IN THE CORONERS COURT
OF VICTORIA
AT MELBOURNE

Court Reference: COR 2018 3371

FINDING INTO DEATH WITH INQUEST

Form 37 Rule 60(1)

Section 67 of the Coroners Act 2008

Deceased:	Shane Hughes
Delivered on:	29 October 2024
Delivered at:	Coroners Court of Victoria, 65 Kavanagh Street, Southbank
Hearing dates:	Directions Hearings: 6 March & 21 May 2023 Inquest: 4, 5, 6 and 8 September 2023 Written Submissions: October 2023
Findings of:	Deputy State Coroner Paresa Antoniadis Spanos
Counsel Assisting the Coroner:	Ms M. Fitzgerald of Counsel instructed by Ms G. Horzitski & Mr J. Whyman of the CCOV
Representation:	Mr R. Harper of Counsel instructed by Lander & Rogers appeared on behalf of Monash Health. Mr S. Cash of Counsel instructed by Wotton & Kearney appeared on behalf of Mr M. Harper.

TABLE OF CONTENTS

INTRODUCTION

2. Shane Hughes was a forty-year-old single man who died at Monash Medical Centre, Clayton, on 13 July 2018 following a radical left nephrectomy performed at Moorabbin Hospital, also a Monash Health site, on the morning of 12 July 2018. Shane resided in Sale and is survived by his parents Kaye and Michael Hughes, brother Christian and daughter Maddison. He will be referred to as Shane in this finding in accordance with the family's preference.

3. In May 2018, Shane complained to his general practitioner (**GP**) of upper quadrant abdominal pain and was referred for a CT scan of the chest and abdomen to investigate the cause of that pain. The CT was undertaken on 8 June 2018 and the report indicated an incidental finding of a ten-centimetre tumour in the left kidney which was thought to be a renal cell carcinoma.

4. Shane was referred to Monash Health for treatment of the suspected cancerous growth. At the time, he was a smoker, had a Body Mass Index (**BMI**) of 41 and a history of chronic obstructive pulmonary disease (**COPD**), Type II diabetes mellitus (**T2DM**) and hypertension (**HTN**). These co-morbidities placed him in a higher risk category for any surgery.

OVERVIEW OF CLINICAL MANAGEMENT[1]

5. Shane was first seen in Monash Health's urology clinic at Casey Hospital, on 15 June 2018. The consultation was with a urology registrar. During the consultation, Shane provided written consent to undergo a left laparoscopic procedure plus or minus an open radical nephrectomy and his case was referred to a multi-disciplinary team meeting (**MDT**) in accordance with usual practice for such procedures.

6. On 19 June 2018, Shane answered an anaesthetic health questionnaire, and an anaesthetics nurse followed up with a telephone call to Shane the following day to confirm his anaesthetic assessment.

7. On 22 June 2018, Shane's case was discussed at the Genitourinary Cancer MDT as the next pre-operative step. The notes documenting that discussion are somewhat scant. Consequently, it is unclear who participated in the MDT, what material they reviewed or what their rationale was for the recommendations made in Shane's case. Regardless, the MDT confirmed the decision for

[1] This is a broad overview of the circumstances in which Shane's death occurred, intended to assist understanding of the finding. An accessible timeline is in the first statement of Mr Alan Saunder, Program Director of the Surgery and Interventional Procedures Program, Monash Health, at pages 42-46 of the inquest brief. The timeline and broader circumstances will be discussed in more detail below by reference to the evidence. While I understand these to be largely uncontroversial matters, to the extent of any inconsistency, the latter is to be preferred.

Shane to undergo a left laparoscopic[2] procedure plus or minus an open radical nephrectomy. The MDT also noted that Shane was to undergo a bone scan to complete staging[3] and a review by the respiratory team prior to surgery.[4]

8. Shane attended a Urology Surgical Review Clinic on 25 June 2018 where he was seen by a surgical review nurse and a junior medical officer. They noted that Shane had yet to have the bone scan or respiratory review recommended by the MDT prior to surgery. Two urology registrars were consulted, and they decided that Shane's surgery could proceed regardless, and that the investigations required for staging and other measures could be undertaken post-operatively.

9. On 12 July 2018, Shane presented for surgery at Monash Health's Moorabbin Hospital (**Moorabbin**). The urologist performing the surgery was Mr Matthew Harper and his assistant was Dr Sarah Azer, a urology fellow in her final year of surgical training. Mr Harper had been on leave during the planning for Shane's surgery and had not been involved in the MDT meeting. Mr Harper reviewed the available imaging prior to surgery and met Shane for the first time on the morning of his procedure.

10. Shane's surgery commenced at about 8.45am. The surgical team encountered difficulty mobilising Shane's large 25-centimetre left kidney laparoscopically (the combined size of the left kidney and the tumour), and difficulty individually visualising and dissecting the vessels leading to and from the left kidney. The difficulty, discussed in some detail below, appears to have arisen from a combination of the large size of the tumour, the resultant distortion of Shane's anatomy, and the presence of significant perinephric[5] fat which was not entirely unexpected given Shane's BMI.

11. Ultimately, Mr Harper decided to staple the hilum[6] as a bundle rather than individually dissect and ligate each vessel. The incision for the subcostal laparoscopic port was then extended to enable the large kidney/tumour to be removed, as this could not be done laparoscopically. Venous bleeding was then controlled with diathermy[7] and other modalities. At the time of closure, Mr Harper and Dr Azer believed they had secured all the required vessels and achieved haemostasis.

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[2] Laparoscopy is a type of keyhole surgery. The surgeon uses only small incisions to cut through the skin and other tissues to visualise or dissect/remove organs or tissue with the aid of a camera. Laparoscopy is often recommended because it involves a shorter recovery time than other procedures.

[3] Staging in relation to a tumour defines the extent of disease and is crucial in guiding treatment and prognosis.

[4] Relevant to anaesthetic management during the procedure/surgery.

[5] Perinephric fat refers to a fat pad surrounding the kidneys in the retroperitoneal space and is located between the renal fibrous membrane and the renal fascia.

[6] The renal hilum is the entry and exit site of the various structures servicing the kidneys: vessels, nerves, lymphatics and ureters.

[7] Diathermy uses high frequency alternating polarity radio-wave electricity current to cut or coagulate tissue during surgery allowing incisions with limited blood loss and is now used in nearly all surgical disciplines.

12. The operation concluded at about 12.10pm and Shane was moved from the operating theatre/recovery room to the high dependency unit (**HDU**) at about 12.45pm.

13. Shane's blood pressure declined post-operatively. Although there is scant detail in the medical records, it appears that the HDU at Moorabbin had difficulty stabilising his blood pressure between his arrival in the HDU at about 12.45 and 5.10pm when he was the subject of a medical emergency team (**MET**)[8] call for the first time in response to a drop in his blood pressure to 80/50.

14. Following this MET call, Shane's blood pressure was able to be improved with fluid resuscitation. However, it was noted that he was oliguric, meaning he had very low urine output; his haemoglobin was 130, at the low end of the normal range; and his pH was also low at 7.25.

15. A further MET call was made at 6.30pm when Shane's blood pressure dropped again, this time to 80/40. In addition to fluids, Shane was given metaraminol to improve his blood pressure. His haemoglobin was stable. The medical records indicate that Shane was anuric at the time of the second MET call meaning he was no longer producing any urine raising concerns about his kidney function.

16. By about 7.00pm, the clinical suspicion was of likely intraabdominal bleeding and clinicians decided to perform a CT scan and transfer Shane to Monash Medical Centre (**MMC**), Clayton, for management in the intensive care unit (**ICU**) and likely return to the operating theatre. The MMC emergency department (**ED**) and ICU were notified of Shane's urgent transfer.

17. Shane was admitted to MMC at about 7.30pm. On admission, his haemoglobin was lower at 118g/L while at about 9.00pm, Shane underwent an abdominal CT scan which showed a small volume left renal fossa haematoma and a small volume of free blood in the pelvis. The volume of blood was considered consistent with the recent left nephrectomy and the treating team appears to have determined that bleeding was unlikely to be the cause of Shane's post-operative decline. Blood tested shortly after midnight indicated a lower haemoglobin at 113g/L.

18. Shane continued to decline over the following hours with evidence that he was developing liver failure. At this time, the treating team inclined toward diagnosis of cardiac failure, sepsis, renal obstruction or ischaemic hepatitis with bleeding continuing to be thought an unlikely explanation.

19. A return to the operating theatre was again considered at about 4.00am on 13 July 2018. However, this was not ultimately pursued as it was felt that Shane was not in a state to tolerate further surgery

[8] The MET call is a hospital-based system, designed for a nurse (or other staff member) to alert and call other staff for help when a patient's vital signs have fallen outside set criteria.

at this time. A further CT scan was also considered but it was determined that Shane would likely be unable to be taken off ICU support long enough for a CT scan to be performed.

20. By about 6.45am, it was determined that Shane was unlikely to survive, and Shane's family were informed and returned to MMC. Shane's treating surgeons, Mr Harper and Dr Azer were informed of Shane's decline and advised they would be in to review him during normal morning rounds. Following their review at about 8.50am on 13 July 2018, Shane's medical support was withdrawn, and he passed away a short time later in the presence of his family.

21. Subsequently, the histopathology report pertaining to the left kidney and tumour removed during the surgery confirmed the diagnosis of a clear cell renal cell carcinoma 60x60x60x100mm in size, with clear surgical margins but with invasion into renal sinus fat, making it a stage T3a tumour. A separate papillary adenoma was also identified.[9]

INVESTIGATION AND SOURCES OF EVIDENCE

22. This finding is based on the totality of the material the product of the coronial investigation of and inquest into Shane's death which includes relevant witness statements, photographs, the forensic pathologist's report and medical records.[10] This finding is also based on the evidence of those witnesses who were required to testify at inquest and any documents tendered through them; and the final submissions of Counsel for each of the parties.

23. All this material, together with the inquest transcript, will remain on the coronial file.[11] In writing this finding, I do not purport to summarise all the material and evidence but will only refer to it in such detail as is warranted by its forensic significance and the interests of narrative clarity.

PURPOSE OF A CORONIAL INVESTIGATION

24. The purpose of a coronial investigation of a *reportable death*[12] is to ascertain, if possible, the identity of the deceased person, the cause of death and the circumstances in which death

[9] The histopathology report is at pages 50, 255-256 of the inquest brief and Mr Harper's description of the findings at page 57-1 in his statement dated 29 April 2019.

[10] The compilation of material (designated Exhibit A at inquest) will be referred to as the "inquest brief" in the rest of this finding.

[11] From the commencement of the ***Coroners Act 2008*** (the Act), that is 1 November 2009, access to documents held by the Coroners Court of Victoria is governed by section 115 of the Act. Unless otherwise stipulated, all references to legislation that follow are to provisions of the Act.

[12] The term is exhaustively defined in section 4 of the ***Coroners Act 2008*** [the Act]. Apart from a jurisdictional nexus with the State of Victoria a reportable death includes deaths that appear to have been unexpected, unnatural or violent or to have resulted, directly or indirectly, from an accident or injury; and, deaths that occur during or following a medical procedure where the death is or may be causally related to the medical procedure and a registered medical

occurred.[13] Shane's death clearly falls within the definition of "reportable death" in section 4 of the Act, satisfying both the jurisdictional nexus with the State of Victoria required by section 4(1) of the Act and section 4(2)(b) which includes (relevantly) -

> *a death that occurs during a medical procedure; or following a medical procedure where the death is or may be causally related to the medical procedure – and a registered medical practitioner would not, immediately before the procedure was undertaken, have reasonably expected the death.*

25. The *medical* cause of death, incorporates 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 all those circumstances which might form part of a narrative culminating in death.[14]

26. The broader purpose of any coronial investigation 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.[15]

27. Coroners are empowered to report to the Attorney-General in relation to 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.[16] These are effectively the vehicles by which the coroner's prevention role can be advanced.[17]

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practitioner would not, immediately before the procedure, have reasonably expected the death (section 4(2)(a) and (b) of the Act). Some deaths fall within the definition irrespective of the section 4(2)(a) characterisation of the 'type of death' and turn solely on the status of the deceased immediately before they died – section 4(2)(c) to (f) inclusive.

[13] Section 67(1).

[14] 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.). Note that coroners are not empowered to determine the civil or criminal liability arising from the investigation of a reportable death and are specifically prohibited from including in a finding or comment any statement that a person is, or may be, guilty of an offence. However, a coroner may include a statement relating to a notification to the Director of Public Prosecutions if they believe an indictable offence may have been committed in connection with the death. See sections 69 (2) and 49(1) of the Act.

[15] The 'prevention' role is now explicitly articulated in the Preamble and purposes of the Act, compared with the *Coroners Act 1985* where this role was generally accepted as 'implicit'.

[16] See sections 72(1), 67(3) and 72(2) regarding reports, comments and recommendations respectively.

[17] See also sections 73(1) and 72(5) 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.

IDENTITY

28. Shane Hughes, born 25 August 1977, aged 40, was identified by his father Michael Allan Hughes who signed a formal Statement of Identification to this effect before a doctor from Monash Health on 13 July 2018.

29. Shane's identity was not in issue and required no further investigation.

CAUSE OF DEATH

30. Shane's body was brought to the Coronial Services Centre in Southbank. Forensic pathologist Dr Yeliena Baber from the Victorian Institute of Forensic Medicine (**VIFM**) reviewed the Police Report of Death to the Coroner (VP Form 83), post-mortem CT scanning of the whole body undertaken at VIFM (**PMCT**), the Medical Deposition and the medical records provided by Monash Health before performing an autopsy. Following the autopsy, Dr Baber also reviewed medical records from the relevant GP clinics, antemortem imaging from Monash Health and a postmortem radiology report.

31. Having done so, Dr Baber provided a written report that is included in the inquest brief.[18] Her autopsy findings were summarised in the following terms: *evidence of recent nephrectomy; 1600mls liquid and clotted blood within the peritoneal cavity; pale liver, kidney and thyroid; friable liver and kidneys; bilateral pleural effusions; right ventricular hypertrophy; and moderate coronary artery disease.*[19]

32. Dr Baber provided commentary relating to her findings, explaining that Shane's co-morbidities likely combined in contributing to the development of hypoperfusion, and thus oxygenation, of the heart, liver and kidney. Although the haemorrhage into the abdominal cavity (estimated at autopsy to be at least 1600ml of liquid and clotted blood) was not immediately apparent, as it accumulated, this would have imposed additional physiological stress on organs already compromised by pre-existing disease or the operative process itself.[20]

33. Although a single bleeding site was not identified at autopsy, Dr Baber noted that small vessel haemorrhage or generalised venous ooze is challenging to identify at autopsy due to

[18] Dr Baber's formal qualifications and qualifications are set out in the autopsy report at pages 8-18 of the inquest brief.
[19] Page 10 of the inquest brief.
[20] Page 11 of the inquest brief.

the lack of a circulating blood volume. Relevantly, Dr Baber noted that, as a result of the haemorrhage, internal organs were pale.

34. Referring to Dr O'Donnell's review of antemortem and postmortem CT scanning of Shane's abdomen, Dr Baber advised the volume of at least 1600mls of liquid and clotted blood would have accumulated between the antemortem scan on 12 July 2018 and the time of Shane's death.[21]

35. Relevant to the cause and mechanism of Shane's death and the discussion to follow, Dr Baber documented the following autopsy findings under the heading *"Aorta and major arteries" – "The left renal artery bifurcates approximately 3cm distal to its origin. The superior branch has a surgical clip in situ. No surgical clip is apparent on the inferior branch. The coeliac trunk is opened in its entirety, including the left gastric branch, splenic artery branch and the common hepatic branch, including part of the right and left hepatic branches. No surgical clips are identified on any of the vessels just described. The superior mesenteric artery is of small calibre and has a surgical clip in situ, approximately 1cm distal to the origin." [Emphasis added.]*[22]

36. In her commentary, Dr Baber clarified that as regards her observations of the presence or absence of surgical clips on the various arteries, the absence of such does not necessarily correlate to the omission of clip placement at the time of surgery as surgical clips *may* become dislodged during the autopsy process (emphasis added).[23]

37. I note Dr Baber's comments about her findings on histology relevant to Shane's co-morbidities. Histology of the heart was non-diagnostic, in keeping with either hypertensive heart disease or cardiomyopathy without fulminant features; histology of the coronary artery confirmed narrowing of the lumen by atherosclerosis; while lung histology showed typical chronic obstructive features in keeping with the clinical history of smoking and repeated respiratory tract infections.[24]

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[21] Dr Chris O'Donnell is a consultant radiologist from VIFM who provided a report that is included in the inquest brief (see pages 20-13 to 20-26) and testified at inquest (see transcript pages 120-149).

[22] Pages 14-15 of the inquest brief. Put simply, the inferior branch of the renal artery which should have been clipped does not appear to have been clipped while the superior mesenteric artery which should not have been clipped appears to have been clipped. See also transcript at pages 192-196 where Dr Baber describes photographs taken during the autopsy tendered as an aid to describing the state of relevant vessels. Discussed in more details below.

[23] Page 11 of the inquest brief.

[24] Ibid.

38. The liver was suggested as a possible cause of death in the Medical Deposition.[25] Dr Baber's histology findings relevant to the liver are that it was non-diagnostic for underlying disease. However, the liver had features in keeping with a recent insult which had resolved, the nature of which is unable to be determined, but would include hypoxia or a chemical insult arising from the procedure/surgery.[26]

39. Dr Baber concluded her autopsy report by formulating Shane's cause of death as *1(a) Acute hepatic and renal failure in the setting of postoperative haemorrhage following elective nephrectomy for renal cell carcinoma; 2 Contributing factors: Obesity, Coronary Artery Atherosclerosis; Chronic Obstructive Pulmonary Disease.*[27]

FOCUS OF THE CORONIAL INVESTIGATION & INQUEST

40. The focus of the coronial investigation including the inquest into Shane's death was on:

    a. Further consideration of the cause and/or mechanism of death, including whether it resulted from bleeding and, if so, the likely source of bleeding.

    b. The circumstances in which Shane's death occurred, including:

        i. The Howard Recommendations and their applicability to Shane's surgery.[28]

        ii. Planning for Shane's surgery.

        iii. The surgery proper.

        iv. Post-operative management.

        v. Prevention opportunities.

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[25] The Medical Deposition dated 13 July 2018 was provided by one of the treating team from Monash Health, Dr Maria Nguyen, ICU Hospital Medical Officer and appears at pages 5-6 of the inquest brief. In it, Dr Nguyen suggests *"Acute liver failure of unclear aetiology"* as the possible cause of death and *"Aetiology of deterioration and death"* as issues to be addressed by the coroner and forensic pathologist.

[26] Page 11 of the inquest brief.

[27] Contributing (or contributory) factors noted here are those diseases which are considered not directly related to the cause or mechanism of death but are indirectly related to them.

[28] For clarity, in this finding "the Howard Recommendations" refers to the recommendations made at an internal review of Mr Howard's death undertaken by Monash Health. However, at the directions hearing and in the inquest scope relating to Shane's death there is reference to the recommendations made by Coroner Rosemary Carlin (as she then was) following her investigation of Mr Howard's death. Strictly speaking, Coroner Carlin did not make any recommendations stating at paragraphs 47 and 48 of her finding – *"I am satisfied that Monash Health's sentinel event review was of very high standard and resulted in the identification of many systemic contributory factors. The subsequent recommendations were aimed at improving prevention of multiple independent points of error, error detection and the ability recovery from error[sic]. The CPU found no opportunities for prevention beyond those practice improvements identified by the health services provider and I agree with the CPU's advice."*

FURTHER CONSIDERATION OF THE CAUSE &/OR MECHANISM OF DEATH

41. Dr Baber was called to give evidence at inquest, primarily to clarify her autopsy findings and expand where possible on the cause and mechanism of death. She was subsequently recalled together with Associate Professor Grills and Professor Sengupta and participated in the expert panel.[29]

42. In terms of the location of an estimated 1600ml (at least) liquid and clotted blood was within the peritoneal cavity, Dr Baber testified that she found some blood in the pelvis and some around the nephrectomy site. Blood had predominantly settled in the most dependent part of the abdomen, the right paracolic gutter and around the liver. In other words, as Shane was laying on his back, the blood had settled to the lowest point. In terms of the composition of the collection, Dr Baber testified that it was more in keeping with blood than haemoserous fluid. Certainly, 'it did not look like fluid with just some blood in it'. Regarding the suggestion that this fluid (or a portion of it) was indicative of organ failure, Dr Baber's evidence was that 'it was too quick for this to have occurred in Shane's case'.[30]

43. Dr Baber described Shane's liver as partially autolysed and explained what she saw under the microscope that supported this description. When asked about the significance of this finding, Dr Baber explained that where a patient has quite a lot of intra-abdominal fat, the body does not cool down as rapidly after death and this hastens normal processes of decomposition. Liver autolysis is also seen if there is failure in the specific organ prior to death. In this case, liver autolysis could indicate a combination of acute organ failure and a degree of decomposition.[31]

44. Due to the suggestion of liver failure in Shane's case,[32] Dr Baber checked the blood supply to the liver and found it was not compromised in any way. Nor did she find any other evidence that the liver was diseased. However, the fact that there was some loss of cohesion in some liver cells was potentially indicative of early ischaemic changes in life such as might occur during a period of low blood pressure where the liver is not well perfused.[33]

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[29] Transcript pages 214 -299. While the panel was mostly concerned with the surgical technique used, their evidence also touched on the cause of Shane's deterioration and the mechanism of death.
[30] Transcript pages 196-197, 211-212.
[31] Transcript pages 198-199.
[32] This possibility was referred to in the Medical Deposition.
[33] Transcript page 200.

45. Consistent with her autopsy report, Dr Baber confirmed in evidence that while the superior left renal artery was ligated, she found no evidence of ligation of the inferior branch of the left renal artery. The superior mesenteric artery was also ligated. When asked to describe the type of ligature, she could not say, other than to say that it looked like those she used when doing surgery some years ago, it 'looked like silver metal but could have been plastic, she did not test it, but it looked like a typical surgical clip which she had previously used, that used to be made of metal'.[34]

46. Dr Baber's observation of the superior mesenteric artery was that it was of a smaller calibre than she would expect and led her to the assumption that the bowel was being supplied by a collateral vessel as well. Certainly, the bowel all looked viable.[35] Dr Baber stressed that although she found no gross signs of an ischaemic bowel, this did not mean that early ischaemic changes were not affecting Shane at a cellular level and that the bowel was not already compromised.[36]

47. Allowing for the possibility that the inferior branch of the left renal artery was initially ligated and the clip or staple somehow came loose either in the post-operative period or by (or at the time of the autopsy), Dr Baber's inspection of the vessel did not show any signs of damage to the vessel as would be expected for anything beyond ligation for a few minutes.[37] As to the source of bleeding in Shane's case and explanations for the delayed onset of bleeding, the consensus view of the expert panel was that there were a number of *possible and speculative* explanations but no definitive explanation.[38]

48. Dr Baber gave a narrative description of her formulation of the cause of death and its purport– *"…the cause of death should encompass everything that's happened…it wasn't just the haemorrhage… obviously that's…a very big factor but even prior to that, he was already becoming compromised … whether it's because…he wasn't filled with enough fluids…so he was already hypertense if his kidneys weren't working, he was anuric or oliguric um and there were signs on biochemistry of his liver not functioning properly…the acute failure had already started…it's not possible to separate the haemorrhage and the acute hepatic and renal failure from each other. It's all part of [the]operative,*

[34] Transcript pages 202-205.
[35] Transcript page 206. When challenged about the type of ligature by Mr Cash, Dr Baber maintained that whether a clip or a staple, the superior mesenteric artery was still occluded – transcript page 209. See also transcript pages 212-213 where Dr Baber described the ligatures she saw as more like staples than clips proper.
[36] Transcript page 269.
[37] Transcript pages 265-266.
[38] Transcript pages 264-269.

postoperative physiological challenge in an individual who essentially is not optimal prior to the surgery…because of a high body mass index, he had some moderate coronary artery disease…which wasn't known…a history of asthma and chronic obstructive airway disease…he was diabetic…he didn't start from the best position to withstand all those physiological challenges."[39]

49. This clarification of the cause and mechanism of death given by Dr Baber, was accepted without demurrer by A/P Grills and Prof Sengupta.[40]

THE CIRCUMSTANCES IN WHICH DEATH OCCURRED

The Howard Recommendations and their applicability to Shane's surgery

50. Before moving to a more detailed analysis of the circumstances in which Shane's death occurred, it is important to have some appreciation of the context, and changes made at Monash Health following the death of a patient in similar circumstances two years earlier.

51. On 22 December 2016, Peter Howard died following radical left nephrectomy performed by Mr Harper at Moorabbin Hospital. Mr Howard's death was attributed to *1(a) Multiple organ failure* (secondary to) 1*(b) Inadvertent occlusion of superior mesenteric artery during excision of renal tumour.*

52. In Mr Howard's case, the renal cell carcinoma measured 10cm in diameter. A decision was made to proceed laparoscopically plus or minus an open nephrectomy. During the surgery, the superior mesenteric artery was almost completely transected by Mr Harper who was using a stapler transect and ligate the vessels of the renal hilum. Mr Howard deteriorated postoperatively and, despite further surgery and treatment, passed away.[41] It will be apparent from even this short summary, that there are significant similarities between Mr Howard's death and Shane's.[42]

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[39] Transcript pages 269-271.

[40] See also the evidence of Mr Saunder at inquest at transcript pages 319-320, 325 and 327 where he describes, inter alia, the consequences of failure to ligate the inferior branch of the left renal artery and the occlusion of the superior mesenteric artery and the significance of the elevated potassium level.

[41] Finding into Death Without Inquest of Peter James Howard, Coroner Rosemary Carlin (as she then was), 25 June 2019. The finding is at pages 257-268 of the inquest brief. Note that there were three further recommendations made that were omitted as they do not appear to bear relevance to Shane's death.

[42] See transcript page 320 where Mr Saunder compares the effect of inadvertent ligature of vessels in Mr Howard's case given his unusual anatomy and catastrophic ischaemic event with Shane's more gradual decline. In both cases, he described the inadvertent ligature of the SMA as alarming to him as a vascular and as a transplant surgeon.

53. Following a root cause analysis into Mr Howard's death conducted by Monash Health and finalised on 22 March 2017,[43] several recommendations for improvement were made including the following with potential relevance to Shane's death:

a. *All complex patients with left-sided tumours exceeding 10 centimetres are to have a CT angiogram (in addition to a CT abdomen) to define intraabdominal vascular anatomy within 30 days of proposed surgery.*

b. *Complex urological cases (such as those presenting with renal tumours greater than 10 centimetres) will be presented to multi-disciplinary meetings where the team decides:*

    i. *The most appropriate surgeon and team to perform the surgery;*

    ii. *The most appropriate surgical facility to perform the surgery; and*

    iii. *The timing of the surgery;*

c. *The surgeon performing the surgery will be responsible for reviewing the imaged anatomy relevant to the planned procedure;*

d. *Such complex surgery be performed as open surgery from the beginning;*

e. *Such complex surgery to have two qualified urologists in attendance and forewarning of the vascular unit; and*

f. *The process of careful inspection of the aorta and its major vascular branches be introduced as a formal documented step before the closure of the operative site.*

54. Following the making of these recommendations referred to as the **Howard Recommendations** hereafter, the Monash Health Urology Unit issued a policy entitled "Urology Unit Policy on Management of Renal Tumours >10cm" (**the Policy**). The Policy was distributed by Dr Scott Donnellan, Director of Urology, to those in the unit by email dated 24 November 2017[44] and it was uncontroversial at inquest that it applied at the time of Shane's surgery on 12 July 2018.

[43] Coroner Carlin made the following observations at paragraph 45 of her finding (see page 266 of the inquest brief): *"Monash Health appropriately reported this case via the Victorian Department of Health and Human Services' Sentinel Event Program. Consequently, a Root Cause Analysis was performed. Since the formation of Safer Care Victoria, Root Cause Analysis teams must have an independent senior specialist, in this case a urologist, to ensure transparency and independence."*

[44] The policy appears at page 299 of the inquest brief and the covering email at page 300.

55. The policy begins with a preamble which is instructive about the risks associated with larger renal tumours[45] while the policy proper is in the following terms:

"Tumours >7cm should be considered with great caution to be performed laparoscopically.

Tumours >10cm should be treated exclusively by open surgery by an experienced Urologist with another surgeon assisting and the Vascular Unit forewarned but not necessarily present in the theatre. THESE SHOULD BE PLANNED OPEN FROM THE BEGINNING AND AN APPROPRIATE INCISION PERFORMED WITH THE PATIENT POSITIONED IDEALLY.

The MDT should make recommendations on the most appropriate Urologist(s) to perform the surgery, the most appropriate place to perform the surgery, the most appropriate nursing/surgical team (this is not always at Clayton), and the timing of surgery."[46]

56. A comparison of the Policy and the Howard Recommendations indicates that the Policy does not specifically address the Howard Recommendations set out at 53(a), (c) and (f) above but does appear to address the recommendations set out in 53(b), (d) above and (e), the latter perhaps only partially.[47] I note that current Monash Health processes for embedding recommendations from previous reviews will be addressed below.[48]

57. Furthermore, while the title of the policy refers only to renal tumours greater than 10cms in diameter, the Howard Recommendations are broader in some respects. They are couched in terms of *"all complex patients with left-sided tumours exceeding 10cms"*

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[45] While the preamble, by definition, provides the setting for the Policy, it also contains important information about the risks associated with tumours >10cm which as a matter of logic informs the risks associated with tumours =10cm. The preamble reads as follows: *"Although technical expertise and experience varies from surgeon to surgeon, Renal tumours >10cm pose significant challenges that place them in a different category of complexity than smaller tumours. Factors include *Higher probability of Neo-Vascularisation (with associated risk of bleeding). *Higher likelihood of attachment to/proximity to/or invasion of adjacent structures – Pancreas tail, Spleen, Colon the left; Liver, Duodenum and IVC on the right; Psoas muscle either side. *Higher risk of Vascular tumour thrombus. *Less "Space" to work in and therefore more difficult access. *The weight of these specimens makes surgical manipulation during the procedure more difficult. This is especially true with laparoscopy. *All these factors contribute to distorted anatomy in large renal tumours and this should be actively sought in the pre-operative phase rather than passively discovered at surgery. *Central/mid-pole tumours, TCCs, Anasplastic tumours and left sided tumours are the most commonly associated with technical difficulties."*

[46] The text is italicised which is the only change made for internal consistency, the emphasis is in the original.

[47] Note that the Howard Recommendations paragraph (e) refer to "two qualified urologists" whereas the Policy refers to "an experienced urologist with another surgeon assisting" which may allow for a trainee, albeit advanced trainee such as Dr Azer rather than a peer of Mr Harper as would be assumed from the wording in the Howard Recommendations. The distinction, if any in this context, between a "qualified urologist" and "an experienced urologist" is also unclear and unhelpful.

[48] See paragraphs 109 and following below.

allowing for the possibility that the patient may have clinical complexity quite apart from the size of the renal tumour in the case of 53(a) and *"complex urological cases (such as those presenting with renal tumours greater than 10cms)"* allowing for the inclusion of complex urological cases on bases other than the size of the tumour in the case of 53(b).

58. What is curious and remains unexplained is the decision of the RCA team to couch the Howard Recommendations primarily in terms of tumours >10cm even though Mr Howard's tumour, like Shane's was (only) 10cm. As such, Shane's tumour attracted only the Policy requirement that tumours >7cm *"should be considered with great caution to be performed laparoscopically".*

59. Mr Alan Charles Saunder, Program Director of the Surgery and Interventional Procedures Program at Monash Health (**Mr Saunder**) helpfully provided three statements for the inquest brief.[49] The third statement dated May 2023[50] is germane here as it addresses the applicability of the Policy to Shane's surgery; deficiencies in the MDT process; the Monash Health review following Shane's death and resultant changes; and the comprehensive process at Monash Health for embedding such changes.

60. It is clear in both Mr Saunder's statement and his evidence at inquest that the Policy, while in place at the time of Shane's surgery, only applied to the extent that tumours > 7cm were to be considered with great caution for laparoscopic removal. There was no requirement for an open procedure from the outset as applied to tumours > 10cm but not those equal to 10cm.[51]

61. According to Mr Saunder, at the time of Shane's surgery, unless mandated by the Policy, the surgical approach was determined by the operating surgeon based on their clinical judgement and preference. Nevertheless, he did not believe that "great caution" was adopted with respect to the decision to commence Shane's surgery laparoscopically, as required by the Policy.[52]

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[49] Inquest transcript pages 303 and following for Mr Saunder's evidence generally. Mr Saunder's first statement is dated 30 April 2019 (pages 42-46 of the inquest brief) and contains a summary of Shane's clinical course based on a review of the medical records and information provided at the review panel meetings which he attended as Program Director; a preliminary outline of Monash Health's review of Shane's case and recommendations arising; and an indication that further updates of progress with these recommendations would be forthcoming. His second statement dated 9 July 2019 addresses the choice of Moorabbin Hospital for Shane's procedure among other issues and is at pages 47-50 of the inquest brief.

[50] Pages 279-298 of the inquest brief.

[51] Pages 279-280 of the inquest brief and transcript page 331.

[52] Page 280 of the inquest brief and transcript page 331.

Planning for Shane's surgery

62. As mentioned above, the planning for Shane's surgery commenced with an outpatient appointment at the urology clinic at Casey Hospital on 15 June 2018 and a referral from there to the genitourinary cancer multi-disciplinary team meeting (**MDT**).[53]

63. On 22 June 2018, Shane's surgery was discussed at the MDT at Casey Hospital.[54] According to the Policy, the MDT was responsible for making recommendations on the appropriate urologist to perform the surgery, the most appropriate place to perform the surgery, the most appropriate nursing/surgical team, and the timing of the surgery. None of these matters are addressed in the documentation of the MDT in the Monash Health records which is scant overall, [55] particularly as regards the content of any discussion.

64. Moreover, there is no explicit reference to the Policy hence it is unclear if the Policy was addressed by the MDT[56]; multiple fields in the documentation are left blank; and apart from noting Mr Philip McCahy as MDT lead and Dr John Baillie as the presenting clinician, it is unclear who else participated.[57]

65. Ultimately, the MDT's recommendations as documented were for Shane to undergo a nephrectomy (elsewhere in the document referred to as 'left laparoscopic +/- open radical nephrectomy'), a bone scan to complete staging, a respiratory team review prior to surgery and to attend a surgical review clinic on 25 June 2018.[58]

66. According to Mr Saunder, Shane's surgery was initially listed or 3 July 2018 at Casey Hospital. However, due to Shane's co-morbidities which classified him as an ASA III patient, that is one with severe systemic disease, the urology team determined that Moorabbin Hospital was the appropriate site being a larger facility where the urology unit was based where most major urology surgeries were performed. Moorabbin Hospital also had a high dependency unit (**HDU**) for post-operative care, if required, but no Intensive

[53] In the interim, Shane underwent anaesthetic review on 19 and 20 June 2018. Ultimately, there was no controversy about Shane's anaesthetic review and nothing to suggest that his death was related to the anaesthetic. See statement of Dr Mark James Adams, Director of Anaesthetics for Monash Medical Centre and Moorabbin, among others, dated 1 May 2019, at pages 51-55 of the inquest brief.

[54] At this time Monash Health had two separate urology MDT meetings, one at Casey Hospital and one at Moorabbin Hospital as the urology unit was split across both campuses. The MDT meetings have since been combined. See Mr Saunder's statement at page 280 of the inquest brief.

[55] Inquest brief at pages 78-81.

[56] Transcript page 332.

[57] At transcript page 315 Mr Saunder "speculates" that there would have been limited multidisciplinary presence at the MDT 'possibly only one or two urologists and urology trainees, probably no radiation oncologists, probably no oncologists'.

[58] Inquest brief at page 81.

Care Unit (**ICU**). At inquest, Mr Saunder maintained that the choice of Moorabbin Hospital was an appropriate site, even in retrospect.[59]

67. The other Monash Health facility that was a possible site for Shane's surgery was Monash Medical Centre (**MMC**). Although MMC did not have regular urological surgery lists, selective urology cases were performed there as required, including where access to an ICU was considered necessary.[60] According to Mr Saunder, Shane's pre-operative assessment did not indicate he would likely require ICU support post-operatively. Nor was it anticipated that a vascular surgeon would be required, vascular surgeons not being readily available at Morrabbin Hospital.[61]

68. As arranged, Shane attended a urology surgical review clinic at Casey Hospital on 25 June 2018 and was seen by a surgical review nurse and a junior medical officer. They noted investigations already undertaken and yet to be undertaken, notably the bone scan and respiratory review recommended to be done pre-operatively by the MDT. A subsequent discussion took place with urology registrars Drs Sapre and Baillie and the medical record of the surgical review notes that 'they agreed that the surgery should proceed as arranged, that staging and other measures could be pursued post-operatively if required, and there was no need for respiratory review as the impression from the MDT was of equivocal nodes.'[62]

69. It is noteworthy that this effectively overrode the MDT recommendations but was not referred back to the MDT for their further consideration. That said, the broad consensus of evidence from the various medical practitioners who gave evidence at inquest was that given the exigency of removing the tumour, the decision to proceed without a bone scan (to complete staging) and without respiratory review was acceptable, and one which had no apparent bearing on the outcome.

70. Although conceding that there were deficiencies in the MDT process and documentation, both via Mr Saunder's evidence and in the final submissions of Mr Robert Harper of Counsel, Monash Health maintained that those deficiencies did not cause or contribute to Shane's death.

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[59] Mr Saunder's second statement at pages 47-48. third statement at pages 280-281 of the inquest brief and transcript page 329.
[60] Pages 47-48 of the inquest brief.
[61] Ibid and transcript pages 328-330. Note that Monash Health's urology unit is now based primarily at Casey Hospital which now has an ICU but no vascular surgeon availability unless with prior arrangement.
[62] Pages 117-118 of the inquest brief

71. The foundation for this assertion was that, ultimately, the choice of surgical approach in Shane's case was a matter for the surgeon. While in his evidence, Mr Harper indicated he was aware of the Policy at the time and was also aware that the MDT had recommended a laparoscopic approach, after reviewing Shane's presentation, Mr Harper independently determined that a laparoscopic approach was appropriate and could proceed as planned on the day.[63]

The surgery proper

72. Shane presented for surgery at Moorabbin on the morning of 12 July 2018. The surgeons were Mr Matthew Harper, a consultant urological surgeon and Deputy Director of the Monash Health urology unit at the time[64] and Dr Sarah Azer, as assistant surgeon. At the time, Dr Azer was a urology fellow in her final year of surgical training and is variously described in the inquest brief as a urology registrar or fellow. At the date of the inquest, Dr Azer described herself as a consultant urologist with a particular interest in kidney, prostate and bladder cancer.[65]

73. Although there is no suggestion that Shane's death related to anaesthetic management, I note for completeness that the anaesthetist conducting Shane's pre-anaesthetic assessment and managing anaesthetics during the surgery was Dr Ramanan Rajendram, an anaesthetics registrar in his fourth year of training. Dr Mark James Adams, Director of Anaesthetics for MMC provided a statement based on his review of the medical file. In that statement, Dr Adams addresses Dr Rajendram's assessment of Shane from an anaesthetic perspective, including their discussion of anaesthetic risks and he notes that the intra-operative record does not indicate anything unusual or concerning from an anaesthetic perspective.[66]

74. It was uncontentious that Mr Harper had been on leave during the planning for Shane's surgery and returned to work at Monash Health a few days before 12 July 2018. He reviewed Shane's pre-operative CT scan (including an arterial phase) before meeting him for the first time on the morning of his procedure. While he agreed that it would be ideal to meet every patient for assessment prior to the date of their surgery, this was not the norm at Monash Health at that time and remains largely impractical in the setting of the State's busiest public urology unit with a substantial demand for urgent cancer surgeries. Mr

[63] Transcript pages 40-42, 89, 92, 96-97.
[64] Mr Harper's formal qualifications are set out in his first statement dated 29 April 2019 at pages 58 of the inquest brief. A second supplementary statement dated 18 July is at pages 367-369 of the inquest brief.
[65] Dr Azer's formal qualifications are set out in her statement dated 348-352 of the inquest brief.
[66] Dr Adams' statement at pages51-55 of the inquest brief and the Peri-operative Anaesthetic Record at page 127.

Harper also pointed to the MDT process which involves a team of clinicians reaching a consensus about the patient's management and has the benefit of allowing for planning and treatment to proceed without reliance on one individual to progress patient care.[67]

75. Shane's surgery commenced as a laparoscopic procedure at about 8.45am on 12 July 2018.[68] While there is no contemporaneous documentation of the rationale for proceeding laparoscopically, Mr Harper testified that there were advantages for the patient in a laparoscopy even if it would be more challenging than an open nephrectomy. In a patient like Shane with some respiratory compromise, even without the hard evidence of a lung function test, a smaller incision had clear advantages in terms of his lung function and recovery time. Ultimately, despite the need to increase the subcostal port incision to a 10cm incision to allow removal of the combined mass comprising the left kidney and tumour, this was a significantly smaller and lower incision than would have been the case in an open procedure, and one less likely to compromise Shane's respiration and recovery.[69]

76. Dr Azer's evidence was that she was aware that tumours of a similar size to Shane's had been successfully removed laparoscopically at Moorabbin Hospital in the preceding years and that Mr Harper specifically had tackled very difficult laparoscopic nephrectomies, so she did not recall having any concerns about the decision to proceed laparoscopically in Shane's case. As she did not recall being worried about this decision, she did not discuss it with Mr Harper. If she had any concerns, she would have felt able to raise them with Mr Harper.[70]

77. The two expert urologists who gave evidence at inquest were Associate Professor Richard John Grills (**A/P Grills**) commissioned by the court to provide an independent expert report and Professor Shomik Sengupta (**Prof Sengupta**) who provided an expert report on behalf of Mr Harper. They both agreed that it was appropriate to attempt a laparoscopic approach,

[67] Inquest brief page 367 and transcript page 40.
[68] Inquest brief page 127 and 129-130.
[69] Page 56-1 and transcript pages 35-37.
[70] Transcript page 164. Also, see page 162 where Dr Azer testified *"…that was my routine that year, was just to look at the major cases, look at their notes and things like that. I don't recall on the day expressing any concern to Matt about the BMI or weight. I had looked at the pre-op CT and I felt at the time that it was achievable laparoscopically."* I note that at page 163 of the transcript Dr Azer's evidence is that she was unaware of the Policy and was not a trainee urologist at Monash Health when it was circulated on 24 November 2017.

in particular because of the potential benefits in recovery for a person with Shane's significant co-morbidities.[71]

78. At inquest, Dr Azer also gave evidence about the advantages of a laparoscopic approach that was broadly consistent with the evidence of the two experts.[72]

79. In accordance with established practise, it was Dr Azer as assistant surgeon who typed the operation report in the medical records. Her description of the substantive procedure, after preparation and positioning of the patient with his left side up was in the following terms – *"Very large kidney. Gonadal vein followed to renal vein. Adrenal vein seen. Significant fat and lymphatics around the hilum. UP [upper pole of the kidney] and LP [lower pole of the kidney] cleared around the renal vein. Hilum stapled. Difficult dissection given size of kidney. Subcostal incision made. Kidney removed. Some venous bleeding controlled. Surgicel to hilum. Spleen and small bowel pink…"*[73]

80. In her statement and evidence at inquest, Dr Azer described a number of aspects of the procedure that were not detailed in the operation report, including her use of harmonic scalpel diathermy and scissors to dissect tissue around the kidney.[74] Dr Azer's recollection was that Mr Harper did not consider it possible to individually dissect the hilar vessels (the renal vein and renal artery) laparoscopically due to poor exposure and that even after careful dissection, the renal arteries could not be seen due to extensive fat.[75] Dr Azer also testified that she placed a non-radio-opaque clip on the left gonadal vein; was unable to

[71] A/Grills provided two reports, the first dated 8 August 2021 at pages 269-274 of the inquest brief (see page 271) and the second dated 4 June 2023 at pages 353-354. Prof Sengupta's expert report dated 18 July 2023 is Exhibit D – see page 6 under the heading "Medicolegal opinion". Transcript pages 227-229.

[72] Transcript pages 168-169.

[73] Pages 129-130 of the inquest brief.

[74] Dr Azer's statement dated 28 April 2023 is at pages 348-352 of the inquest brief and includes her formal qualifications and training and outlines the part she played in Shane's surgery in more detail than in the operation report. Use of the harmonic scalpel is referred to in paragraph 9 of page 349 of the inquest brief. See also transcript at pages 159-160 where Dr Azer testified that she relied on the operation report and her actual recall and explains why she still recalled details of Shane's case – *"…The first is in general as urologists, we don't often lose a patient. And nephrectomy is the only operation that we do that is life threatening and it most definitely stayed with me losing such a young patient…The second thing is un after this case, extensive amount of time was spent by the unit reflecting on how he could have died. I personally felt I never got closure with that…I never fully understood why. In fact, I remember staring at the CT scan with other consultants, asking other consultants what they think went wrong and I remember looking at the staple line on the postoperative CT trying to discern whether an incorrect vessel could have been stapled…I think for me, not knowing fully what was in the stapler left that question in my mind for a long time. So the other thing is, I myself are a very emotional surgeon and for me I knew if I had fired that stapler, I would not have gotten over it. It would have stayed with me."*

[75] Paragraph 11 of page 349 of the inquest brief.

visualise the left renal artery at any point; and that dissection proceeded slowly due to the difficulty of mobilising such a large kidney laparoscopically.[76]

81. At inquest, when asked if, having encountered difficulty in identifying and dissecting the individual vessels of the renal hilum she thought that the decision should have been made to convert to an open procedure, Dr Azer's response was *"I thought that Matt would try to delineate the vessels laparoscopically himself first. I thought he might take some time to try to do a better job than I had to lay them bare…He didn't do that.* She went on to say that short of doing that, it would have been better to convert to an open procedure at that point.[77] Rather than doing so, Mr Harper stapled the bundle of tissues he believed included all the hilum vessels *en masse*, without further attempts to dissect and visualise the individual vessels.

82. In his statement, Mr Harper indicated that he had performed over two hundred nephrectomies of various types at Monash Health and his practice was to use either clips or staples depending on the case.[78] For straightforward tumours without too much fat or hilar lymphadenopathy and with typical vascular anatomy, he tended to use individual clips. For more difficult hila with more fat and nodal tissue which increases the difficulty of separating out vessels, he would use a stapling technique which he asserted was common practice around the world.[79]

83. In Shane's case, Mr Harper used a stapling gun – the Endo GIA vascular stapler. In his statement he said that *"Due to the intra-operative finding of a large amount of intra-abdominal and perirenal fat plus marked hilar lymphatic nodal tissue, I assessed that it would have been risky to attempt to separate out every individual vessel for ligations given the associated risks of haemorrhage. Hence, I opted for the technique of mass hilar stapling which involves creating tissue 'windows' (ie spaces between structures) both below and above the renal hilum and close to the kidney to minimise the risk of inadvertently stapling more medical major vessels. This was performed with apparent*

[76] Paragraphs 10 and 11 of page 349 of the inquest brief and transcript pages 171-172, 189-190,

[77] Transcript pages 165-167 including a description of how with an open procedure they could have traditionally secured the renal artery using clamps or sutures or even hem-o-lok clips and been reassured that that it had been clipped and ligated before its bifurcation.

[78] Mr Harper testified that he no longer performs nephrectomies. According to Mr Saunder, following Shane's death, investigations were conducted into Mr Harper's surgical performance of nephrectomies due to a number of adverse outcomes. Mr Harper voluntarily ceased to perform nephrectomies on 15 November 2015 and has not performed a nephrectomy since. Moreover, 'Monash Health remains of the view that neither Mr Harper's voluntary cessation of nephrectomy procedures nor his involvement in sentinel events affects his ability to perform his role as Deputy Director of Urology which is largely an administrative role.' See page 297 of the inquest brief.

[79] Paragraphs 3.1and 3.2 of page 368 of the inquest brief.

success, although immediately after stapling, a small bleeding vessel was noted inferiorly and laterally to the staple line which required a separate clip to be applied. I presumed this to be a small branch of the renal artery."[80]

84. At inquest, Mr Harper expanded on the mass ligation technique he employed in Shane's case, describing where he placed the staple line and the visibility of the structures within as follows:

"...somewhere between the aorta and the kidney entry point, obviously not quite there...as long as you're across all the branches, it doesn't necessarily matter what's happening in that staple line as long as you've got everything, um, and when you're stapling, especially when there's a lot of fat around, you don't see that anatomy, it's hidden, and the fat or, um, lymphatic tissue, and that's probably the reason why you're using that device, because it cannot pick apart the vessels and look at the individual anatomy."[81]

85. Later, when asked how he could be confident that all the right vessels and no others were in the staple line if they had not been visualised, Mr Harper's answer was –

"Well because one knows from one's anatomical knowledge and experience, one knows where these vessels usually are and where the renal artery is going into the kidney and where these veins branches of are coming out of the kidney and where you place the staple gun ideally as close as you can to the kidney. You're doing that to keep away from that midline structure, the SMA in this case. So it's where the staple gun was placed, my perception at the time was that it was placed as close to the kidney as possible to minimize on injuring more medical vascular structures so, you know, the aorta and the SMA in particular..."[82]

86. At inquest, Mr Harper expanded on his description of the artery he clipped which he presumed to be a small branch of the renal artery. He believed it was the superior branch of the renal artery, albeit he clipped it at a point lateral and inferior to the staple line he had placed across what he believed to be the renal hilum. When pressed by Ms Fitzgerald he gave the following evidence – *"...No, I mean any arterial structure will be lateral and inferior to, to where the staple line was. So I, I – I wouldn't have known exactly what I was clipping, but – other than I would've known it was an artery, because you can tell from*

[80] Paragraph 3.2 of page 368 of the inquest brief.
[81] Transcript pages 44-45.
[82] Transcript pages 59-60.

the pulsatile bleeding. And so that just needed to be clipped, but I – at the time, I wouldn't have known exactly what it was.[83]

87. As regards the small bleeding vessel noted after stapling that he clipped, Mr Harper's evidence was that he was sure that the artery was not the superior mesenteric artery as it was too far removed from the midline which is where that artery comes off the aorta. He described as 'a mystery' the fact that the superior mesenteric artery was found clipped at autopsy and maintained in questioning that he did not inadvertently clip the superior mesenteric artery.[84]

88. Following the dissection of the kidney, the small subcostal port site incision was lengthened to enable removal of the large piece of dissected tissue, being the left kidney, tumour and surrounding excised tissue. Mr Harper and Dr Azer then inspected the renal bed and operative site and stemmed any bleeding, presumed venous, with diathermy and Surgicel and/or Floseal.[85]

89. While there is no reference in the operation report to any additional clips, that is beyond the clip placed on the gonadal vein by Dr Azer and the clip placed on what Mr Harper presumed was a small branch of the renal artery, both surgeons conceded that it was possible that either or both of them placed further surgical clips in the course of the surgery, whether to free up the kidney for removal and/or to achieve haemostasis. With the caveat that Dr Azer maintained she only used plastic clips, and the vascular stapler was only used by Mr Harper during Shane's surgery.

90. While Mr Harper asserted that the technique of mass hilar ligation he adopted was practiced around the world, he called no expert evidence to support the proposition, and such expert evidence as was heard at the inquest does not support that proposition, at least not without significant caveat.

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[83] Transcript pages 53-54. At transcript page 67 Mr Harper's evidence was that he had a distinct recollection of clipping one artery, but he may have used one or two clips, and one may have fallen off, which would be in keeping with the autopsy finding of a loose clip.

[84] Transcript pages 54-67.

[85] Pages 368-369 of the inquest brief. According to the operation report at page2 129-130 of the inquest brief, the resultant incision was 15cm in length to facilitate removal of a 25cm combined kidney and tumour mass. That report and the autopsy report only mention the use of Surgicel, while the evidence in its totality indicates that diathermy was used throughout on an as needs basis to stem bleeding and Floseal was used in addition to Surgicel to achieve haemostasis towards the end of the procedure. Note that Surgicel and Floseal are both haemostatic agents that work slightly differently from each other to promote blood clotting.

91. Both experts, A/Prof Grills and Prof Sengupta, expressed a view about mass ligation of the hilar vessels.

92. A/Prof Grills was clearest in his opinion, drawing a distinction between mass ligation of the hilar vessels having visualised both the renal artery and the renal vein and deciding to apply the stapler to ligate both at the same time, which was acceptable practice, and placing a staple line across a mass of tissue without visualisation, based on anatomical principles in the belief that the artery and vein and nothing else would be within the staple line.[86]

93. A/Prof Grills was critical of the second type of mass ligation which was employed by Mr Harper in Shane's case on three bases. In the first place, a vascular stapler is designed to staple blood vessels, not a combination of fat and blood vessels and there is a potential risk of failure in the staple gun itself.[87] Further, on the left side, the aorta is quite close to the kidney increasing the risk of inadvertent inclusion of other arterial blood vessels within the staple line.[88] Finally, where the anatomy is distorted by a large tumour, and you are stapling close to the kidney, there is a risk of failure to include one of the vessels of the renal hilum within the staple line.[89]

94. For these reasons, A/Prof Grills' evidence was that he had not and would not use the mass ligation technique in this second setting, that is where the renal vessels could not be visualised, and he would not encourage his trainees to use the technique.[90] Faced with the option of mass ligation without seeing the renal artery or vein, and converting to an open procedure, A/Prof Grills indicated he would convert to an open procedure, which would not necessarily make the operation easier but it would make it safer.[91]

95. Prof Sengupta endorsed the use a mass ligation technique in the first scenario outlined by A/Prof Grills, recognising that surgeons vary in their approach to the hilum, some routinely using stapling, and finding it perfectly okay to use a stapler in circumstances where the hilar anatomy is evident.[92]

96. However, Prof Sengupta was more equivocal as regards the second scenario –

[86] Transcript pages 234-235.
[87] Transcript page 235.
[88] Transcript pages 235-236.
[89] Transcript pages 239, 246-247.
[90] Transcript pages 246-247
[91] Transcript pages 248 and 284.
[92] Transcript page 237.

*"…sometimes the staple gun is used as it was in this circumstances where individual dissection is proving difficult and under those circumstances…you want to have as good clarity as possible as to where you staple gun is going…[*and noting the proximity to the aorta and important vessels such as the superior mesenteric artery and the coeliac artery*]…inadequate dissection… is a consideration and a potential risk for ah that tissue that you think is just the tissue between the aorta and the renal – the hilum not being just that but potentially additional vital structures and most… feared for anyone doing um particularly laparoscopic but it can extend into issues that can arise in other ways of doing the surgery including open as well is for mistaken um damage or clamping or – or clipping of the – of the mesenteric vessels…the ideal is to see as much of all of that displayed as possible…"*[93]

97. When asked by Mr Cash on behalf of Mr Harper whether his use of mass ligation without visualisation of the hilar vessels was reasonable, Prof Sengupta's evidence was somewhat equivocal, falling back on what he perceived Mr Harper to have thought or believed at the time, rather than expressing his own view as to the reasonableness or otherwise of the use of mass ligation in Shane's case.[94]

98. Prof Sengupta displayed a tendency to assume that Mr Harper had a reasonable basis for his confidence that he had contained the correct vessels in the staple line and had not ligated any incorrect vessels. However, when asked in re-examination if the autopsy findings of the unclipped inferior branch of the renal artery and the clipped/stapled superior mesenteric artery meant that Mr Harper's confidence that he had the hilar vessels within the jaws of the stapler was misplaced, Prof Sengupta agreed, saying –

"…putting all of that together, evidently the stapler had not included the inferior branch. So although he presumably would have placed it with the feeling that he was taking all of the hilar structures, it seems like somehow…the inferior branch was missed, so I guess to answer question, yes, although he was confident, it seems like there was probably the inferior branch missed by the stapler."[95]

99. Prof Sengupta's description of those instances in which he used a mass stapling technique rather than his preferred individual dissection and clipping of vessels is telling – *"Generally when I've used a stapler it's been because it's been difficult to separately dissect out the vessels or there's been some bleeding in the process of trying to do that.*

[93] Transcript pages 237-238.
[94] Transcript pages 277-278.
[95] Transcript pages 297-298.

But I have seen enough and have enough visibility to safety – I think the standard that I would apply, and I'd hope that every reasonable and safe urologist would apply, is to have the confidence that they are putting the stapler around and effectively controlling the renal vessels and in the process of doing that they have no other structures that they would inadvertently damage."[96]

100. Ultimately, a careful reading of Prof Sengupta's evidence in its totality does not support Mr Harper's decision to proceed with a mass ligation in circumstances where the renal artery and renal vein had not been visualised.

Post-operative management & transfer to Monash Medical Centre

101. As will be apparent from the clinical overview above, Shane's clinical condition deteriorated in the post-operative period. The procedure concluded at about 12.10pm and from then on there was a steady decrease in his blood pressure and increased respiratory and heart rates which were reported to the treating anaesthetist. Monitoring continued when Shane was transferred to the HDU, and he was given oxygen via a facemask during this time.

102. At about 5.10pm, Shane's blood pressure was 80/50 triggering the first MET call. The responding MET team, which included a urology registrar, ordered intravenous fluids, and his blood pressure improved to 90/50 before a further 500mls fluids were given. At this time, Shane's haemoglobin was stable at 130.[97]

103. At about 6.00pm, the urology registrar attended Shane and noted, among other things, right sided tenderness, oliguria, which became anuria and an elevated potassium level of 6.5mmol/L. The urology consultant was called, and a second MET call was made at 6.30pm in response to a blood pressure of 80/40. On this occasion, Shane's blood pressure improved to 100/40 with fluids and metaraminol. ECG changes were noted and blood tests

[96] Transcript page 297 and at lines 19-22, Prof Sengupta's reiterates – *"generally speaking I have only done it is circumstances where it was difficult to individually dissect and clip a vessel which is my preferred action"*. It seems obvious that he does not mean to include cases where he had not and could not visualise the renal vessels.

[97] Mr Alan Saunders statement dated 30 April 2019 at page 43 of the inquest brief sets out a summary of Shane's management which he based on a review of the medical records and the review panel meetings which he attended in his role as Program Director. I do not understand there to be any controversy about this aspect of Mr Saunders' evidence.

indicated an elevated lactate (3.2), elevated potassium (7.1, up from 6.5) and a lower pH (7.2).[98]

104. The decision was to transfer Shane to MMC as he now required a higher level of care than was available at Moorabbin and, if he required further surgery, it was best undertaken at MMC where there was an ICU. The Emergency Department and ICU at MMC were forewarned, and Shane was transferred at 7.30pm, arrived at MMC at 7.40pm and was admitted to the ICU at 8.00pm.[99]

105. On admission, Shane's haemoglobin was lower at 118g/L and his liver function tests (**LFTs**) deranged. Shortly after 9.00pm, Shane underwent a non-contrast CT urogram which showed a small left retroperitoneal haematoma, consistent with a recent left nephrectomy, no right hydronephrosis and a few small para-aortic lymph nodes.[100] It seems this report was significant in leading the treating team to the conclusion that bleeding was unlikely to be the cause of Shane's postoperative decline.[101] Consistent with this belief, there is no notation in the medical records of any consideration of the possibility of inadvertent occlusion of the SMA or other blood vessel, or failure to ligate any of the vessels of the renal hilum as possible causes for Shane's decline.

106. Multiple specialty units were involved in Shane's clinical management and care including Urology, ICU, and General Surgery. They considered and discounted occult bowel or organ injury as Shane's abdomen was soft and not peritonitic. Over the following hours, Shane's condition continued to deteriorate. His kidney and liver were failing, the treating team inclining towards diagnoses of cardiac failure, sepsis, renal obstruction, or ischaemic hepatitis as causes for his decline, with bleeding thought to be an unlikely cause of his decline.[102]

107. At about 4.00am on 13 July 2018, in the absence of a definitive diagnosis for Shane's decline and in the setting of persistent acidosis and hyperkalaemia despite treatment, consideration was given to the need for a second CT and/or need for surgical intervention. However, by this time, Shane was too unwell to be taken off life support for a CT and too unwell to survive further surgery.[103]

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[98] Ibid and pages 137-139 of the inquest brief.
[99] Page 43 of the inquest brief.
[100] See also Dr O'Donnell's statement at pages 20-2 to 20-3 of the inquest brief.
[101] Page 163 of the inquest brief.
[102] Pages 43, 164-172 of the inquest brief.
[103] Pages 166-168 of the inquest brief.

108. The evidence of the expert panel was that Shane's clinical picture was not straightforward, indeed it was confounding, and did not point unequivocally towards bleeding as a cause for his decline and/or to a need for a return to theatre. A/Prof Grills thought that Shane's early post-operative decline, when considered in light of the intraoperative events (known only to the surgical team at that point) justified a return to theatre between about 7.00 and 9.00pm on the 12 July 2018. However, A/Prof Grills conceded that he could not say that further surgery would have led to his survival.[104] Prof Sengupta agreed that the timing for a return to theatre was probably in the evening, before Shane was too unwell, but did not offer a view about whether a return to theatre was indicated at that time and, given the complexity of Shane's condition, did not offer a view of his prospects of survival.[105]

Prevention Opportunities

109. Monash Health conducted an in-depth internal review of Shane's case using a root cause analysis methodology including contributions from the Director of Urology, the Unit Head of Anaesthetics, the Executive Director of Quality Safety and Patient Experience and an independent consultant urologist (**Review**). That review identified nine opportunities for organisational improvement including (but not limited to) the following –

a. Recommendations from a previous review were not followed.

b. The pre-operative planning for the surgery was insufficient as the record of the MDT meeting did not capture the decisions regarding site selection, operative approach or whether consideration was given to the necessity for two surgeons and/or a vascular surgeon. The MDT meeting template does not include sections to prompt discussion or document these discussions and decisions.

c. The MDT recommendation for pre-operative staging and review by a respiratory physician were overruled by a consultant urologist and the surgery went ahead without either.

d. The management of intraoperative bleeding (staples and Surgicel) was not the preferred method.

[104] Transcript pages 271-272.
[105] Transcript pages 272-274

e. The consultant urologist did not undertake a bedside review until a time when Shane's condition was irreversible.

f. A slow bleed was not recognised as a cause of Shane's deteriorating condition. Therefore, an early return to theatre and the radiological investigation that would have shown active bleeding were not considered.

g. Instead of apparently clipping the inferior branch of the renal artery, the superior mesenteric artery was clipped.[106]

110. The Review made eight recommendations for improvement which were addressed to the relevant unit or entity within Monash Health and were universally agreed to by the hospital's Council on 9 April 2019. The Council is chaired by the hospital's Chief Operating Officer and acts as a conduit between the hospital's Executive and the Program Directors and their General Managers and oversees all quality and safety matters.[107]

111. The eight recommendations are a comprehensive response to the issues identified in the review and include the following –

a. The Surgery & Interventional Services Program to investigate how processes can be designed and implemented to ensure that recommendations from previous adverse events are followed and embedded into usual practice.

b. The Surgery & Interventional Services Program (Urology) to review the MDT meeting process and develop a procedure that includes a structured approach for each case being presented; discussion of appropriate site for surgery and surgical approach; a designated minute taker whose sole role is to document discussion; MDT decisions are not to be changed without further discussion at an MDT meeting; MDT meeting results to be emailed to the allocated surgeon prior to the day of surgery; and consequential changes to the MDT meeting document template.

c. The Surgery & Interventional Services Program (Urology) is to review the appropriate use of staples and Surgicel to control intraoperative bleeding.

[106] At page 44 of the inquest brief, Mr Saunder sets out the nine opportunities for organisational change identified by the Review, six of which are paraphrased here. I note that the use of the word "instead" may imply a conscious choice between the two vessels, whereas the evidence before me supports a finding that the occlusion of the superior mesenteric artery was inadvertent/accidental.

[107] The recommendations are set out at pages 45-46 of the inquest brief.

d. The Surgery & Interventional Services Program is to develop guidelines for consultants to attend onsite (in and out of business hours) for the bedside review of deteriorating patients.

e. The Urology Team (including all consultants and fellows) is to review Shane's case in conjunction with the coroner's report to ensure early consideration and recognition of a slow post-operative bleed.[108]

112. As submitted by Mr Robert Harper, counsel representing Monash Health, through Mr Saunder's three statements and evidence at inquest, Monash Health has identified shortcomings in the planning for Shane's surgery and the MDT process and documentation and has made a raft of improvements and institutional changes in response to Shane's death.[109]

113. Counsel Assisting conceded in her final submissions that Monash Health provided extensive evidence about the improvements it has made and continues to make to the MDT process and the planning for renal cancer surgery. The improvements made to the MDT processes, the relocation of the Urology Unit to Casey Hospital and the addition of an ICU at Casey Hospital where complex urological surgeries are predominantly performed has the potential for improved patient safety and obviate the need for coronial recommendations in this regard.

114. In his third statement in particular, Mr Saunder comprehensively describes the changes made at Monash Health following Shane's death, the entities within Monash Health involved in those changes and the timelines for completion of the work required to embed the recommendations into the health service's clinical practice. I will not reiterate all those changes in this finding apart from one important contextual matter and two changes which may have changed the outcome for Shane if they were in place at the time.

115. For reasons set out in Mr Saunder's third statement that include a number of sentinel events involving the urology unit and concerns raised by Safer Care Victoria about the functioning of the unit, Monash Health identified a need for significant restructuring of the unit which was also short-staffed at the time. Specifically, two key staff who ceased to operate at

[108] Page 45-46 of the inquest brief. The three remaining recommendations are - an anaesthetic review to ensure optimal resuscitation and stabilisation of an unwell patient for transfer; an anaesthetic review to ensure transfer guidelines are adequate; and a review of after-hours medical cover at Moorabbin Hospital including the seniority of those rostered.

[109] Mr Saunder's third statement at pages 279-347 of the inquest brief sets out a detailed chronology of the changes made at Monash Health in furtherance of the eight Review recommendations and

Monash Health were the only two who had undergone specific training in the conduct of radical oncological nephrectomies. While most consultant urologists are technically able to perform radical nephrectomies, it is a type of surgery that is quite different to the other operations that urologists perform and benefits from specific additional training.[110]

116. At the time of Shane's surgery, the unit lacked surgeons who had undergone this specific training, although some such as Mr Harper had developed some expertise in conducting them. This situation has been rectified and the unit now has several surgeons who had undergone appropriate advanced training which provided them with training specific to complex radical nephrectomies (involving tumours exceeding 10 centimetres and/or inferior vena cava thrombus). It is well known within the unit that only those specialist surgeons are to perform complex nephrectomies.[111]

117. An important enhancement has been made in the planning for such surgeries, now reflected in the Clinical Guideline entitled Renal Cancer/Nephrectomy pathway (**the pathway**). Whereas the requirement previously in the Policy was for 'tumours >7cms to be considered with great caution to be performed laparoscopically', the pathway is couched in terms of 'tumours >7cms on the left to be considered with great caution to be performed laparoscopically by a surgeon with appropriate training and experience; All such cases must be discussed with the Director of Urology and/or Surgery and Interventional Services Program Director'.[112]

118. The pathway requirement is that 'tumours >10cms must be treated by open surgery by an experienced urologist with another qualified urologist assisting and the vascular unit forewarned but not necessarily present in theatre.' The pathway thus prescribes an open procedure for tumours >10cms and, recognising that large tumours may occasionally present with favourable factors for laparoscopy, only allows departure from an open approach after discussion with the Director of Urology and the Surgery and Interventional Services.[113]

119. Another important change in the pathway which may have changed the outcome for Shane, is set out under the heading "Recognising Complications and Escalation" and expressly sets out expectations relevant to the recognition of post-operative complications and

[110] Pages 290-291 of the inquest brief.
[111] Page 291 of the inquest brief.
[112] Page 327 of the inquest brief. Currently, Mr Scott Donnellan and Mr Alan Saunder respectively.
[113] Page 327 of the inquest brief.

responsive action to be taken. The pathway identifies triggers for an early return to theatre in an unstable post-operative patient and requires concerns held by nursing staff or resident staff to be escalated to the on-call Registrar who must also escalate to the operating surgeon, on-call Urologist, Director of Urology or Surgery and Interventional Services Program Director. The pathway articulates an expectation of direct review by the operating surgeon if a decision is required to return to theatre and escalation if they are unavailable.[114]

STANDARD OF PROOF

120. The standard of proof for coronial findings of fact is the civil standard of proof on the balance of probabilities, having regard to the 'Briginshaw sliding scale'.[115] When finding facts, a coroner has to reach a comfortable or reasonable satisfaction having regard to all of the available evidence relevant to the questions in issue in the investigation.[116] When considering whether that level of satisfaction has been achieved, regard must be had to the seriousness of the allegation; the inherent likelihood or unlikelihood of an occurrence of fact, and; the gravity of the consequences flowing from a particular finding.[117]

121. This is particularly so with regard to adverse comments or findings about an individual in their professional capacity which should only be made when a coroner has reached a state of comfortable or reasonable satisfaction based on the evidence that they departed materially from the standards of their profession and, in so doing, caused or contributed to the death.[118]

122. It is axiomatic that the materiality of any departure from applicable standards must be assessed without the benefit of hindsight, only on the basis of what was known or should reasonably have been known at the time, and not from the privileged position of hindsight. Patterns or trajectories that may become apparent subsequently or may even be obvious once the tragic outcome is known, are to be eschewed in favour of a fair assessment made from the perspective of the individual at the material time.

[114] Pages 283 and 327-328 of the inquest brief.
[115] *Briginshaw v Briginshaw (1938) 60 C.L.R. 336.*
[116] *Anderson v Blashki [1993]2 VR 89 at 96; Secretary to the Department of Health and Community Services v Gurvich [1995] 2 VR 69 at 73;*
[117] *Briginshaw v Briginshaw, op cit, at 362.*
[118] *Ibid.*

FINDINGS/CONCLUSIONS

123. Applying the standard of proof to the evidence before me, I find as follows:

a. The identity of the deceased is Shane Hughes born 25 August 1977, aged 40.

b. Shane died at Monash Medical Centre, 268 Clayton Road, Clayton on 13 July 2018.

c. The cause of Shane's death is acute and hepatic and renal failure in the setting of postoperative haemorrhage following elective nephrectomy for renal cell carcinoma with indirect contribution from obesity, coronary artery atherosclerosis and chronic obstructive pulmonary disease.

d. The most likely source of Shane's post-operative bleed was the inferior branch of the left renal artery which was not within the staple line applied by Mr Harper to the renal hilum and bleeding from this vessel contributed to Shane's clinical decline.

e. Mr Harper applied a ligature to the superior mesenteric artery which he likely mistook for a small bleeding artery and the resulting poor perfusion of the bowel contributed to Shane's clinical decline.

f. The MDT's consideration of and planning for Shane's surgery was sub-optimal with MDT recommendations not being followed; inadequate MDT meeting documentation such that the participants were not identified; the discussion and rationale for their recommendations was not documented; and compliance with the Policy unable to be gleaned, including the need for careful consideration to any decision to recommend a laparoscopic approach for tumours greater than seven centimetres in size.

g. That said, any deficiencies in the MDT processes, did not cause or contribute to Shane's death in a setting where the surgical approach was ultimately for the surgeon to decide.

h. Mr Harper's decision to proceed laparoscopically in the first instance was reasonable and appropriate.

i. When it became apparent intra-operatively that the hilum vessels could not be visualised, Mr Harper should have considered converting to an open procedure.

j. The weight of the evidence does not support use of mass ligation of the renal hilum in circumstances where the individual vessels cannot be visualised so as to ensure not only

that those vessels meant to be ligated are within the staple line, but also that no other vessels are inadvertently ligated.

k. Shane's post-operative decline was noted, and reasonable efforts were made by clinical staff to identify the cause of his decline which was somewhat confounding.

l. There was a failure to recognise that Shane's clinical presentation arose from a slow or delayed post-operative bleed.

m. Specifically, there was a failure to appreciate that Shane's elevated potassium levels likely indicated ischaemia and, in the post-operative should have raised concerns about bleeding and/or a need to return the patient to theatre.

n. An impressive suite of improvements in clinical practice have been made by Monash Health, whether in direct response to the circumstances in which Shane died, or more broadly, and Monash Health are to be commended for those changes the that should improve the safety of future patients.

o. The changes already made by Monash Health obviate the need for coronial comments or recommendations at this time.

p. I wish to convey my sincere condolences to the Hughes family for the loss of Shane.

PUBLICATION OF FINDING

Pursuant to section 73(1) of the Act, unless otherwise ordered by the coroner, the findings, comments and recommendations made following an inquest must be published on the internet in accordance with the rules. I make no such order.

DISTRIBUTION OF FINDING

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

Michael and Kate Hughes

Monash Health

Mr Matthew Harper

Associates Professor Grills

Safer Care Victoria

Signature:

Paresa Antoniadis Spanos

Deputy State Coroner

Date: 29 October 2024

NOTE: Under section 83 of the ***Coroners Act 2008*** ('the Act'), a person with sufficient interest in an investigation may appeal to the Trial Division of the Supreme Court against the findings of a coroner in respect of a death after an investigation. An appeal must be made within 6 months after the day on which the determination is made, unless the Supreme Court grants leave to appeal out of time under section 86 of the Act.