Coroners Act 1996
[Section 26(1)]

Western *Australia*

RECORD OF INVESTIGATION INTO DEATH

Ref: 8/17

I, Barry Paul King, Coroner, having investigated the death of ***Anne Rzepczynski*** *with an inquest held at the* ***Perth Coroners Court*** *on* ***13 and 14 February 2017*** *and on* ***17 January 2018*** *find that the identity of the deceased person was* ***Anne Rzepczynski*** *and that death occurred on* ***20 February 2012*** *at* ***Royal Perth Hospital*** *from* ***complications of intra-abdominal sepsis, including multi-organ failure and bowel perforation, following a median hepatectomy for cholangiocarcinoma*** *in the following circumstances:*

Counsel Appearing:

Mr J T Bishop assisting the Coroner
Mr J R Johnson (Julian Johnson Lawyers) appearing for Mr E Rzepczynski in 2017
Ms S J K Teoh (State Solicitor's Office) appearing for Royal Perth Hospital in 2017
Ms N Eagling (State Solicitor's Office) appearing for Royal Perth Hospital in 2018

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INTRODUCTION

1. Anne Rzepczynski (the deceased) was born on 18 July 1952, so she was 59 years old at the time of her death. She lived in Ballajura with her husband and their two sons.

2. On 9 December 2011, the deceased underwent endoscopic surgery at Royal Perth Hospital (RPH) to examine her bile ducts and to insert a stent to bypass a tumour which had been identified by ultra-sound a week earlier. She was then transferred to Dr Sudhakar Rao's team for surgery.

3. The operation to remove the tumour was scheduled for 19 December 2011, but it was postponed until 22 December 2011. On 21 December 2011 the operation was postponed to 29 December 2011.

4. On 26 December 2011 the deceased presented at the RPH emergency department and was admitted with symptoms of ascending cholangitis and or pneumonia. She was managed with antibiotics and anti-coagulants until 29 December 2011, when Dr Rao performed the operation with the assistance of Dr Stephanie Chetrit.

5. Following the operation, the deceased developed the complication of intra-abdominal bleeding. On 30 December 2011 she underwent a washout and repair of the bleeding vessel. Dr Rao went overseas on annual leave shortly after that procedure.

6. From about 1 January 2012 the deceased began to experience fluid over-loading, with oedema in the thighs and pleural effusions. An ultra-sound on 3 January 2012 showed multiloculated collections of fluid in the abdomen adjacent to the liver and in the pelvis. She began to show signs of infection, but medical staff were not sure of the source.

7. On 5 January 2012 the deceased was diagnosed with likely sepsis. The next day she appeared slightly improved but a CT scan showed that an intra-abdominal collection was likely bile and was a possible source of the infection. She was commenced on intravenous

antibiotics, and Dr Derek Chen, the consultant surgeon filling in for Dr Rao, decided to manage her conservatively by monitoring her vital signs. If the signs deteriorated further, he would undertake a laparoscopic washout of the abdomen.

8. Over the next week, the deceased's condition improved clinically, so Dr Chen did not consider that a washout was indicated. By the time Dr Rao returned from leave on 16 January 2012, the deceased was stable and afebrile, and she was on a soft-food diet.

9. By 17 January 2012 the deceased was improving sufficiently to be considered for discharge planning. However, from about that time her condition deteriorated steadily, with a continuing bile leak and respiratory failure due to pleural effusions. Poor nutrition was also a problem as her over-all condition declined. Her renal function worsened and she developed the rare complication of bowel perforation, requiring surgery for a resection of the colon with a colostomy.

10. By 18 February 2012 the deceased's condition was so deteriorated that palliative care was considered the best option. She died two days later.

11. An autopsy was not performed because a medical certificate of cause of death was issued by an RPH doctor, indicating that the cause of death was intra-abdominal sepsis leading to septic shock and multi-organ failure. A cholangiocarcinoma was identified as another significant condition.[1]

12. By letter dated 27 March 2012, the deceased's GP contacted the Office of the State Coroner and requested that the deceased's care be investigated. In particular were the GP's concerns about the possibility that the deceased had been given albumin from an allegedly contaminated batch, that a lack of beds in the high dependency unit meant that the deceased had been discharged back to the ward prematurely, and that her dietary needs and fluid management had not been appropriate.

[1] Exhibit 1, Volume 1, Tab 3

13. In 2014, the State Coroner's Office obtained an opinion by Professor Luc Delriviere, Head of the WA Liver and Kidney Surgical Transplant Service at Sir Charles Gairdner Hospital, on the deceased's management at RPH. Professor Delriviere's view was that there was a high risk of a bile leak because of the delays in the operation and because the deceased had cholangitis before the operation.

14. Professor Delriviere considered that, once the attachment of the bile duct to the intestine, the anastomosis, had failed, the spiral of leak, infection and sepsis was almost unavoidable.

15. Following significant delays in obtaining further reports from relevant clinicians, an inquest into the deceased's death was approved by the State Coroner in July 2015. There was then further delay in obtaining additional reports. It seems that a call-over for the pending inquest was first held in October 2016, at which time the inquest was listed for 13 to 14 February 2017. On those latter dates I held an inquest at the Perth Coroner's Court.

16. The inquest was initially focused on the delay of the deceased's operation to remove the tumour and on the appropriateness of the nutrition provided to the deceased. The issue of possibly contaminated albumin had already been investigated, and it had been established that the deceased had not received any such albumin.

17. As the evidence unfolded at the inquest, it became apparent that a further issue, that of the standard of post-operative care, required investigation. As a result, the inquest was adjourned part-heard and steps were taken to obtain evidence specific to that issue. The inquest resumed on 17 January 2018 and was completed on that day.

18. The documentary evidence accepted at the inquest comprised:

    (a) a brief of evidence containing statements, correspondence and reports from witnesses and

experts with associated attachments, medical records from RPH, and formal documentation;[2]

(b) a report dated 22 July 2015 by Dr Simon Banting, an expert in general/upper gastrointestinal and hepato-pancreatobiliary surgery;[3]

(c) reports dated 18 October 2016 and 22 October 2016 by Dr Merhdad Nikfarjam, a specialist liver, biliary and pancreatic surgeon;[4]

(d) a report dated 10 February 2017 by Anisah Inayat-Hussain, a clinical dietician at RPH since 2011;[5]

(e) microbiology reports from 26 December 2011 to 4 February 2012;[6]

(f) a bundle of diagrams relating to liver resection;[7] and

(g) a bundle of CT scan images from 19 January 2012.[8]

19. The following witnesses (in order of appearance) provided oral evidence on 13 and 14 February 2017;

(a) Dr Mark Platell, Director of Clinical Services at RPH at the time of the deceased's admission, and the Area Director of East Metropolitan Health Services in February 2017;

(b) Kerry Hodgkinson, Clinical Nurse Specialist Theatre at RPH at the time of the deceased's admission, and the Acting Director of Clinical Operations at RPH in February 2017;

(c) Ms Inayat-Hussain;

(d) Professor Delriviere; and

(e) Dr Rao

[2] Exhibit 1, Volume 1, Volume 2 Part 1 and Volume 2 Part 2
[3] Exhibit 2
[4] Exhibit 3
[5] Exhibit 4
[6] Exhibit 5
[7] Exhibit 6
[8] Exhibit 8

20. The following witnesses provided oral evidence on 17 January 2018:

    (a) Professor Delriviere;

    (b) Dr Chen; and

    (c) Dr Chetrit.

21. Due to the passage of time, Dr Rao, Dr Chen and Dr Chitrit had little or no recollection of their care of the deceased, so they were forced to attempt to reconstruct the relevant events by reference to the RPH medical records.

THE DECEASED WAS ADMITTED FOR SURGERY

22. In October 2011 the deceased began to notice some epigastric discomfort and gradual increase in pruritus. On 30 November 2011 her doctor sent her for an ultrasound scan of her abdomen. The ultrasound scan revealed a sludge or soft-tissue tumour with obstruction of the mid common bile duct associated with intrahepatic duct dilatation, and a thick-walled gallbladder. The deceased's doctor referred her to a surgeon, who referred her on to a gastroenterologist at RPH for an urgent endoscopic retrograde cholangio-pancreatography (ERCP).

23. On 9 December 2011 the deceased was admitted to RPH and underwent the ERCP, which showed a high-grade stricture in the hilum commencing in the common hepatic duct and extending into the second order side branches intrahepatically associated with a probable Bismuth type IV Klatskin tumour (carcinoma of the hepatic duct bifurcation). The gastroenterologist performed a sphincterotomy and inserted a stent in the right hepatic duct, common hepatic duct and common bile duct.

24. A CT scan also done on 9 December 2011 showed the stent in place decompressing the right biliary tree and showed dilatation of the left hepatic duct and its branches. The deceased remained in RPH and was placed in the care of Dr Rao's team. Dr Rao is a general

surgeon specialising in hepato-bilary-pancreatic surgery and trauma surgery.

25. A PET scan was arranged for the deceased at Sir Charles Gairdner Hospital as an outpatient, and an operation to remove the tumour was listed for 19 December 2011. The PET scan took place on 15 December 2011 and showed no metabolically active nodal or distant metastases.

26. A respiratory assessment on 16 December 2011 showed that the deceased had mild airflow limitation with gas trapping, consistent with intrinsic airways disease.[9]

27. The operation was expected to entail a removal of the central sections of both sides of the liver (median hepatectomy) as well as bile duct resection and reconstruction. It would be, in Professor Delriviere's words, an 'exceptionally complex and very rarely attempted' surgery.[10] Dr Rao reported that the operability of Klatskin tumours is low, about 33%, and overall survival rates are low because many patients present with unresectable or metastatic disease. Five year survival rates for patients undergoing aggressive surgery are 10-40%.[11]

28. Dr Rao explained that a median hepatectomy provided the best chance of removal of all the carcinoma while leaving sufficient liver tissue remaining for the liver to function. However, that operation was effectively two liver operations at once, so it could take up to 11 hours to complete and the risks were high.[12]

POSTPONEMENTS

29. The deceased had day leave from RPH in the few days leading up to 19 December 2011. On the morning of 19 December 2011 she fasted in preparation for theatre, but her operation was cancelled when other cases took

[9] Exhibit 1, Volume 2, Part 2
[10] Exhibit 1, Volume 1, Tab 5
[11] Exhibit 1, Volume 1, Tab 4.2
[12] ts 95 per Rao, S

priority and there was insufficient theatre time remaining.[13]

30. On 20 December 2011 the deceased was discharged from RPH and the operation was re-booked for 22 December 2011. On 21 December 2011 the deceased was notified that the operation would have to be delayed until 29 December 2011 because it was displaced by emergency cases.[14]

31. In December 2011 the Health Department's policy provided for the management of waiting lists for surgeries on the basis of the urgency of patients' conditions. Patients' surgical requirements were categorised as emergency or elective. Emergency surgeries were subcategorised as urgent or true emergencies; the latter requiring immediate access to theatre for a life or limb-threatening situation and the former being cases that can be done within a matter of hours rather than minutes.[15]

32. Elective surgeries had three subcategories, based on the time by which they were clinically indicated to occur: C1 - Urgent for surgeries to be done within 30 days, C2 - Semi-urgent within 90 days and C3 – Non-urgent at some time in the future.[16]

33. The evidence indicates that the deceased's condition put her in the C1 – Urgent category of elective surgeries, though the written policy did not include her condition as far as I can make out.[17]

34. As a C1 patient, the deceased's surgery was not to be deferred if the deferral would have resulted in her not receiving surgery within 30 days from the date of registration on the waiting list. In addition, as she was already at the hospital on 19 December 2011, her surgery should not have been postponed without express approval of an area executive acting under delegation from the Area Chief Executive, and it was not to have been postponed a second time without a similar approval.[18]

[13] Exhibit 1, Volume 1, Tab 6
[14] Exhibit 1, Volume 1, Tab 6
[15] Exhibit 1, Volume 1, Tab 8.3, KH4
[16] Exhibit 1, Volume 1, Tab 8.3, KH4
[17] Exhibit 1, Volume 1, Tab 8.3, KH4
[18] Exhibit 1, Volume 1, Tab 8.3, KH4

35. It is not clear whether the deceased's postponements were approved as required, but that was not really in issue. The evidence established that the primary consideration for postponing a patient's elective surgery was the urgency of the need for theatre based on clinical evaluations and negotiation between surgeons.[19] It is the surgeons who ultimately decided, so it appears that the decision was made by Dr Rao.[20]

36. As RPH was the major trauma centre with probably the highest percentage of emergency surgeries in Australia. The theatres were run to capacity, so there were occasional spill-overs and cancellations.[21]

37. In the time before Christmas, RPH would tend to cut back on elective surgeries and provide for emergency cases and urgent cases that arose.[22]

38. It appears that the cases which took priority over the deceased's surgery on both 19 December 2011 and 22 December 2011 were emergencies.

39. On 25 December 2011 the deceased presented at the emergency department at RPH with mild flu-like symptoms, including a productive cough. She had called Dr Rao, and he had advised her to attend the emergency department to be assessed. She underwent a chest X-ray and was started on antibiotics.[23]

40. At 6.30 pm the next day, 26 December 2011, the deceased again presented at the emergency department, this time with right upper quadrant abdominal pain from that morning. She had a temperature of 38.0° and an ongoing productive cough, and she was clinically jaundiced with palpable hepatomegaly. The emergency doctor who examined her formed the impression that she had possible cholangitis or an obstruction of the stent.[24]

41. She was admitted under general surgery and was diagnosed with possible ascending cholangitis or

[19] ts 16, 17 and 20 per Platell, M
[20] ts 41 per Hodgkinson, K
[21] ts 20 per Platell, M
[22] ts 96 per Rao, S
[23] Exhibit 1, Volume 2, Part 1
[24] Exhibit 1, Volume 2, Part 1

pneumonia. She was prescribed intravenous antibiotics and hydration.[25]

42. By the morning of 27 December 2011 the deceased's temperature was normal, but she continued to have a productive cough and a runny nose. She was able to shower herself and to walk around the ward.[26]

43. On 28 December 2011 an anaesthetist assessed the deceased for surgery and noted the history of a cold with fever, sore throat and productive cough. Infection markers were normal or trending downward. The deceased looked tired, but she said that she was feeling much better. The anaesthetist formed the impression that the deceased had a cold that was improving symptomatically.[27]

THE OPERATION

44. On 29 December 2011 Dr Rao performed the median hepatectomy as planned. He was assisted by Dr Chetrit, then a senior registrar in general surgery. They performed biliary reconstruction with a Roux loop of jejunum, which I understand to mean that the bile duct was attached with anastomoses to a surgically fashioned limb of the jejunum.[28] There was no evidence of peritoneal or liver metastatic disease.[29]

45. Dr Rao's operation report indicates that he attached a single anastomosis in the left lateral segment and also anastomosed two small bile ducts in the right lobe. He noted that it was very difficult to secure sutures in relation to the small ducts and that there was a 'high likelihood of leak'.[30] However, he said in oral evidence that he would have checked the anastomoses by injecting into a tube into the bile duct, so there would not have been a leak after the operation.[31]

[25] Exhibit 1, Volume 2, Part 1
[26] Exhibit 1, Volume 2, Part 1
[27] Exhibit 1, Volume 2, Part 1
[28] Exhibit 1, Volume 1, Tab 4
[29] Exhibit 1, Volume 2, Part 2
[30] Exhibit 1, Volume 2, Part 2
[31] ts 103 per Rao, S

46. Mr Rzepczynski said, in a lengthy account of the deceased's operation and subsequent stay at RPH, that Dr Chetrit told him that the anastomosis was not the best joint they had ever seen, so there could be a bit of bile leaking, but that was ok.[32]

47. When Dr Rao first cut the bile duct, he took a sample of bile fluid from it to check for infection.[33] Microbiology results indicated that the bile fluid had no bacteria. However, there are also results from a 'BILE SWAB AND SLIDE' taken the same day which also showed no bacteria but indicated that mixed coliform organisms were grown from the swab.[34]

48. Dr Rao placed stents near the anastomoses and other larger drains in the abdomen to act as drains for blood, bile and other fluid.[35]

49. Histopathology results of samples taken on 30 December 2011 showed moderately differentiated cholangiocarcinoma arising from the common hepatic bile duct and measuring up to 14mm. All margins including the common bile duct margin, accessory bile duct margin, left surgical resection margin and right hepatic surgical resections were clear of tumour, suggesting that the tumour had been completely removed.[36]

50. Following the operation, the deceased was admitted into the high dependency area (HDA) where her post-operative care was managed by intensive care clinicians.[37]

RE-LOOK LAPAROTOMY

51. On 30 December 2011 the deceased developed low urine output and low haemoglobin. She was given albumen, fresh frozen plasma and packed red blood cells, and she was started on total parenteral nutrition.[38]

[32] Exhibit 1, Volume 1, Tab 10
[33] ts 101 per Rao, S
[34] Exhibit 5
[35] Exhibit 1, Volume 2, Part 2
[36] Exhibit 1, Volume 2, Part 2
[37] Exhibit 1, Volume 2, Part 1
[38] Exhibit 1, Volume 2, Part 1

52. That evening, the deceased complained of pain in her abdomen with an intensity of 8/10. Her blood pressure and her haemoglobin dropped. She was given packed red blood cells, fresh frozen plasma and platelets. Her urine output decreased to 10ml/hour. Dr Rao's team was notified and the deceased was prepared for the operating theatre due to possible bleeding.[39]

53. The deceased was transferred back to the operating theatre where Dr Rao, assisted by Dr Chetrit, performed a laparotomy and found a lot of blood and clots in the area of the surgery and a small arterial bleeder at the upper border of the pancreas. The bleed appeared to be related to a lymph node dissection. Dr Rao washed out the abdomen, controlled the bleed with sutures and used haemostatic agents to control the ooze of blood from the cut edge of the liver.[40]

54. The deceased was then returned to the HDA. She again had three stents in place for straight drainage near the anastomoses and two varivac drains to provide suction drainage in the abdomen.

FIRST HALF OF JANUARY 2012

55. Over the first few days after the laparotomy, the deceased experienced poor pain control, low urine output, bilateral lower lung collapse and fluid overloading, including pleural effusions. The stents and the varivac drains produced minimal amounts of fluid.

56. On 3 January 2012 an ultrasound of the abdomen ordered by the HDA clinicians to investigate flank pain showed multiloculated collections of fluid within the abdomen.[41]

57. Dr Chetrit was notified of the collections.[42] She was aware that the deceased had raised C-reactive protein (CRP) and white cell count levels, but she was not concerned at the time because the deceased showed no signs of sepsis, such as fever, low blood pressure or

[39] Exhibit 1, Volume 2, Part 1
[40] Exhibit 1, Volume 1, Tab 4; Exhibit 1, Volume 2, Part 2
[41] Exhibit 1, Volume 2, Part 2
[42] Exhibit 1, Volume 2, Part 1

increasing abdominal pain.[43] Dr Chetrit reviewed the deceased and determined that no immediate action was required.[44]

58. On 4 January 2012, Dr Chetrit reviewed the deceased as part of her ward rounds and noted in the inpatient case notes that one of the varivac drains had produced '250 ml billious' fluid, which she said was a reference to bile stained fluid as opposed to pure bile. She said that bilious fluid is not unexpected after that type of surgery due to the raw liver edge.[45] She did not suspect massive breakdown of the anastomosis because it did not fit the clinical picture.

59. That evening the deceased was transferred from the HDA to the general surgery ward.[46] She was seen by a physiotherapist who noted a reportedly wet cough. The deceased complained of a dry mouth to nursing staff and to a pain specialist. The stents were not producing fluid, but one of the varivac drains was 'patent and draining'.

60. On 5 January 2012 the deceased's cough was strong and very wet but non-productive. Over the previous night, one varivac drain had again produced about 240 ml and the stents had produced about 50 ml.[47] A chest X-ray for suspected pneumonia showed that large volume pleural effusions had increased in size.[48]

61. Dr Chetrit reviewed the deceased and noted the effusions, as well as tachycardia, increased white cell count and, importantly, confusion. She formed the impression that the deceased was dehydrated and had subclinical sepsis with confusion secondary to the sepsis or hypoxia. She made a plan to investigate the potential sources of sepsis by inserting an ultrasound-guided chest drain and by obtaining cultures of blood, urine, stool, abdomen drain fluid and pleural fluid. The plan also included changing the peripherally inserted central catheter line as a possible source of infection.[49]

[43] Exhibit 1, Volume 1, Tab 12
[44] Exhibit 1, Volume 2, Part 1
[45] Exhibit 1, Volume 1, Tab 12; Exhibit 1, Volume 2, Part 1
[46] Exhibit 1, Volume 1, Tab 4; Exhibit 1, Volume 2, Part 2
[47] Exhibit 1, Volume 2, Part 1
[48] Exhibit 1, Volume 2, Part 2
[49] Exhibit 1, Volume 1, Tab 12; Exhibit 1, Volume 2, Part 1

62. On the morning of 6 January 2012, Dr Chetrit reviewed the deceased and found that the issues of pain, hypoxia and increased white cell count remained. There was also bile-stained fluid coming out of the stents. She arranged for an urgent CT scan of the abdomen, increased oxygen and intravenous antibiotics. That afternoon, she discussed the CT scan results with the radiology consultant, who told her that the intra-abdominal fluid was likely bile. Large bilateral pleural effusions were also seen.[50]

63. Dr Chetrit discussed the CT scan results with Dr Chen and they discussed whether to take the deceased back to theatre.[51] Dr Chen developed a plan to monitor the deceased and, if her temperature became greater than 38° or her pulse rate went above 130 or her systolic blood pressure dropped, to perform a laparotomy.

64. Dr Chen discussed the CT scan findings with a respiratory specialist, who formed the impression that the pleural effusions were secondary to intra-abdominal sepsis, so a chest drain of the effusions was not necessary.[52]

65. The CT scan also showed that one of the abdominal drains was positioned in the middle of a collection of fluid, but the end of the drain appeared to be against the side, so Dr Chen decided to pull the drain back, flush it and move it a few centimetres to a more central position. He and Dr Chetrit determined not to insert further drains because of the added risk.[53]

66. A microbiology report of a sample from the abdominal drain showed abundant growth of bacteria *Klebsiella oxytoca* and moderate growth of a possible *Streptococcus/Enterococcus sp.*[54]

67. On 7 January 2012 the deceased was reviewed by a Dr Fealy (possibly a resident), who noted that the deceased was still confused but was stable and afebrile. The drain that had been cleared had produced 100 ml of

[50] Exhibit 1, Volume 1, Tab 12; Exhibit 1, Volume 2, Part 2
[51] Exhibit 1, Volume 1, Tab 10
[52] Exhibit 1, Volume 1, Tab 11
[53] Exhibit 1, Volume 1, Tabs 11 and 12
[54] Exhibit 1, Volume 1, Tab 11; Exhibit 5

fluid since 3.00 pm on 6 January 2012. The deceased's abdomen appeared distended and her bowels had not opened since 5 January 2012. Dr Fealy formed the impression that the deceased had ileus and planned for her to take sips of water only.[55]

68. Nursing notes for the rest of 7 January 2012 and 8 January 2012 indicate that the deceased remained stable and afebrile but still somewhat confused. She was still experiencing pain and a strong, wet productive cough. She was given packed red blood cells for decreased haemoglobin. The stents and drains produced little fluid.

69. On 9 January 2012 the deceased's abdomen was still distended but the white cell count was decreasing. She was still receiving total parenteral nutrition (TPN). Her pain was well-controlled. Her coughing was moderate dry and non-productive, but she was still fluid-overloaded.[56] Her bowel had still not opened. A chest X-ray showed that the pleural effusions were larger than at the time of the last X-ray.[57]

70. On 10 January 2012 the deceased was reviewed by Dr Chen and the general surgery team. The deceased appeared to have improved. She sat out of bed for three hours, her bowel opened and her abdomen was less distended. The CRP levels and white cell count had decreased, her liver function tests showed improvement and she looked and felt better.[58]

71. On the morning of 11 January 2012 the deceased was reasonably stable. A dietician reviewed her in relation to the TPN and oral food intake. Mr Rzepczynski was present and indicated that he had been bringing in goats milk yoghurt for the deceased because of her intolerance to lactose and because she could not stand the hospital's lactose-free soup. The dietician adjusted the deceased's diet to increase the protein, glucose and lipids.

72. In the afternoon of 11 January 2012, Dr Chetrit reviewed the deceased and noted that she had worsening pleural

[55] Exhibit 1, Volume 2, Part 1
[56] Exhibit 1, Volume 2, Part 1
[57] Exhibit 1, Volume 2, Part 2
[58] Exhibit 1, Volume 2, Part 1

effusions but had started eating soft food, which was a sign that her gut was functioning again. Dr Chetrit instructed that the deceased be weaned off TPN in favour of a soft food diet.[59]

73. On 12 January 2012 the dietician reviewed the deceased and noted that she was on a light diet. The deceased had a list of foods to which she was allergic or intolerant, which made inadequate oral intake likely. The dietician discussed the deceased's diet with catering staff.[60]

74. By the afternoon of 12 January 2012 nursing staff noted that the deceased was stable, afebrile, alert and oriented. She was tolerating nourishing fluids but not the light diet, due to her allergies. The drains showed minimal output. When Dr Chetrit reviewed her, she looked well.[61]

75. On 13 January 2012 the deceased looked well, but her CRP level had increased. Dr Chetrit planned for a CT of her abdomen if she deteriorated, but that did not occur.[62]

76. The deceased remained stable over the next two days. She was clinically dry and the stents and drains had minimal output.

SECOND HALF OF JANUARY 2012

77. On 16 January 2012 the deceased's condition remained relatively unchanged. Dr Chetrit reviewed the deceased and noted that one of the varivac drains had produced 320 ml of fluid on the previous day. The deceased looked oedematous. Dr Rao had returned from leave. He also reviewed the deceased and was satisfied with her progress. His plan was for a CT scan and a cholangiogram to determine the source of bile-stained fluid coming from the drains.[63]

78. The inpatient case notes indicate that, by the morning of 17 January 2012, medical staff were considering the deceased's possible future discharge. That morning she

[59] Exhibit 1, Volume 2, Part 1
[60] Exhibit 1, Volume 2, Part 1
[61] Exhibit 1, Volume 2, Part 1
[62] Exhibit 1, Volume 2, Part 1
[63] Exhibit 1, Volume 2, Part 1; Exhibit 1, Volume 1, Tab 12

was alert and orientated. She was able to walk with a frame and to have a shower with minimal assistance. Dr Rao reviewed her and noted that she was oedematous in the lower legs and that her abdomen was soft and tender on palpation. A cholangiogram and a CT scan were booked for the next days.

79. On 18 January 2012 the deceased was still alert and orientated, but she reported a bad night, with abdominal pain.[64] The cholangiogram showed anastomic leakage at the site of the median hepatectomy.[65]

80. That evening her observations were stable but the stents drained about 20 ml of bile and one of the varivacs produced about 25 ml of faecal looking fluids.

81. On 19 January 2012 an intern reviewed the deceased and noted that she was afebrile and stable, but that the varivac drain had produced 105 ml. She was mildly confused and appeared more unwell. There were breath sounds in the right lung and the abdomen was distended and tender. At 1.00 pm a nurse noted that the varivac had produced a total of 150 ml of a viscous creamy brown colour. A CT scan was performed.[66]

82. The report on the CT scan confirmed the existence of the collection of fluid in the site of the hepatectomy and showed that the collection had developed an enhancing wall,[67] which indicated infection.[68] The bilateral pleural effusions had increased in size.

83. The CT scan report said that gas within the collection was consistent with the bowel leak demonstrated on the cholangiogram, but the collection had not increased significantly from 6 January 2012. The drains were in the same positions, with their tips in the collection.[69]

84. On 20 January 2012 Dr Chetrit reviewed the deceased and, after conferring with Dr Rao, arranged for the deceased to attend the radiology department at RPH where a pigtail drain was inserted to drain the collection

[64] Exhibit 1, Volume 2, Part 1
[65] Exhibit 1, Volume 2, Part 2
[66] Exhibit 1, Volume 2, Part 1
[67] Exhibit 1, Volume 2, Part 2
[68] ts 107 per Rao, S
[69] Exhibit 1, Volume 2, Part 2

of fluid. The pigtail drain produced about 100 ml of fluid by 9.00 pm that evening.[70] Microbiology testing grew abundant growths of *Escherichia coli* and *Enterococcus faecium*.[71]

85. Just after midnight on 21 January 2012, a general surgery team member (whom I infer was a registrar) was asked to see the deceased due to a drop in her oxygen saturation. The deceased felt terrible, with right upper quadrant pain. Her other vital signs were within her usual parameters.[72]

86. At about 6.30 am that morning, the registrar was again asked to see the deceased about shortness of breath. She had tachycardia, low oxygen saturation and widespread wheeze. The registrar suspected fluid overload and impending respiratory failure. The deceased was transferred to the HDA where she was put on a CPAP machine and was administered intravenous diuretics, antibiotics and antifungals.[73] A chest X-ray showed a large right-sided pleural effusion.[74]

87. The deceased's condition improved sufficiently over the next few days to allow her to be returned to the ward on 24 January 2012. The plan included an aim to maintain a negative fluid balance and to provide additional feeds through a nasogastric tube.[75] Unfortunately, the deceased's condition never improved significantly from that time.

THE DECEASED'S CONDITION DETERIORATED

88. On 26 January 2012 the deceased developed a new opening in her wound, which discharged bile stained fluid. Microbiology testing of the fluid grew abundant growth of *Enterococcus faecium*.[76] Chest X-rays continued to show ongoing bilateral effusions[77] and there were issues with the deceased's nutrition.[78]

[70] Exhibit 1, Volume 2, Part 1
[71] Exhibit 5
[72] Exhibit 1, Volume 2, Part 1
[73] Exhibit 1, Volume 2, Part 1
[74] Exhibit 1, Volume 2, Part 2
[75] Exhibit 1, Volume 2, Part 1
[76] Exhibit 5
[77] Exhibit 1, Volume 2, Part 2
[78] Exhibit 1, Volume 2, Part 1

89. On the evening of 29 January 2012 the deceased was returned to the HDA after a call to the medical emergency team following a drop in her oxygen saturations due to pleural effusions. An intercostal catheter was inserted and 1.3 litres of fluid was drained.

90. On 30 January 2012 HDA clinicians reviewed the deceased and formed the impression that she had ongoing encephalopathy, severe body fluid overload, nutritional deficiencies, and presumed contained abdominal sepsis.[79]

91. On 31 January 2012 an antimicrobial specialist reviewed the deceased and gained the impression that she had complex intra-abdominal poly-microbial sepsis reflecting ongoing undrained collections. The specialist suggested that the antibiotics were appropriate, but that an ongoing review of the adequacy of the drainage should be done.[80]

92. Over 1 February 2012 and 2 February 2012 the deceased was relatively stable with some marginal improvement. In the early morning of 3 February 2012 she began to experience increased vomiting and a grossly distended abdomen from ascites. The dietician reviewed her with an aim to increase her intake of calories and restrict her fluid intake. An ultrasound-guided ascitic pigtail drain was inserted. By this stage she had eight drains, comprising stents, drains and catheters.[81]

93. The deceased's condition then remained relatively stable, but with the continuing issues of nutrition inadequacy, peritonitis and abdominal collections. By the morning of 6 February she had begun to experience confusion and hallucinations, ongoing nausea and vomiting. Her urea and creatinine level increased and her urine output was border-line, suggesting decreased kidney function.[82] A CT scan of her abdomen showed a decrease in the volume of ascites, but small and large bowel dilatation with possible pseudo-obstruction. The distal colon was collapsed.[83]

[79] Exhibit 1, Volume 2, Part 1
[80] Exhibit 1, Volume 2, Part 1
[81] Exhibit 1, Volume 2, Part 1
[82] Exhibit 1, Volume 2, Part 1
[83] Exhibit 1, Volume 2, Part 2

94. On 7 February 2012 the deceased's temperature, white cell count, CRP, creatinine and urea levels had all risen. She was given a fleet enema without results. That evening she had hallucinations, and at around 8.00 pm her blood pressure dropped dramatically, for which she was administered intravenous inotropes.

95. Early the next morning an HDA clinician reviewed the deceased and noted that her issues now included acute renal impairment and constipation despite fleet enema. The other issues of confusion, sepsis, effusions and inadequate nutrition remained.[84]

96. At 10.00 am on 8 February 2012 HDA and surgical staff reviewed the deceased and noted faecal material draining from an old drain site. They concluded that she had a perforated bowel. She underwent an exploratory laparotomy with colectomy and colostomy formation, after which she was admitted into the intensive care unit (ICU).[85]

97. The deceased was taken back to theatre on 10 February 2012 for a repeat washout for bleeding around the stoma. She was haemodynamically stable post-operatively but began to develop a rash from antibiotics.

98. On 13 February 2012 the deceased underwent another re-look laparotomy for washout and closure of the abdominal wound. Multi-resistant pseudomonas were grown in peritoneal fluid and sputum.[86]

99. On 15 February 2012 the deceased was breathing spontaneously but with some discomfort. ICU staff were concerned that she may need a tracheostomy so an operation was arranged for 17 February 2012. The multi-resistant pseudomonas were not sensitive to any antibiotics, so there were strict contact precautions in place. [87]

100. The tracheostomy was delayed until 18 February 2012, when it took place. Post-operatively her arterial blood gases worsened. She was acidotic and had an increased

[84] Exhibit 1, Volume 2, Part 1
[85] Exhibit 1, Volume 2, Part 1
[86] Exhibit 1, Volume 2, Part 1
[87] Exhibit 1, Volume 2, Part 1

inotropes requirement to maintain her blood pressure. She developed coagulopathy and deteriorated steadily.[88]

101. On the afternoon of 20 February 2012, life support was discontinued after family members had attended to say goodbye. The deceased died at 3.55 pm that afternoon.[89]

CAUSE OF DEATH

102. On 20 February 2012 Dr Wai Sun Loo at Royal Perth Hospital issued a Medical Certificate of Cause of Death, indicating that the disease or condition directly leading to death was intra-abdominal sepsis leading to septic shock and multi-organ failure.[90]

103. Dr Rao expressed the view that persisting intra-abdominal sources of sepsis accounted for the problems of sepsis leading to renal failure, cardiovascular failure and recurrent pleural infusions.[91]

104. In oral evidence, Dr Rao said that his personal, unproven opinion was that the deceased had a bile leak at some point, followed by an infection that was under control and she seemed to be okay, but that it became overwhelming for her and she decompensated or just did not cope with the level of illness.[92] He said that the worst thing that happened to her towards the end was that she needed to have her bowel removed after it had become ischaemic and perforated.[93] He said there was an indication that it had lost some of its blood supply.[94]

105. Professor Delriviere expressed the following view

> The systemic infection of the patient leads to other organs' failure and severe rapid deconditioning of the patient. Infections and deconditioning spiral out of control. The difficulty of the management met in ICU (fluid overload, effusions, delirium, hypoproteinemia,

[88] Exhibit 1, Volume 2, Part 1
[89] Exhibit 1, Volume 1, Tab 3; Exhibit 1, Volume 2, Part 1
[90] Exhibit 1, Volume 1, Tab 3
[91] Exhibit 1, Volume 1, Tab 4
[92] ts 169 per Rao, S
[93] ts 165 and 167 per Rao, S
[94] ts 167 per Rao, S

surinfection by multi resistant germs) is only a description of the difficulty to manage this lethal cascade of events. The final blow in this case is the colonic perforation but any other event would have precipitated the death. [95]

106. In oral evidence Professor Delriviere said that there was the surgery which had a certain level of complication, followed by chronic unresolved infections in her abdomen. From there she developed several complications, one of which was an impaction of stools in her colon and a perforation that ended her life.[96]

107. Dr Banting, with whom Professor Delriviere agreed,[97] said that the intra-abdominal collections led to a progression of sepsis and associated complications, with the result that she had minimal reserves at the time she developed a perforation of her colon.

108. In accordance with the foregoing, I find that the cause of death was complications of intra-abdominal sepsis, including multi-organ failure and bowel perforation, following a median hepatectomy for cholangiocarcinoma.

ISSUES IN THE DECEASED'S MANAGEMENT

Professor Delriviere

109. In his oral evidence on 13 February 2017, Professor Delriviere expressed the view that the technicality of the surgery performed by Dr Rao was quite exceptional and, given the oncological results, the surgical act was done as competently as could have been.[98] However, he criticised the facts that the deceased's operation was delayed for about 10 days and that Dr Rao was on leave for the first two weeks of the post-operative period.[99]

110. Professor Delriviere noted that the biliary stent had been put in place nearly three weeks before the operation took place, which meant that the diameter of the bile ducts

[95] Exhibit 1, Volume 1, Tab 5
[96] ts 228 per Delriviere, L
[97] ts 228 per Delriviere, L
[98] ts 77 per Delriviere, L
[99] ts 74 per Delriviere, L

would have reduced a lot due to their prolonged decompression and that an episode of cholangitis had recently infected the duct, making suturing extremely difficult because the tissues would have been inflamed, fragile and easily torn.[100]

111. He considered that the first delay of three days was probably not clinically significant, but that the second delay definitely was because on 26 December 2012 the deceased returned to hospital with infection that needed antibiotics.[101] That infection was likely ascending cholangitis, which occurred because the stent would have allowed for bacteria from the intestine to ascend the bile duct.[102]

112. Professor Delriviere said that once a stent is placed, the operation should occur within one week. That time restriction is now recommended by most units.[103]

113. Professor Delriviere accepted that the operation took place within the Health Department's protocols, but he said that did not make it best practice. He said, in effect, that the circumstances of the operation were different from the sorts of surgeries to which the protocols should apply.[104] He could understand that emergency cases might displace a scheduled surgery, but the deceased's surgery was at a very high level of competition with emergencies, so that practice should not have been accepted.[105]

114. Of perhaps equal importance was the fact that, on the day after surgery, there was a bleed from a small artery, requiring the deceased to be reopened to stitch the artery. Professor Delriviere noted that it is difficult to do that second surgery without shaking the whole system, including the fragile anastomoses.

115. Another complicating factor identified by Professor Delriviere was the fact that the deceased was on a high level of inotropes, which would have contracted her arteries and reduced the blood to the anastomoses, which

[100] ts 74 and 75 per Delriviere, L
[101] ts 74 per Delriviere, L
[102] ts 75 per Delriviere, L
[103] ts 76 per Delriviere, L
[104] ts 76 per Delriviere, L
[105] ts 87 per Delriviere, L

would become ischaemic, creating an extremely high risk of biliary leak.[106]

116. Professor Delriviere said that the first mention of a biliary leak in the notes occurred on 3 January 2012 because there is reference in the notes to a bilious output of 250 ml in a drain on 4 January 2012. He said that there was absolutely every element to understand that there was sepsis coming from some collection or abscess in the abdomen.[107]

117. The best possible management of that leak, in Professor Delriviere's view, would have been for a laparotomy performed by a highly trained surgeon to wash out the abdomen and to place larger drains with the help of an interventional radiologist. Then, the deceased should have been given antibiotics and antifungals with the help of infectious disease specialists. He said that none of that was done because Dr Rao was not available.[108]

118. Professor Delriviere had reviewed the notes and had seen that Dr Chen had been involved, but had assumed him to have been an HDA doctor. Professor Delriviere said that he had been unable to find reference to a consultant surgeon on ward rounds.[109] He said that his view was that, in an extremely complex case like this, you need to put everything on your side. Every little detail will count and every little mistake, or delay, or the fact that there is no consultant available with the right experience, will synergise to bring a situation where the patient will die, and that is what happened.[110]

119. In his oral evidence on 17 January 2018, Professor Delriviere appeared to have a somewhat less critical view than he had during his previous oral evidence. He was taken to the microbiology reports for 29 December 2011. He said that they showed that there was no overt infection. The growth of mixed coliform organisms confirmed the presence of an infection, but in the context of what had happened, including the antibiotics

[106] ts 78 per Delriviere, L
[107] ts 86 per Delriviere, L
[108] ts 80 per Delriviere, L
[109] ts 81 per Delriviere, L
[110] ts 82 per Delriviere, L

administered to the deceased earlier, some people would not have regarded it as a positive indication.[111]

120. Professor Delriviere said that a decision to proceed with the operation, given the possibility of cholangitis from 26 December 2011, would have been a difficult one to make and was really the type of judgement call that has to be made quite often by liver surgeons.[112] Dr Rao made that decision, and he did so on the basis of his experience, but in many places it would not have been done. Professor Delriviere said that he would not have operated on the deceased.[113]

121. Likewise, Professor Delriviere said that a decision to intervene with a laparotomy from 4 January 2012 would have been difficult, even for a fully specialised liver surgeon, if the bile had started draining because of the risk of tearing the anastomoses further. He said that nowadays he tends to get access to an interventional radiologist to assist so that he does not have to intervene.[114]

122. Once sepsis was confirmed on 6 January 2012, Professor Delriviere said that he would have intervened to wash out the fluids in the abdomen and have drains functioning to remove most of the bile to give the bile ducts a chance to heal themselves. However, he said that the decision whether to intervene at that stage was a judgement call based on the practitioner's personal training and experience.[115] He said that it was a difficult decision for Dr Chen, and that his decision not to intervene may have been acceptable to a liver surgeon, but that not having a liver surgeon available to judge what should have been done was not completely appropriate.[116]

123. Professor Delriviere considered that Dr Chen's plan (to perform a laparotomy if the deceased's pulse rate rose or her blood pressure dropped excessively) was reasonable, and he agreed that, in hindsight given the deceased's improvement after 6 January 2012, the treating team had made appropriate decisions. However, he thought that

[111] ts 185-186 per Delriviere, L
[112] ts 193 per Delriviere, L
[113] ts 196 per Delriviere, L
[114] ts 193 per Delriviere, L
[115] ts 198-199 per Delriviere, L
[116] ts 221 per Delriviere, L

the deceased still had something chronic in her abdomen and was in quite a critical way.[117]

124. Professor Delriviere accepted that, if Dr Rao had in fact placed the largest drains he could, then he should not have tried to place even larger drains.[118] It seems that different surgeons used different types of drains with different descriptions.[119]

125. Professor Delriviere was asked whether the judgements made at RPH with respect to the deceased's management were appropriate in the circumstances. He said:[120]

> It's a difficult question. I would say no. If you were to ask 10 liver surgeons in front of the situation where – what they would do, you would probably have a 50/50 (indistinct) answer. A lot of people would have just done exactly the same, managed with antibiotics, not intervene, hope for the best and try to monitor things and (indistinct) and 50 per cent would have been much more aggressive in their management by re-operation, by changing the – trying to change the stent or check on the stent, changing the drains, have a very aggressive antibiotic regimen. So you would have a very, you know – because once – the more critical the situation in medicine, the more the choice becomes sharp and full of consequence, and we act as per our training, our recollection of cases, our knowledge of the literature, and once we choose the rules we have to stick with it. We cannot go back. It's not a precise science. It's an art and it's a human endeavour where you take hard decisions and where sometime you pay the price or sometime you take the decision not to do something and things go well. You know, the surgeon is not the one that is healing; it's the patient. And your job at that stage is to create a place where they can heal. If your judgement is that this has a chance to heal in the situation that is currently created, then you try not to go and disturb it. If you

[117] ts 200 per Delriviere, L
[118] ts 205 per Delriviere, L
[119] ts 204-207 per Delriviere, L
[120] ts 208 per Delriviere, L

think well, this is not going to heal in the current situation, then you go and you try to help nature much more. That's a judgement call.

126. Professor Delriviere said that he thought it would have been better for the deceased to have been operated on earlier after the stent had been put in place and for Dr Rao to have been present for the following three weeks to look after the post-operative care, but things could have turned out exactly the same. He said that it was a high stake surgery which was escalated by the postponements, the likelihood of cholangitis and the complication of the bleed that required going back to theatre. He said that he would not have put himself in that position and would not have operated at that stage. It was an extremely hard judgement call, and if everything had gone well the deceased had a very good possible outcome, but the complication was such that she died.[121]

Dr Banting

127. Dr Banting is a surgeon who practices predominantly in general/upper gastrointestinal and hepato-pacreatobiliary surgery. He is a senior examiner for the Court of Examiners for General Surgery for the Royal Australasian College of Surgeons and is a member of the Medical Advisory Board of MIGA, a medical indemnity insurance company. His report was provided to Mr Rzepczynski's lawyer for a potential medical negligence claim in relation to the deceased's care.[122]

128. Dr Banting noted that the type of operation undertaken would have a significant risk of bleeding and biliary leak, more from the technical difficulties of the surgery than from a lack of care on the part of the surgeons.[123]

129. Dr Banting said that on 3 January 2012 the deceased had a raised white cell count of 30 and an ultrasound showed two collections. He said that, if there was a clinical setting of sepsis on 3 January 2012, there should have been a CT scan of the abdomen to investigate the

[121] ts 209 per Delriviere, L
[122] Exhibit 2
[123] Exhibit 2

collections. If the collections were confirmed, a repeat laparotomy was warranted.[124]

130. Dr Banting said that the CT scan on 6 January 2012 showed a haematoma and collection in the liver bed within the setting of an elevated C-reactive protein and white cell count, which would be suggestive of uncontrolled infection. Given the CT scan findings, there should have been drainage of the collections by laparotomy or percutaneous drainage. Evidence of ongoing leak demonstrated by the cholangiogram on 18 January 2012 was further stimulus for a procedure to drain an intra-abdominal collection by way of a laparotomy or by radiologically placed drains.[125]

131. Dr Banting considered that the delay in drainage of the infected intra-abdominal collections led to the progress of the deceased's sepsis and assorted complications, with the result that she had minimal reserves at the time she developed a perforation of her colon. In his opinion, the consequence of that failure to address the collections earlier made a not-insignificant contribution to her death.[126]

Dr Nikfarjam

132. Dr Nikfarjam is a liver, pancreas and biliary surgeon who performs between 50 and 100 liver, pancreas and liver operations annually. He has over 100 publications in peer-reviewed journals, and has written one book and several chapters in leading surgical texts. At the time he provided his report, he was the president of the Australasian Pancreatic Club and was a member of several scientific bodies concerned with hepatopancreaticobiliary surgery.[127]

133. Dr Nikfarjam considered that the complication of a bile leak after major liver and bile duct resection is not uncommon and that the treating team for the deceased appear to have taken adequate precautions to minimise the risk of the complication by the placement of stents

[124] Exhibit 2
[125] Exhibit 2
[126] Exhibit 2
[127] Exhibit 3(a)

across the sites of biliary anastomoses and the placement of intra-abdominal drains.[128]

134. Dr Nikfarjam noted that bleeding following surgery is a recognised complication, and it was unfortunate that it occurred, but there is no indication from the operative reports that adequate precautions were not taken to minimise the risk. He said that the complication was treated appropriately.[129]

135. Dr Nikfarjam considered that the management of complications overall accorded with the practice widely accepted by health professionals as competent professional practice in late 2011 and early 2012.

136. Dr Nikfarjam said that he personally would have prescribed antibiotics on 3 January 2012, when intra-abdominal collections were noted on ultrasound and the deceased had an elevated white cell count and C-reactive protein. However, he said that he did not believe that the deceased's outcome would have been altered with earlier antibiotic administration.

137. Dr Nikfarjam said that he would have considered a CT scan on 3 January 2012 and would have undertaken drainage of collections after the CT scan on 6 January 2012.[130] However, in hindsight, the CT scan on 19 January 2012 showed that the collections had not increased, so earlier drainage was unlikely to have altered the final outcomes. [131]

138. Dr Nikfarjam felt that all attempts were undertaken to manage the intra-abdominal sepsis after 18 January 2012.[132]

Dr Chen

139. Dr Chen agreed that a CT scan could have been done on 3 January 2012, and it is possible that a miscommunication from the HDA meant that there was

[128] Exhibit 3(a)
[129] Exhibit 3(a)
[130] Exhibit 3(a)
[131] Exhibit 3(a)
[132] Exhibit 3(a)

some delay in the surgical team being made aware of collections seen in the ultrasound on that date.

140. By 6 January 2012 Dr Chen was aware of the abdominal sepsis, but he took into account the risks of re-opening the abdomen some seven or eight days after the second operation and decided to take a conservative approach. He felt competent to make that decision and confident to perform a laparotomy if one were undertaken.

141. As time went on, Dr Chen was aware that the sepsis was ongoing, but it was under control and there were encouraging signs that she would be able to go home.

142. Dr Chen agreed that the best person to look after the deceased post operatively would have been Dr Rao since he was the original surgeon or another liver surgeon, but at RPH at the time there was no-one else.[133] Since then additional liver surgeons practice at RPH. I understand that Dr Chen could have contacted Professor Delriviere had he felt that he needed assistance.[134]

Dr Chetrit

143. As to the question of whether antibiotics should have been administered from 3 January 2012, Dr Chetrit, who by the time she gave evidence at the inquest was a consultant colorectal and general surgeon as well as being the director of clinical training at RPH, said that she does not give antibiotics after a procedure unless there is a good reason, because they 'can hide what's going on'.[135]

144. The deceased had an infection before the procedure and had been on antibiotics, but they were stopped as planned. From then, Dr Chetrit would have wanted good evidence before starting them again, and the evidence was not clear at that time. She agreed that the white cell count was high, but she said that the rest of the picture did not fit with sepsis.[136]

[133] ts 242 per Chen, D
[134] ts 265 per Eagling, Ms
[135] ts 251 per Chetrit, S
[136] ts 252 per Chetrit, S

145. Dr Chetrit said that even with the benefit of hindsight she would not have commenced antibiotics on 3 January 2012. She said that the ultrasound scan showed a collection, but not all collections require antibiotics, and that you need to look at the whole clinical picture.[137]

146. Dr Chetrit said that the microbiology result from the bile swab taken during the operation was not significant since it showed contamination and no specific bacteria, rather than infection. She thought that, if the deceased had ascending cholangitis at that stage, there would have been some bacteria in the sample.[138]

147. Dr Chetrit did not believe that commencing antibiotics on 3 January 2012 instead of 6 January 2012 would have made a difference to the outcome for the deceased because she got better after that and died from other complications.

148. As to the question of further drains, Dr Chetrit said that even in hindsight she would not have inserted further drains prior to 20 January 2012 because the CT scan on 6 January 2012 did not show that the collections had increased since 3 January 2012. In addition, the drains inserted by Dr Rao were the largest that could have been used, were in the middle of the collection and appeared to be draining.[139]

149. Dr Chetrit's view of why the deceased's condition deteriorated after she had apparently improved enough to be considered for discharge was that the deceased had a significant respiratory failure that sent her back to the HDA, but that Dr Chetrit did not know why that happened at that time.[140]

Dr Rao

150. Dr Rao had no recollection of the cause of the delays in the deceased's operation, and he said that there is no clear way of prioritising emergencies in WA, but as of

[137] Exhibit 1, Volume 1, Tab 12
[138] ts 247-248
[139] Exhibit 1, Volume 1, Tab 12
[140] ts 253 per Chetrit, S

February 2017 it was a matter being considered in the Health Department. [141]

151. Dr Rao explained that there were, effectively, two considerations for the delay of the deceased's operation. The first was the need to ensure that he had the appropriate surgical team available. He noted that the day of the operation was a Thursday, which was not normally a day when he would get his team together.[142]

152. The second consideration was that he was concerned that the liver function improve before the operation since much of it was going to be removed. The stent allowed the liver to recover, so the longer they waited, the more liver function returned. He accepted that there was also an increased risk of infection, but his research showed that about 50 per cent of people with a bile stent get an infection, and the microbiology for the deceased showed no bacteria in the bile.[143] That meant that, in trading off the risk of infection for the advantage of increased liver function, they did not actually get it wrong.[144]

153. Dr Rao also said that he did not believe that it was appropriate to go quickly to surgery from the insertion of a stent, since it is necessary to stage the patient and to get a PET scan and an MRI scan. He said that a haste to operate is not always in the patient's best interests.[145]

154. However, as I understand his evidence, Dr Rao also said that the timing of the operation was really unfortunate since, if it had been done on 19 December 2011 he would have been around for the post-operative care.[146]

155. As to whether Dr Chen should have done a laparotomy, inserted larger drains and more stents and administered antibiotics on 4 January 2012 or so, Dr Rao said that if the drains were working, he would not make a kneejerk reaction. He said that it really depends on how the patient progresses over the next few days because if you go back into a patient after a period of time, it gets more risky and you can do more harm than good. It is all

[141] ts 96-99 per Rao, S
[142] ts 100 per Rao, S
[143] ts 101 per Rao, S
[144] ts 100-101 per Rao, S
[145] ts 100 per Rao, S
[146] ts 145 per Rao, S

about juggling all the factors and seeing what is best for the patient.[147] He did not think that the delay of the operation from 19 December 2011 to 29 December 2011 was detrimental to the deceased.[148]

156. As to a reduction in the diameter of the bile duct, Dr Rao said that a complication from a leak is not as deadly as a poor liver that does not survive the operation, so he prefers to allow the liver more time to recover from the stent. He said that he is aware that it may make the operation slightly more difficult, but that is his preference as a surgeon.[149]

157. Dr Rao also noted that he tested the bile duct when he joined it at surgery and made no note in his operation report of a leak, so he assumed that there had been no leak. He said that the bile leak was probably triggered when he dealt with the bleed.[150]

158. In relation to the deceased's post-operative care, Dr Rao was confident that Dr Chen had the skills to perform a washout laparotomy if it was decided to be necessary, and that managing a patient who has a bile leak and a collection after surgery is an everyday occurrence.[151] Dr Rao said that in an ideal world a specialist liver surgeon should review a patient post-operatively, but at that stage it was more about managing a patient with an intra-abdominal abscess, and Dr Chen was well-placed to do that.[152]

159. Dr Rao said that, even if the deceased had cholangitis at the time of surgery, once the obstruction is released and the bile flows, the body usually clears the infection. However, if there is bacteria in the bile and blood remaining in the abdominal cavity, the chance of forming an abscess is high.[153] He said that if the deceased had cholangitis she would have been really sick, and she was not that sick. She could have had bacteria colonising the

[147] ts 105 per Rao, S
[148] ts 102 and ts 148-149 per Rao, S
[149] ts 102 and ts 147 per Rao, S
[150] ts 152-153 per Rao, S
[151] ts 120-121 per Rao, S
[152] ts 154 per Rao, S
[153] ts 123-124 per Rao, S

bile duct without actually proliferating and causing her to be sick.[154]

160. As to the administration of antibiotics from 3 January 2012, Dr Rao said that administering antibiotics after surgery really depends on the clinical process of the patient. He agreed with the proposition that it is necessary to consider the detailed clinical picture as things progress to make decisions about what should and should not be done.[155]

161. Dr Rao agreed with Professor Delriviere's opinion that there was a bile leak from 4 January 2012 but disagreed that it warranted immediate intervention to drain the collection. Rather, he agreed with Dr Chen's decision to manage the deceased conservatively.[156]

162. Dr Rao did not disagree with Dr Banting or Dr Nikfarjam's opinions that they would have intervened on 6 January 2012 to drain the collections, but he said that 'you have to be there, you have to see the patient, you have to know more than what a CT scan shows. You cannot just treat a CT scan.' He considered that it was necessary to exclude the possibility that the cause of the collections was not in the chest, or the PICC lines or the urine before an invasive procedure like putting in a drain was done.[157] He said that, had he been there, he would have been reassured that the CT scans showed that the existing drains were in the collection.[158]

COMMENTS ON THE DECEASED'S MANAGEMENT AT RPH

163. Three independent experts commented on the care provided to the deceased at RPH. The issues they raised were:

    (a) the postponement of the first operation following the insertion of the stent;

[154] ts 153 per Rao, S
[155] ts 125 per Rao, S
[156] ts 134 per Rao, S
[157] ts 140 per Rao, S
[158] ts 141 per Rao, S

(b) the lack of a specialist liver surgeon to oversee the deceased's post-operative care;

(c) a failure to administer antibiotics from 3 January 2012 when there were signs of infection.

(d) a failure to have a CT scan on 3 January 2012; and

(e) a failure to washout and or drain the abdomen as soon as sepsis was confirmed on 6 January 2012.

164. Another issue, in this regard raised by Mr Rzepczynski, was the appropriateness of the care of the deceased with respect to her dietary intake.

Postponements

165. The postponement of the first operation is a difficult issue to address. It seems clear that two of this State's most eminent liver surgeons have diametrically opposed views on the desirability or otherwise of delaying a liver operation of the nature of the deceased's following the insertion of a biliary stent. They both raise arguments which seem reasonable.

166. Neither of Dr Banting or Dr Nikfarjam made reference to the delay in their reports, and the fact that the deceased appeared to improve from about 6 January 2012 may show that the original leak did not cause her death.

167. In these circumstances, I am not able to comment on this issue.

168. However, it does seem to me that Professor Delriviere and Dr Rao cannot both be correct. I therefore encourage the Royal Australasian College of Surgeons and the Australian and New Zealand Hepatic, Pancreatic and Biliary Association to consider providing guidelines to their members on this issue if they have not done so already.

169. If the Royal Australasian College of Surgeons considers that similar surgeries should occur within a very limited time, the Health Department and the National Health Ministers' Advisory Council should consider reflecting

that view in their respective elective surgery urgency categorisation policies.

Lack of liver specialist

170. The evidence established that the lack of a specialist liver surgeon for the deceased's post-operative care was not ideal. However, it does appear to me that the decisions taken by Dr Chetrit and Dr Chen were shown to be reasonable at the time and appropriate in hindsight given the deceased's improvement.

171. Since the time of the deceased's death, more liver surgeons have been employed at RPH, so the situation should not occur again.

Failure to do CT scan and give antibiotics

172. As to the failure to do a CT scan and to administer antibiotics on 3 January 2012, Dr Banting qualified his suggestion of the need for a CT scan by saying that, if the collections seen on ultrasound and deceased's increased white cell count occurred in a clinical setting of sepsis, a CT scan should have been done. Dr Chetrit explained that the deceased showed no clinical symptoms of sepsis on that day.

173. The same considerations applied to the issue of antibiotics. Dr Chetrit's view was echoed by Dr Rao, and Dr Nikfarjam said that he did not think that antibiotics at that time would have altered the outcome. Dr Banting made no mention of antibiotics in his report.

174. In those circumstances, it appears that Dr Chetrit's decision not to order a CT scan or to administer antibiotics was justified at the time.

Failure to washout and drain

175. As to the failure to washout and drain the deceased's abdomen on 6 January 2012, the evidence was clear that Dr Chen considered a laparotomy but decided to await any worsening of the deceased's condition before proceeding. Her condition improved, so a laparotomy was not done.

176. Professor Delriviere considered that course to have been reasonable and appropriate, and Dr Nikfarjam said that drainage on 6 January 2012 would not have altered the final outcomes given the fact that there had been no increase in the collections by 19 January 2012. I note, too, that Dr Chen had taken the step to pull back, flush and reposition an abdominal drain on 6 January 2012.

177. I am satisfied that the management provided to the deceased by Dr Chen on 6 January 2012 was justified in the circumstances. He was faced with a difficult situation and made a reasonable decision that turned out to be appropriate.

Diet

178. The specific records pertaining to the food actually provided to the deceased during her admission to RPH were not kept, so cannot be considered.

179. Mr Rzepczynski's day-by-day record of the deceased's operation and post-operative period leading up to her death provides a grim personal insight into her deterioration and the related difficulties with her getting enough nutrition.

180. The deceased was on TPN after the first two operations. When that was ceased on about 11 January 2012, she had trouble eating the hospital food due to her lack of appetite, reported food intolerances and allergies, her lack of saliva from diuretics, and the unappetising nature of the hospital food.

181. Mr Rzepczynski brought food into the hospital for the deceased, but she was unable to eat much of that either. The deceased was put on nasogastric food and encouraged to eat, but had little oral food for weeks. She received goats milk brought in by Mr Rzepczynski and over time began to eat food that he brought in, but she started vomiting that and developed a rash. Eventually she was put back onto TPN, but by then she was badly deteriorated and her condition went from bad to worse.

182. Mr Rzepczynski considered that the deceased had gone without food for about 12 days and that the food that was provided at RPH was inedible.

183. Professor Delriviere's view appeared to be that the deceased's lack of nutrition was both a cause and a result of her ongoing deterioration. The more she became deconditioned, the more her immunology would not work well, and the more unusual complications such as an impacted bowel can occur.[159]

184. Dr Banting was asked about the care the deceased received in relation to her dietary intake after the cessation of the TPN on 12 January 2012. He noted the milestones in her dietary difficulties and concluded that 'overall nutrition in her case was problematic'; however, she had 'regular dietician review and regular attention to her nutrition from her medical and nursing staff'.

185. Ms Inayat-Hussain, currently a clinical dietician at RPH, reviewed the deceased's inpatient notes and provided a report. Her assessment generally accorded with Mr Rzepczynski's chronology in relation to when the deceased was on TPN, when she was on oral diet alone feeding for around 10 days, and when she had a nasogastric tube inserted.[160] There were also times when the deceased was fasted for theatre.[161]

186. Ms Inayat-Hussain also said that there was a time when the deceased was trialled on goats milk by way of the nasogastric tube, which is not commonly done.[162]

187. Ms Inayat-Hussain said that, during the 10 days when the deceased was on oral intake, she was receiving inadequate nutrition. When the deceased was on goats milk, she would probably have been receiving less than 50% of her requirements.[163]

188. Ms Inayat-Hussain assumed that, when the deceased was on the oral diet and receiving the nasogastric feeding, she was getting at least 50% to 75% of what she needed.[164]

[159] ts 229 per Delriviere, L
[160] ts 61-64 per Inayat-Hussain, A
[161] ts 62 per Inayat-Hussain, A
[162] ts 62 per Inayat-Hussain, A
[163] ts 64 per Inayat-Hussain, A
[164] ts 64 per Inayat-Hussain, A

During the time that the deceased was getting TPN; that is for 50% of her admission, she was getting 100% of her requirements.[165]

189. Ms Inayat-Hussain agreed that, in the case of a very unwell patient who has no appetite, it is critical for the patient's recovery that he or she gets adequate nutrition.[166] She said that a patient fighting an infection needs increased protein. If there is inadequate nutrition, the body will break down its protein and glycogen stores, which is not ideal for the patient.[167]

190. However, Ms Inayat-Hussain said that a patient in hospital will never get 100% of their requirements.[168] It is not always easy to provide a patient with adequate nutrition and, in the deceased's case, the deceased had reported the unusual combination of intolerance to soy and to cow's milk protein, and she declined trials of things that were recommended.[169]

191. Ms Inayat-Hussain also noted that it is difficult to monitor a patient who has fluid overload or sepsis, so there can be difficulties in assessing and adjusting a nutritional plan. It can therefore be difficult to say if negative outcomes for a patient are related to nutrition or to a surgical procedure or both.[170]

192. On the basis of the evidence overall, I am unable to assess whether the care provided to the deceased by way of nutritional requirements was at an acceptable standard. I have no doubt that from Mr Rzepczynski's perspective it was not.

193. I find it difficult to conceive that inadequate nutrition for prolonged periods could have been anything other than detrimental to the deceased's chances of recovery, but I accept Ms Inayat-Hussain's evidence that there were factors in the deceased's case which made feeding her difficult.

[165] ts 64 per Inayat-Hussain, A
[166] ts 65 per Inayat-Hussain, A
[167] ts 71 per Inayat-Hussain, A
[168] ts 70 per Inayat-Hussain, A
[169] ts 65 per Inayat-Hussain, A
[170] ts 71-72 per Inayat-Hussain, A

194. It is worth noting that, according to Ms Inayat-Hussain's report, since 2015 a new menu has been implemented at RPH with dietetics input, and trials have been conducted to ascertain popular items. Routine audits are conducted for quality control, with input from a consumer advisory committee on the quality and palatability of the food.[171] That evidence evinces a recognition that the quality and palatability of food prior to 2015 required improvement and that steps have been taken to address that fact.

Conclusion on standard of treatment and care

195. The consensus of the expert evidence was that the post-operative care provided to the deceased at RPH was competent.

196. There was expert evidence which criticised the management of the deceased, but apart from Dr Banting, who considered that a delay in drainage of intra-abdominal collections led to the progress of the sepsis, no expert considered that the clinical decisions made during that time would have affected the outcome.

197. In my view of the evidence, apart from the lack of sufficient sustenance received by the deceased for about 10 days, the care provided to the deceased was shown to have been reasonable. As noted, I am unable to determine whether that lack of sustenance had a significant contribution to her death.

HOW DEATH OCCURRED

198. I am satisfied on the basis of the evidence available that the deceased developed a cholangiocarcinoma and required surgical excision, which led to the recognised complications of arterial bleed, bile leak and sepsis, which in turn led to multi-organ failure and death.

199. In these circumstances, I find that death occurred by way of natural causes.

[171] Exhibit 4

CONCLUSION

200. The deceased had an aggressive cancer in the bile ducts, requiring surgical excision. A stent was inserted in the bile ducts on 9 December 2011 and surgery was booked to take place 10 days later. The surgery was postponed twice, eventually taking place on 29 December 2011, some 20 days after the stent was inserted. In the last week of that 20 days, the deceased developed a respiratory infection and may have had cholangitis.

201. The surgery was risky and was extremely complex. It was performed at the highest standard, with post-operative assessment showing that the cancer had been entirely removed.

202. Unfortunately, the recognised complication of a bleed occurred during the operation. Further surgery to fix the bleed took place on the next day, and it is possible, if not likely, that the operation caused a bile leak by disturbing the anastomoses.

203. The bile leak led to infection in the abdomen in conjunction with blood from the operation. The infection was treated conservatively with antibiotics, and the treatment appeared to be successful, but at about three weeks after the second operation, the deceased's condition deteriorated, with ongoing abdominal infection and respiratory failure from pleural infusions. From that time, the deceased's condition spiralled down to her death.

204. The inquest revealed the difficulties associated with operations of this kind and the potential complexities in post-operative management. In particular, the evidence demonstrated that specialist liver surgeons have differing views in relation to treatment and care of patients with this deadly cancer.

205. In my view, it is necessary to keep in mind that an analysis of a patient's care has the benefit of hindsight, which makes the identification of shortcomings almost inevitable, especially where the patient's course of care is complex. Where the eventual outcome is tragic, as has

occurred with the deceased, there is a temptation to attribute the outcome to those shortcomings.

206. To the extent that the evidence indicated possible shortcomings in relation to nutritional issues, I am not able to conclude with any degree of certainty whether those shortcomings contributed to the deceased's death.

207. While it would be cold comfort to the deceased's family, the evidence showed that the surgical and post-operative care provided to the deceased was generally reasonable. The evidence certainly indicates that the clinicians involved in the deceased's care acted in what they considered to be the deceased's best interests.

Barry King
Acting Deputy State Coroner
14 June 2018