reduce its associated morbidity and mortality.[10] Provision of information on 'sick day' management, written instructions on glucocorticoid dose adjustment during stressful situations and a 'solu-cortef' to affected patients for emergency administration of parenteral hydrocortisone, together with advice to carry an

[10] A Gargya et al, 'Acute adrenal insufficiency: an aide-memoire of the critical importance of its recognition an dprevention' (2016) 46(3) *Internal Medicine Journal* 356, 357; Susan O'Connell and Aris Siafarikas, 'Addison disease: diagnosis and initial management' 92010) 39(11) *Australian Family Physician* 834, 834.

emergency card and/or MedicAlert bracelet are all effective preventive strategies to mitigate the mortality risks associated with adrenal crisis.[11] However, this case demonstrates that adrenal crises continue to occur even among patients who have been well educated in preventive strategies, with sometimes fatal consequences and that there are inadequate levels of knowledge about adrenal insufficiency and adrenal crises among clinicians.[12]

(b) This case highlights the fact that general practitioners may not always recognise the significance of symptoms preceding an adrenal crisis due to their non-specific nature, the rarity of the condition and low index of suspicion.[13] Given the increased risk of morbidity and mortality, it is important for clinicians to have a higher index of diagnostic suspicion, with prompt emergency management and close monitoring of patients with adrenal insufficiency, particularly in the context of providing what may otherwise be considered 'routine' treatment of minor medical conditions.[14] Further education may be warranted to improve awareness of the signs and symptoms of an impending adrenal crisis, and I have therefore made recommendations in line with this.

(c) Whilst Mr Stewart had been provided with a 'stress cover letter' to explain the need for steroid cover during any episode of ill health, there is no evidence that a copy of this letter was provided to either his treating general practitioner or his family members. It appears to me that there would be benefit for treating general practitioners and family members to be provided with information such as this which details the appropriate management required during times of stress or illness to mitigate against risk of an adrenal crisis, and I have therefore made recommendations in line with this.

(d) Finally, this case has also highlighted the importance of accurately recording medical history and medical alerts and serves as a reminder to all GPs to ensure their medical records reflect accurate warnings and alerts when a patient has a significant underlying illness.

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[11] A Gargya et al, 'Acute adrenal insufficiency: an aide-memoire of the critical importance of its recognition and prevention' (2016) 46(3) *Internal Medicine Journal* 356, 357 and 359.

[12] R Louise Rushworth, D J Torpy and H Falhammar, 'Adrenal crises: perspective sand research directions' (2017) 55 *Endocrine* 336, 336 and 341.

[13] Susan O'Connell and Aris Siafarikas, 'Addison disease: diagnosis and initial management' (2010) 39(11) *Australian Family Physician* 834, 837.

[14] Susan O'Connell and Aris Siafarikas, 'Addison disease: diagnosis and initial management' (2010) 39(11) *Australian Family Physician* 834, 837.

RECOMMENDATIONS

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

A. I recommend that the ROYAL AUSTRALASIAN COLLEGE OF GENERAL PRACTITIONERS develop and distribute a guidance sheet to their practitioners that:

i. reminds practitioners about the risk of adrenal crisis, the nonspecific nature of symptoms and presentations preceding a crisis, the importance of prompt recognition and treatment to reduce its associated morbidity and mortality and the need to adjust medication during periods of stress and illness;

ii. promotes the implementation and use of medical record software that prominently highlights medical alerts for conditions such as adrenal insufficiency when the file is opened to make the information clear to any doctor or nurse at the practice;

iii. highlights the need for general practitioners to ensure that patient's relatives, friends and/or carers are educated about adrenal insufficiency, the signs and symptoms of adrenal insufficiency, and preventative measures that should be undertaken to mitigate against the risk of an adrenal crisis, particularly during periods of stress and illness;

iv. promotes the benefits of seeking specialist input regarding the management of adrenal insufficiency during periods of illness or stress.

B. I recommend that the ROYAL AUSTRALASIAN COLLEGE OF PHYSICIANS – ENDOCRINOLOGY:

i. develop and distribute a guidance sheet for endocrinologists to advise them that when providing a 'stress cover letter' or 'sick day management letter' to a patient with adrenal insufficiency, that a copy should also be provided to the patient's treating general practitioner and the patient's family and/or carer;

ii. develop, implement and promote an awareness campaign to remind and inform general practitioners and other health professionals about the risk of adrenal crisis, the nonspecific nature of symptoms and presentations preceding a crisis, and the importance of prompt recognition and treatment to reduce its associated morbidity and mortality.

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

The family of Mr Stewart;

Dr Myles Sutton;

Professor Margaret Zacharin;

Safer Care Victoria;

Royal Australasian College of General Practitioners

Royal Australasian College of Physicians - Endocrinology

Registrar of Births, Deaths and Marriages

Endocrine Society of Australia

Australian Addison's Disease Association

Information recipients; and

Coroner's Investigator, Victoria Police

Signature:

JACQUI HAWKINS
Coroner
Date: 31 January 2020