IN THE CORONERS COURT
OF VICTORIA
AT MELBOURNE

Court Reference: COR 2018 4889

FINDING INTO DEATH WITHOUT INQUEST

Form 38 Rule 63(2)
*Section 67 of the **Coroners Act 2008***

Findings of:	Katherine Lorenz, Coroner
Deceased:	HYR[1]
Date of birth:	14 August 1941
Date of death:	27 September 2018
Cause of death:	1(a) Haemoperitoneum following Cholecystectomy
Place of death:	The Northern Hospital, 185 Cooper Street, Epping, Victoria 3076

[1] A pseudonym.

INTRODUCTION

1. On 27 September 2018, HYR was 77 years of age when she died at The Northern Hospital three days after undergoing elective surgery.

2. HYR was widowed and lived alone at 40 Gladstone Street, Thomastown, Victoria.

3. HYR had a past medical history that included asthma, duodenal ulcer, gallstones with stent insertion in common bile duct in 2017, cholangitis[2] secondary to stones in the common bile duct, chronic kidney impairment, hypertension,[3] atrial fibrillation (**AF**),[4] chronic back pain and osteoporosis. HYR was prescribed warfarin for the AF.[5]

4. On 24 September 2018, HYR was scheduled to undergo an elective laparoscopic cholestecystectomy,[6] intra-operative cholangiogram[7] and repair of umbilical hernia at The Northern Hospital. Prior to the surgery, HYR completed all pre-operative tests including blood tests, respiratory function tests and an echocardiogram.[8] Her warfarin was ceased on 19 September 2018 and had been commenced on 'bridging' clexane to cover this.[9]

THE CORONIAL INVESTIGATION

5. HYR's death was reported to the Coroner as it fell within the definition of a reportable death in the *Coroners Act 2008* (the Act). Reportable deaths include deaths that are unexpected, unnatural or violent or result from accident or injury.

6. The role of a coroner is to independently investigate reportable deaths to establish, if possible, identity, medical cause of death, and surrounding circumstances. Surrounding circumstances are limited to events which are sufficiently proximate and causally related to the death. The purpose of a coronial investigation is to establish the facts, not to cast blame or determine criminal or civil liability.

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[2] Cholangitis is defined as infection of the biliary system within the liver. Gallstones within the bile ducts predispose to this.
[3] Hypertension is the medical term for high blood pressure.
[4] Atrial fibrillation (AF) is an irregular, often rapid heart rate that that commonly causes poor blood flow.
[5] Warfarin is a medication known as an anticoagulant. It is commonly used to treat blood clots such as deep vein thrombosis and pulmonary embolism, and to prevent stroke in people who have atrial fibrillation (AF).
[6] A cholecystectomy is surgery to remove a person's gallbladder.
[7] A cholangiogram involves the injection of radiological contrast into the biliary system to identify blockages or stones within.
[8] An echocardiogram is a test that uses ultrasound to show how your heart muscle and valves are working.
[9] Clexane is an anticoagulant medication that is used as prevention of thrombo-embolic disorders of venous origin in patients undergoing surgery.

7. Under the Act, coroners also have the important functions of helping to prevent deaths and promoting public health and safety and the administration of justice through the making of comments or recommendations in appropriate cases about any matter connected to the death under investigation.

8. The Victoria Police assigned an officer to be the Coroner's Investigator for the investigation of HYR's death. The Coroner's Investigator conducted inquiries on my behalf, including taking statements from witnesses – such as family, the forensic pathologist, treating clinicians and investigating officers – and submitted a coronial brief of evidence.

9. This finding draws on the totality of the coronial investigation into the death of HYR, including evidence contained in the coronial brief. Whilst I have reviewed all the material, I will only refer to that which is directly relevant to my findings or necessary for narrative clarity. In the coronial jurisdiction, facts must be established on the balance of probabilities.[10]

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

Circumstances in which the death occurred

10. On 24 September 2018, HYR underwent her scheduled surgery at Northern Hospital. Prior to her surgery she had undergone a pre-surgery work up that had included blood tests, respiratory function tests and an echocardiogram. During the surgery there was no indication of any particular surgical or anaesthetic problems encountered, and her post-operative observations were normal.[11] In recovery, a nurse commented that her abdomen was distended.

11. On 25 September 2018, HYR complained of chest pain and being short of breath. At 1.50 am, a MET call was made.[12] No issues were found and HYR's observations were recorded as normal. Soon after, HYR complained of experiencing abdominal pain and was given Panadol. Warfarin was restarted and it was noted that while the abdomen was still distended, it was improved from the previous day.[13]

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[10] 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.

[11] 'Observations' is the collective word, also phrased as 'vital signs', for blood pressure, respiration rate, pulse rate etc.

[12] Patient record, page 188. A MET call is an overhead page activating senior medical and nursing staff to assess a patient whose observations have become abnormal.

[13] Patient record, page 151.

12. The following day, on 26 September 2018, HYR's observations remained normal and her pain score was improved. She was reviewed by the surgical team with an aim for her to be discharged home the following day.[14]

13. On 27 September 2018, HYR became unwell and her condition subsequently deteriorated during the course of the morning. At 6.10am, HYR's haemoglobin level was recorded at 106 g/L, falling from 126 g/L on the previous morning and from 135 g/L on the morning of 25 September 2018. At 8.07am, during the morning surgical review HYR was noted to be short of breath after mobilising. She reported dizziness but was "*anxious regarding going home*." Discharge planning continued. [15]

14. At 9.30am that morning, a Pre-MET call was called after HYR's respiration rate increased and her blood pressure reading was recorded as 100/60. Following this, HYR had a number of investigations, including Troponin to check for a heart attack. The test result was normal. A chest x-ray performed at 10.27am was looking for a cause of her elevated respiratory rate and upper abdominal pain. The x-ray was reported as normal with no evidence of congestive heart failure.

15. At 10.30am, another MET call was made for a rapid respiratory rate. At this time, the medical records note HYR's abdomen was distended and that she was rating her pain 8 out of 10. A chest x-ray, blood and blood culture tests were ordered. The progress notes record that Dr Haddad, a registrar from the Intensive Care Unit (**ICU**) telephoned HYR's son and told him that HYR was not suitable for Cardiac Pulmonary Resuscitation (**CPR**) "*given her pre-morbid function – multiple medical co-morbidities*" and that it was likely she had *"?HAP[16] or an intra-abdominal collection*". During the call, HYR's son gave his consent that CPR would not be performed and that HYR would not be intubated.[17] This conversation is somewhat confounding in the circumstances where, at that time, HYR's abdominal bleeding had not yet been discovered and the CT scan was not performed until 12.15 pm.

16. At 12.14pm, a CT scan of HYR's abdomen showed:

    a. a moderate volume haemoperitonium[18] with active arterial extravasation arising from the left inferior epigastric artery in the region of the rectus sheath.

[14] Patient record, page 152.
[15] Patient record, page 158.
[16] Hospital acquired pneumonia.
[17] Patient record, page 168.
[18] A hemoperitoneum is the (abnormal) presence of free blood within the abdominal cavity.

b. well circumscribed 8.5 centimetres hypodense fluid collection in the periumbilical region, likely representing a further haematoma; and

c. mildly dilated distal oesophagus, stomach and proximal duodenum likely related to ileus.[19]

17. At 12.35 pm, a further MET call was made for HYR's rapid respiratory rate, at 34 breaths per minute, and a blood pressure of 70. HYR was then transferred to the ICU.

18. Between 12.45 pm and 2.15 pm, HYR's blood pressure was persistently low, with her requiring medication support. At about 4.25pm, HYR underwent an angioembolisation of a bleeding artery in her abdominal wall.

19. Following the procedure, Dr Haddad telephoned HYR's son to discuss goals of care, noting that the prognosis was poor and that HYR could deteriorate and not be able to survive.[20]

20. Despite this angioembolisation, HYR's condition continued to deteriorate thereafter. At 7.00 pm, HYR was intubated. HYR passed away at 9.48 pm.

Identity of the deceased

21. On 27 September 2018, HYR, born 14 August 1941, was visually identified by her daughter-in-law, OWR[21].

22. Identity is not in dispute and requires no further investigation.

Medical cause of death

23. Dr Sarah Parsons, from the Victorian Institute of Forensic Medicine (**VIFM**), conducted a partial autopsy on 3 October 2018 and provided a written report of her findings dated 12 December 2018.

24. Dr Parsons reported that post- mortem angiography did not show a point of bleeding, however a coil was noted within the inferior epigastric artery and this is the point of bleeding seen clinically. This is considered to be the point of bleeding post-operatively which had been treated.

[19] An inability of the bowel to contract normally and move waste out of the body.
[20] Patient record, page 160.
[21] A pseudonym.

25. Dr Parsons advised that 2.2 litres of clotted blood and liquid were identified within the peritoneal cavity.[22] This is significant blood loss following surgery.

26. Dr Parsons provided an opinion that the medical cause of death was '1(a) haemoperitoneum[23] following cholecystectomy'.

27. I accept Dr Parsons' opinion.

CORONERS PREVENTION UNIT (CPU) REVIEW[24]

28. In the circumstances of HYR's death, the Coroners Court's Health and Medical Investigation Team (**HMIT**) of the CPU reviewed HYR's case. Upon review of the case, the HMIT sought clarification regarding aspects of HYR's treatment and care from The Northern Hospital. Thereafter, the court received statements from General Surgeon, Dr Nezor Houli, and Chief Medical Officer, Northern Health, Dr Wanda Stelmach.

29. Upon review of the statements and the medical records, several issues regarding HYR's care were identified and have been further examined for the purpose of this coronial investigation, including:

    a. The source of the bleeding and whether it was identified in a timely way and managed appropriately;

    b. The management of HYR's deterioration including the adequacy of monitoring and observations;

    c. The adequacy of resuscitation;

    d. Co-ordination of care and the impact of inadequate records.

Source of the bleeding

30. At 12.14pm, the CT scan showed that the source of the abdominal bleeding from the epigastric artery caused by the laparascopic cholecystectomy procedure. According to Northern Health,

[22] The peritoneal cavity is the potential space defined by the diaphragm, walls of the abdominal and pelvic cavities and abdominal organs.
[23] A haemoperitoneum is the (abnormal) presence of free blood within the abdominal cavity.
[24] The Coroners Prevention Unit (CPU) was established in 2008 to strengthen the prevention role of the coroner. The unit assists the Coroner with research in matters related to public health and safety and in relation to the formulation of prevention recommendations. The CPU also reviews medical care and treatment in cases referred by the coroner. The CPU is comprised of health professionals with training in a range of areas including medicine, nursing, public health and mental health.

the bleeding was not obvious during the procedure itself, possibly because the complication was minor and did not cause free flowing bleeding during the procedure. It may have been a slow ooze which, secondary to increasing anti-coagulation, increased during the morning of 27 September 2018 when HYR's condition deteriorated. The Pre-MET Activation record at 9.30am suggested a CT scan of the abdomen be considered for suspected intra-abdominal bleeding. Following this, a MET call was made at 9.49am and the responding MET call team departed at 10.40am upon stabilising and assessing HYR.

31. In her statement, Dr Stelmach acknowledged that with the benefit of hindsight there was scope for CT scan of the abdomen to have been performed earlier than 12.14pm. However, Dr Stelmach commented that the treating team responded to the abnormal respiratory rate and the heart rate and blood pressure remained within normal limits during the morning. According to Dr Stelmach, Northern Health considers the correct identification of likely bleeding before the onset of haemodynamic deterioration represented a sensitive MET system responding to the early manifestations of haemorrhage. The CT scan performed at 12.14pm was undertaken approximately 90 minutes after the MET call was completed. This time frame, while not unreasonable, had scope to be performed sooner.

32. In the circumstances where a CT scan had been first considered at the Pre-MET call at 9.30am, it should have been performed before 12.14pm, and as soon as possible after the MET team stabilised HYR at 10.40am.

The procedure

33. The statements from Northern Health refer to consideration of whether the angioembolisation was the most appropriate treatment for the bleed. Angioembolisation is a minimally invasive interventional radiological procedure that blocks the affected arteries and stops bleeding. The alternative treatment was open laparotomy surgery to find and repair or block the bleeding arteries. Dr Houli's reasoning for proceeding with angio-embolisation rather than a laparotomy is not recorded HYR's medical records. According to Dr Houli's statement, he made the decision to proceed with angioembolisation on the following basis:

    a. The findings on the CT scan;

    b. The risks of surgery in the context of HYR's co-morbidities, including that she should not have prolonged intubation and CPR; and

c. Discussions with the interventional radiology team and ICU that angio-embolisation was the best management to stop bleeding and to only consider laparotomy surgery if HYR deteriorated afterwards.

34. Dr Stelmach commented that HYR may have survived a laparotomy however, it is unlikely that it would have avoided her death given the impact of her co-morbidities on resuscitation following the less invasive surgery. Dr Stelmach acknowledged, however, that documentation and detail of notes taken on this matter were "*deficient*". Dr Stelmach noted there "*are no notes of substantive discussions that took place between Dr Houli and his surgical team and the absence of notes from the parent team in general. Relevantly, besides the ward round notes on the morning of 27 September, there are no notes recorded by the surgical team and this is a clear deficiency."*

35. The CPU did not agree with Dr Stelmach's conclusion that, due to HYR's co-morbidities a laparotomy procedure performed earlier would not have prevented her death. CPU have advised that if HYR had had an early definitive procedure to stop the bleeding and reverse her decline into irreversible haemorrhagic shock she may have survived to go home.

36. Dr Stelmach commented that HYR's death could not be solely attributed to bleeding, in that "*it cannot be said that HYR died because she bled*" and that "*her response to treatment was not from the perspective of someone with perfect health*." Dr Stelmach confirmed that Northern Health's view is that the cause of HYR's death is multifactorial. CPU have advised that HYR had a good pre-operative assessment[25] and that from a cardiac point of view was in good condition. By all indications she was making a good recovery, as anticipated, from a common procedure and this was not being impacted by her other medical conditions.

37. I accept the advice of CPU in this regard. Even after the surgery, on the morning of her acute deterioration, the surgical team's plan was to "*continue discharge planning*". The evidence is that she was fit for the planned surgery, the surgical team believed she was recovering well and if she had not bled, she would have been discharged from hospital and returned home to her semi-independent life with her family.

38. CPU agreed that HYR suffered from a recognised complication of the procedure, being bleeding. However, CPU considered that if she had not experienced the bleed she would not have died and that her discharge home in the predicted timeframe would have been possible. CPU therefore disagrees with Dr Stelmach's statement "*it cannot be said that HYR died because*

[25] Patient record, pages 140, 226, 227, 232-236.

she bled". According to CPU, the complication of bleeding is the initiating event for all the subsequent events and her death. I accept the advice of CPU.

Management of HYR's deterioration

Monitoring and observations of vital signs

39. HYR's medical record shows observations were taken at the following times following her deterioration on 27 September 2018:

    a. 8.00 am – a complete set of vital signs are recorded on her observation chart;[26]

    b. 8.07 am - Surgical Ward round - respiratory rate and oxygen saturation was recorded;[27]

    c. 9.30 am – Pre-MET call – a complete set of vital signs are recorded in the Pre-Met Activation Review Record;[28]

    d. 9.49 am - MET Call - oxygen saturation and blood pressure are recoded in the MET Call record.[29]

    e. 12.35 pm - MET Call – a complete set of vital signs are recorded.[30]

40. From the records it is apparent that a complete set of observations were not taken between 9.30am and 12.35 pm.[31]

41. At the 9.49 am MET call there was an incomplete set of observations recorded and a plan for a number of investigations and the administration of Lasix, a diuretic medication.

42. The Pre-MET and MET call records at 9.30 am and 9.49 am respectively, indicate that HYR was attended by a Medical Registrar, Home Team doctor (Surgical Unit) and ICU Registrar. However, it is not possible to tell from the records if all teams were aware of the plans developed for investigating and treating her deterioration. Further, there was no increase in the frequency of observations to monitor her response to treatment or to enable early detection of ongoing deterioration or lack of response to the treatment provided. The records do not show that the

[26] Patient record, page 205.
[27] Patient record, page 158.
[28] Patient Record, page 190.
[29] Patient record, page 186.
[30] Patient Record, page 184.
[31] In her statement Dr Stelmach noted that nursing notes state the time as 11.30. The time on this note appears to be an error as narrations refer to the observations made at 12.35 when the MET call was made. The notes also refer to the cannula reinsertion which did not occur until 11.50 am.

teams involved in her care were notified of or aware of her ongoing deterioration until this was detected at the MET Call at 12.30 pm.

43. Additionally, there are no observations recorded between 3.30 pm and 6.00 pm, either side of the angioembolisation procedure. In her statement, Dr Stelmach stated that the reason no observations were made during this time is because HYR was being prepared for transfer to radiology, being transferred, consented, prepared for the procedure, having the procedure performed and then transferred back to the ICU.

44. Following the procedure, the radiologist noted that the procedure was reported to have been successful. Notwithstanding this, after arriving back at the ICU at 6.30 pm, HYR's lactate level had risen to 13.8 mmol/L and her blood pressure was 60.

45. It is concerning that an unwell and deteriorating patient undergoing an interventional procedure in the context of a post-operative abdominal bleed would not have their clinical condition monitored, especially in light of the low blood pressure readings and rising lactate levels recorded earlier.

Rising lactate

46. Although full observations were not made between 9.30am and 12.30pm on 27 September 2018, the records indicate that HYR had rising lactate levels from 10.45am. Her lactate levels were documented on five occasions from 10.45am to 8.30pm. Each time, her lactate levels were significantly abnormal, ranging between 7.6mmol/L to 13.8 mmol/L.

47. Elevated lactate levels are a marker of emerging or actual critical illness and 'treatment' of the lactate levels is directed at identifying and correcting the underlying cause. Lactate[32] (lactic acid) is produced by tissues in the body as a by-product of metabolism in the absence of an adequate oxygen supply to meet metabolic needs. Normal levels are in the range 0.5-2.0 mmol/L. An elevated lactate is associated with increased mortality and may be caused by shock of any cause, including haemorrhagic shock, severe dehydration, sepsis or anaphylaxis.

48. According to CPU, the elevation of the lactate level was an indicator of a serious underlying problem and that the progressive elevation of the lactate level during the course of the day indicated either inadequate treatment or a failure to respond to adequate treatment; or the underlying problem was continuing and worsening.

[32] https://www.cec.health.nsw.gov.au/__data/assets/pdf_file/0007/259387/lactate-information-sheet-for-clinicians.pdf

Resuscitation

49. According to CPU, once it was suspected or confirmed that HYR was suffering from significant internal bleeding and shock,[33] treatment would generally be directed at:

    a. Restoring circulating blood volume and reversing haemorrhagic shock;

    b. Stopping the bleeding. This was achieved during the angioembolisation procedure;

    c. Correcting any conditions contributing to the bleeding (such as anti-coagulation); and

    d. Monitoring response to treatment.

Restoring blood volume and reversing shock

50. CPU have advised that the administration of fluids was inadequate in the context of HYR's observations and rising lactate. The CT abdomen performed at 12.15pm revealed a moderate haemoperitoneum with active bleeding in her abdominal wall and other signs (a partially collapsed inferior vena cava) indicating that HYR's blood volume was low. Despite this, blood was not administered until 3.00pm and this was a single unit over 2 hours.

51. According to CPU, on the morning of 27 September 2018, where:

    a. Clinical staff suspected that HYR may have been bleeding from 9.30am onwards;

    b. she had a low blood pressure from 12.30pm and significantly elevated lactate levels, from 9.45am onwards; and

    c. the CT scan confirmed bleeding into her abdominal wall and abdomen from 12.30pm onwards,

    the administration of 1750 mls of fluid over a two-hour period between 11.15am and 13.45pm (approximately 700mls/hour) was inadequate in the context of the lack of response in her observations and rising lactate.

52. Further, CPU advised that the administration of one unit of packed red blood cells (**PBRC**) at a 2-hourly rate as the only 'resuscitation' fluid given to HYR whilst in the radiology procedure suite was also inadequate and this was confirmed by her observations and lactate levels measured after leaving radiology. According to CPU, the administration of a single unit of

[33] Haemorrhagic shock would cause low blood pressure, elevated pulse rate, elevated respiratory rate and elevated lactate.

PRBC's over 2 hours would have contributed approximately 110 mls of fluid (ie 55mls/hour) to the replenish her blood volume. CPU considered it likely that HYR was bleeding at a rate greater than this prior to the embolization of the bleeding artery.

53. The administration of blood did not commence until 2:45pm and it is notable that a request for crossmatching did not occur until 2:15 pm, even though it was flagged at the MET Call at 12:30 pm.

Correcting any conditions contributing to the bleeding (including coagulation).

54. At the time of her deterioration, HYR was therapeutically anti-coagulated with Enoxaparin and had been transitioning for the past two days back to her usual Warfarin therapy for stroke prevention. In her statement, Dr Stelmach conceded that no steps were taken to HYR's level of coagulation at the time of her deterioration and that no steps were taken to reverse it. Her blood clotting was not assessed until 7.45pm and with the benefit of hindsight, this should have been done earlier, at least by midday.

Monitoring response to treatment

55. According to CPU, in a critically ill or bleeding patient, monitoring the patient's urine output would also occur, as urine output is a direct reflection of kidney (and other tissue) blood flow.

56. Monitoring urine output is achieved by the insertion of a urinary catheter into the bladder and measuring urine output. This was planned at the MET Call at 12.35pm[34] but was not done until 8.00pm in ICU[35], two hours prior to her death. There was 10 mls of urine in HYR's bladder, consistent with a diagnosis of shock and poor kidney perfusion.

Co-ordination of care and delay

57. The lack of medical records makes it impossible to know who was coordinating care, particularly in ensuring that MET call recommendations were completed and advocating for timely investigations and interventions.

Management by the home team and records

[34] Patient record, page 184.
[35] Patient record, page 104.

58. The surgical management of HYR's deterioration on the morning of 27 September 2018, in particular the surgical input and decision making of which there is no record over the course of the whole day except for the 9.45am MET call.

59. Accurate and contemporaneous record keeping is especially important in cases involving multi-units, such as in HYR's case. This is partly acknowledged by Dr Stelmach who commented that, "*As the records will indicate, a sole person was not attending each MET call and ICU attendance. The care of HYR was coordinated by the surgical unit, ICU, nursing staff, radiology and in consultation with the family. The final decision not to take the patient for laparotomy was a decision in consultation with ICU and family wishes given poor functional status. This was documented by ICU that the patient was not for CPR/prolonged intubation which would have been required if laparotomy did occur".*

60. The fact that so many teams were involved in HYR's care is precisely why her care necessitated co-ordination. Co-ordinated care is not possible without adequate communication, observations and available information in the form of medical records. The failure to maintain such records has meant that the care was compromised and a robust and transparent review following HYR's death has been compromised.

NORTHERN HEALTH'S RESPONSE

61. In light of the CPU advice and the conclusions I reached based on my review of the evidence, I provided a draft copy of these findings to Northern Health for their comment. Northern Health provided a response dated 18 November 2021 which set out various issues with the draft finding.

62. The response was lengthy but at its core, Northern Health submitted that although "[i]*t is obvious that without any complications, HYR would have been discharged…*" the fact that HYR sustained a bleed does not of itself lead to a conclusion that she ought to have survived with the intervention of medical treatment irrespective of any other factors.

63. Northern Health submitted that the conclusion that HYR's death can solely be caused by and/or attributed to the recognised complication of bleeding was not, in their view, supported by the evidence but was rather 'multifactorial' in that she:

    a. Suffered a recognised complication of bleeding;

b. Her medical co-morbidities played a role in how she responded to treatment to control her bleeding;

c. Her CT scan could have been done earlier to identify the source of the bleeding;

d. Her anticoagulation profile required better management; and

e. Communication and documentation was not to the appropriate standard.

64. All of these matters, according to Northern Health, are the 'multifactorial reasons' that HYR died. While there may have been several factors which contributed to HYR's ultimate death, quite simply, had HYR's bleeding been recognised and managed in a timely manner and if she had been provided with adequate resuscitation and she may well have survived.

65. Put simply, the post-operative bleeding was the origin of all the events that followed, culminating in HYR's death. Prior to her bleed being recognised, Northern Health was undertaking discharge planning, from which it is reasonable to infer that they were not expecting her to die after the surgery.

66. In its submissions, Northern Health contended that they had not been afforded procedural fairness because they were not provided with the CPU reports referred to in my draft finding. This contention lacks foundation. Procedural fairness in the coronial context requires that an interested party is afforded an opportunity to respond to any adverse findings which a coroner is minded to mke by being alerted in advance to what is proposed by the coroner, Northern Health were given the opportunity to respond to the adverse findings I had contemplated making. They were provided with a copy of my draft finding, which included the relevant parts of CPU's advice, proposed comments and recommendations, and invited to comment on these matters. Further, during the course of the investigation Northern Health were invited to provide any material they saw fit to assist with the investigation and were accorded extensions of time in which to comply with requests for information from the court. Further, Northern Health did not seek a copy of the CPU report prior to making its submissions.

67. Northern Health also submitted that HYR's medical comorbidities had "been the undercurrent in her entire medical management" adding that they found it "concerning that the CPU has not identified such significant and relevant matters." In this regard, Northern Health did not provide HYR's entire medical record to the Court despite being invited to provide all relevant material to the court each time that the Court sought evidence from it. It was only when it made its final submissions did Northern Health identify to the court additional information relating to HYR's

co-morbidities dating back as far as 2010. Despite citing this additional material, Northern Health still did not provide these additional records to the Court.

68. I have noted the comments made by Northern Health and I have made some changes to the finding based on some of the material in the submissions of Northern Health. However, I remain of the view that if HYR had not suffered the complication of bleeding, she would have been likely to have been discharged home to her semi-independent life. The post operative bleeding was the event that precipitated the sequence of events leading to her death. This bleeding was a foreseeable complication and whilst it does not imply a lack of care and skill on the part of the surgeon, the deterioration was not recognised in a timely manner and therefore was not acted upon quickly enough. As a result, HYR died.

69. I thank Northern Health for their engagement with the coronial process, their submissions and for their consideration of the draft recommendations that I provided with the draft finding.

70. Northern Health have indicated that they agree with two of the three draft recommendations I had proposed to make, being that it:

    a. conducts review of the capacity and capability of its interventional radiological service; and

    b. undertakes open disclosure with HYR's family in accordance with the Australian Open Disclosure Framework.

71. In its submissions, Northern Health indicated that it did not agree with my third proposed recommendation being that this case should be reported to Safer Care Victoria as a sentinel event. Having reviewed the evidence, I consider that it should be reported under category 11, being "All other adverse patient safety events resulting in serious harm or death".

FINDINGS AND CONCLUSION

72. Pursuant to section 67(1) of the Act, I make the following findings:

    a. the identity of the deceased was HYR, born 14 August 1941;

    b. the death occurred on 27 September 2018 at The Northern Hospital, Epping, Victoria, from haemoperitoneum following cholecystectomy; and

    c. the death occurred in the circumstances described above.

73. Having considered all of the circumstances, I am satisfied that HYR died from haemoperitoneum following an elective cholecystectomy. The haemoperitoneum is a known complication of surgery.

74. HYR was expected to survive the elective procedure and, but for the bleeding, she would have lived and been discharged home to her family in accordance with the discharge plan being undertaken by Northern Health up until her deterioration.

75. There was a delay in identifying the bleeding as the cause of HYR's deterioration. HYR was displaying symptoms which were known about and should have prompted earlier investigations, which may have identified the bleeding. These included:

    a. The haemoglobin had fallen over the two days since the surgery and continued to fall over the course of the morning of 27 September 2018;

    b. Her blood lactate level was significantly elevated when first measured at 10.45 am and continued to rise;

    c. She had developed increasing abdominal pain;

    d. She had abdominal distension; and

    e. She was anticoagulated and prone to bleeding.[36]

76. There were other delays which contributed to HYR's deterioration and stood in the way of optimal treatment, including:

    a. Considering, measuring and potentially correcting the contribution of anticoagulation to HYR's deterioration. Dr Stelmach conceded that the Anti-coagulation profile was not done until 7.50 pm on 27 September 2021;

    b. Ordering blood (this was identified at the 12.30 pm MET call, but did not occur until 2.15 pm);

    c. Inserting a urinary catheter to monitor urine output in the context of HYR's shocked and critical state in a shocked patient. This had been identified at the 12.30 pm MET call, but did not occur until 8.00 pm;

[36] CPU noted that her coagulation was not checked until the time of the interventional radiology procedure and again in ICU at 5:30 pm. Nothing was given to her to reverse the anti-coagulation.

d. Having the CT scan to make a definitive diagnosis. This had been identified and ordered by 10.40 am but did not occur until 12.14 pm;

e. Delay in deciding and commencing the angioembolisation procedure. In his statement, Dr Houli conceded "*there appears to be a delay in commencing the procedure, it is possible that the deceased may have stabilised before this, however this is not reflected in the notes*." I note that the lack of medical notes makes it impossible to determine how long it took the surgical team to decide on the angioembolisation procedure and whether HYR did stabilise at any point during the afternoon. The ward observation charts indicate, however that she did not stabilise;

f. Delay in administering antibiotics. Despite sepsis being flagged as a potential diagnosis at the 9.30 am, 09.49 am and 12.30 pm Pre MET/MET Calls, antibiotics were not given until 9.00 pm.

77. Northern Health did not adequately monitor HYR in the ward after the MET calls and in radiology during the intervention. In respect of the lack of monitoring during the procedure HYR spent a period of 2 hours without observations or any other active management including the administration of resuscitation fluids/blood or medications to support her circulation). Whilst I am not able to find that the laparotomy should have been chosen over angioembolisation, Northern Health did not monitor or provide adequate blood and other fluids to HYR whilst in the radiology procedure. If HYR had gone to theatre for an open operation (laparotomy) then she would have had the benefit of a dedicated anaesthetist and associated staff to monitor her and provide ongoing resuscitation and support.[37]

78. If HYR had an earlier laparotomy she may have survived the surgery but I am unable to determine whether she would have died anyway.

79. The medical records kept by Northern Health in relation to HYR's deterioration, subsequent management and decision making were inadequate.

RECOMMENDATIONS

80. Pursuant to s 72(2) of The Act, I make the following recommendations, that Northern Health:

[37] The medical records indicate that Northern Health did not monitor or provide blood and fluids to HYR during the radiological procedure. In paragraph 19 of her statement, Dr Stelmach stated that *"[s]afe blood product administration is compromised during a transfer and access to the patient is impeded during interventional radiology procedures*."

a. Reports HYR's death to Safer Care Victoria as a sentinel event;

b. Conducts an external review of the capacity and capability of its interventional radiological service to monitor patients and provide resuscitation, including fluids and reports the results of the external review to Safer Care Victoria; and

c. Undertakes open disclosure with HYR's family in accordance with the Australian Open Disclosure Framework.

Pursuant to section 73(1) of the Coroners Act 2008 I direct that the finding be published on the Internet.

I convey my sincere condolences to HYR's family for their loss.

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

GFR[38], Senior Next of Kin

The Northern Hospital

Safer Care Victoria

Constable Liam Rickard, Coroner's Investigator

Signature:

KATHERINE LORENZ

CORONER

Date: 28 February 2022

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.

[38] A pseudonym.