IN THE CORONERS COURT
OF VICTORIA
AT MELBOURNE

Court Reference: COR 2017 004055

FINDING INTO DEATH FOLLOWING INQUEST

Form 37 Rule 63(1)

Section 67 of the ***Coroners Act 2008***

INQUEST INTO THE DEATH OF ANTOINETTE O'BRIEN

Findings of:	Judge John Cain State Coroner
Delivered on:	7 March 2023
Delivered at:	Coroners Court of Victoria 65 Kavanagh Street, Southbank, Victoria, 3006
Inquest Hearing Dates:	15 to 25 August 2022
Counsel Assisting:	Dr Sharon Keeling of Counsel instructed by Ms Abigail Smith, Senior Coroner's Solicitor, Coroners Court of Victoria

REPRESENTATION

Family of Antoinette O'Brien	Dr Brian and Marguerite Moylan, self-represented
Holmesglen Private Hospital	Mr Paul Halley, instructed by Meridian Lawyers
Holmesglen Emergency Department Pty Ltd	Mr Robert Harper, instructed by Ball and Partners
St Vincent's Private Hospital Melbourne	Mr Daniel Wallis, instructed by MinterEllison
Dr Hui Li Shi	Ms Fiona Ellis, instructed by Avant Mutual
Dr Vicki Nott	Mr Christopher Blanden KC, instructed by Perry Maddocks Trollope
Safer Care Victoria	Mr Jayr Teng, instructed by the Victorian Department of Health

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INTRODUCTION

1. Antoinette O'Brien (Annie as her family wish her to be known), was born on 24 November 1979 to parents Dr Brian Moylan and Mrs Marguerite Moylan. At the time of her passing, on 15 August 2017, she was 37 years old.

2. Annie married Andrew O'Brien in 2015 and they had one child, who was born in June 2016. At the time of her passing, Annie was 18 weeks pregnant with their second child.

3. After completing her secondary education, Annie attended Monash University where she studied Commerce and Law graduating in 2004. Annie joined the law firm of Marshalls Dent Wilmoth in 2007 and was an Accredited Family Law Specialist. She became a partner of the firm in July 2017.

4. Annie's father, Dr Brian Moylan, describes Annie as '*a true champion for justice, she had an analytical brain and was amazingly low key in responding to challenges. She was uniquely natural, carried no ego and was grounded with a deep capacity to feel sincere compassion and gratitude*.'[1]

5. Annie's mother, Marguerite Moylan describes Annie as engaging, compassionate, giving, wise and very intelligent. In her family impact statement to the Court, she stated '…*it is a devastating reality. Our darling [grandson], who was 14 months at the time, will never remember or grow up with his beautiful loving mother, Annie.*'[2]

6. Annie died on 15 August 2017, following the delivery of her stillborn baby at 18 weeks gestation. She had been unwell for approximately 24 hours.

THE PURPOSE OF A CORONIAL INVESTIGATION

7. Annie's death constitutes a 'reportable death' under the *Coroners Act 2008* (Vic) (**the Act**), as Annie resided in Victoria[3] and the death appears to have been unnatural and unexpected.[4]

8. The jurisdiction of the Coroners Court of Victoria is inquisitorial.[5] The role of the coroner is to independently investigate reportable deaths to ascertain, if possible, the identity of the deceased person, the cause of death and the circumstances in which death occurred.[6]

9. It is not the role of the coroner to lay or apportion blame, but to establish the facts.[7] It is not the coroner's role to determine criminal or civil liability arising from the death under investigation,[8] or to determine disciplinary matters.

[1] Statement of Dr Brian Moylan, CB 3.
[2] Family Impact statement delivered by Mrs Marguerite Moylan.
[3] Section 4 of the *Coroners Act 2008* (Vic).
[4] Section 4(2)(a) of the *Coroners Act 2008* (Vic).
[5] Section 89(4) of the *Coroners Act 2008* (Vic).
[6] Preamble and section 67 of the *Coroners Act 2008* (Vic).

10. The expression 'cause of death' refers to the medical cause of death, incorporating where possible, the mode or mechanism of death.

11. For coronial purposes, the phrase 'circumstances in which death occurred',[9] refers to the context or background and surrounding circumstances of the death. Rather than being a consideration of all circumstances which might form part of a narrative culminating in the death, it is confined to those circumstances which are sufficiently proximate and causally relevant to the death.

12. Coroners are also empowered:

    (a) to report to the Attorney-General on a death;[10]

    (b) to comment on any matter connected with the death they have investigated, including matters of public health or safety and the administration of justice;[11] and

    (c) to make recommendations to any Minister or public statutory authority on any matter connected with the death, including public health or safety or the administration of justice.[12]

13. These powers are the vehicles by which the prevention role may be advanced.

14. The Victoria Police assigned Leading Senior Constable Darren Cathie to be the Coroner's Investigator for the investigation into Annie's death. Leading Senior Constable Cathie conducted inquiries on my behalf and submitted a coronial brief of evidence.

15. This finding draws on the totality of the material obtained in the coronial investigation of Annie's death, that is, the Court File, the Coronial Brief prepared by Leading Senior Constable Cathie, further material including expert reports made available to the Court and obtained by the Court, together with the transcript of the evidence adduced at inquest and the closing submissions of Counsel Assisting, Dr Moylan and Counsel for other interested parties.[13]

16. All coronial findings must be made based on proof of relevant facts on the balance of probabilities.[14] The strength of evidence necessary to prove relevant facts varies according to the nature of the facts and the circumstances in which they are sought to be proved.[15]

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[7] *Keown v Khan* (1999) 1 VR 69.
[8] Section 69(1) of the *Coroners Act 2008* (Vic).
[9] Section 67(1)(c) of the *Coroners Act 2008* (Vic).
[10] Section 72(1) of the *Coroners Act 2008* (Vic).
[11] Section 67(3) of the *Coroners Act 2008* (Vic).
[12] Section 72(2) of the *Coroners Act 2008* (Vic).
[13] From 1 November 2009, access to documents held by the Coroners Court of Victoria is governed by section 115 of the *Coroners Act 2008* (Vic).
[14] *Re State Coroner; ex parte Minister for Health* (2009) 261 ALR 152.

17. In determining these matters, I am guided by the principles enunciated in *Briginshaw v Briginshaw*.[16] The effect of this and similar authorities is that coroners should not make adverse findings against, or comments about, individuals or entities, unless the evidence provides a comfortable level of satisfaction that they caused or contributed to the death.

18. Proof of facts underpinning a finding that would, or may, have an extremely deleterious effect on a party's character, reputation or employment prospects demands a weight of evidence commensurate with the gravity of the facts sought to be proved.[17] Facts should not be considered to have been proven on the balance of probabilities by inexact proofs, indefinite testimony or indirect inferences. Rather, such proof should be the result of clear, cogent or strict proof in the context of a presumption of innocence.[18]

19. This finding draws on the totality of the material obtained in the coronial investigation of Annie's death; the coronial brief, further material obtained by the Court, transcript of evidence adduced and exhibits tendered at the inquest and the closing submissions of Counsel Assisting and the interested parties.

20. In writing this finding, I do not purport to summarise all of the material evidence but refer to it only in such details as appears warranted by its forensic significance and the interests of narrative clarity. It should not be inferred from the absence of reference to any aspect of the evidence that it has not been considered.

21. With an investigation of the magnitude, it is appropriate that I acknowledge the significant work of all who were involved in assisting me.

22. I thank Leading Senior Constable Darren Cathie, who was appointed the Coroner's Investigator in this investigation and compiled a comprehensive coronial brief that was of great assistance.

23. I thank Counsel Assisting, Dr Sharon Keeling, and the counsel and solicitors who represented the interested parties, for their work and comprehensive submissions.

24. I also acknowledge Ms Abigail Smith, Senior Solicitor at the Coroners Court of Victoria, who has worked diligently and provided me with invaluable assistance throughout the entirety of this investigation.

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[15] *Qantas Airways Limited v Gama* (2008) 167 FCR 537 at [139] per Branson J (noting that His Honour was referring to the correct approach to the standard of proof in a civil proceeding in the Federal Court with reference to section 140 of the *Evidence Act 1995* (Cth); *Neat Holdings Pty Ltd v Karajan Holdings Pty Ltd* (1992) 67 ALJR 170 at 170-171 per Mason CJ, Brennan, Deane and Gaudron JJ.
[16] (1938) 60 CLR 336.
[17] *Anderson v Blashki* [1993] 2 VR 89, following *Briginshaw v Briginshaw* (1938) 60 CLR 336.
[18] *Briginshaw v Briginshaw* (1938) 60 CLR 336 at pp 362-3 per Dixon J.

25. I also acknowledge and thank Dr Brian Moylan and Mrs Marguerite Moylan. The task of self-representation is challenging. I thank them both for the courteous and respectful way they conducted themselves throughout the inquest. I also thank Mrs Moylan for her family impact statement that she provided to me at the conclusion of the inquest.

INQUEST

26. I convened the Coroners Court of Victoria for the inquest from 15 to 25 August 2022.

SCOPE OF THE INQUEST

27. At a Directions Hearing held on 9 February 2022, the Scope of Inquest was determined, pursuant to section 64(b) of the Act, as follows:

1) At Holmesglen Private Hospital emergency department:

(a) consideration of a diagnosis of chorioamnionitis and sepsis, including consideration of:

(i) fever of 40.3ºC, and ongoing fever despite the administration of paracetamol;

(ii) tachycardia and tachypnoea;

(iii) severe flank pain requiring morphine;

(iv) requirement for measurement of urine output;

(v) requirement for a blood test for lactate;

(vi) the cause of premature rupture of the membranes;

(b) requirement for administering antibiotics, and if so, which antibiotics at what time;

(c) communication between Dr Shi and Dr Nott;

(d) communication between the nurses at HGPH and St Vincent's Private Hospital;

(e) communication between Dr Shi and Annie's family; and

(f) the reasonableness of Annie's transfer to the delivery suite at St Vincent's Private Hospital, rather than directly to an ICU.

2) At St Vincent's Private Hospital:

   (a) requirement for escalation of medical care within St Vincent's Private Hospital between 0030 hours and 0130 hours;

   (b) time taken for Dr Nott to arrive at St Vincent's Private Hospital labour ward;

   (c) the reasonableness of the timing of the prescription of IV antibiotics, and which antibiotics;

   (d) the reasonableness of the timing of the administration of prescribed IV antibiotics, including the communication between Dr Nott and the midwives regarding the administration of prescribed IV antibiotics;

   (e) requirement for hysterectomy;

   (f) communication between Dr Nott and Annie's family.

3) The role of the use of inter-hospital transfer communication tools, such as checklists (**ISBARS**).

4) The capacity of Safer Care Victoria to conduct reviews into events at private hospitals.

28. Issue 1(e) of the Scope of Inquest was ultimately not considered at inquest. In discussions with Counsel Assisting prior to the commencement of the inquest, Dr Moylan agreed that the communication with Dr Shi and Annie's family was not an issue that he wished to pursue.[19]

INTERESTED PARTIES

29. Seven interested parties were granted leave to appear at the inquest. They were:

- Dr and Mrs Moylan who chose to be self-represented.
- Dr Hui Li Shi.
- Holmesglen Private Hospital (**HGPH**).
- Holmesglen Emergency Department Pty Ltd (**HED PL**).
- Dr Vicki Nott.
- St Vincent's Private Hospital Melbourne (**SVPHM**).
- Safer Care Victoria (**SCV**).

30. Other than Dr and Mrs Moylan, all interested parties were legally represented.

[19] T 10:22-24.

EVIDENCE AT INQUEST

31. The inquest heard viva voce evidence from seven witnesses

- Dr Brian Moylan – Annie's Father.
- Ms Megan Goadby – Director at Safer Care Victoria.
- Dr Raja Barua – Co Director and Managing Director HED PL.
- Dr Hui Shi – Doctor at HGPH ED.
- Dr Vicki Nott – Treating Obstetrician.
- Gillian Codd – Midwife in Charge at SVPHM.
- Raechel Marshall – Midwife at SVPHM.

32. In addition, six experts provided expert evidence:

- Dr Lucy Bowyer – Obstetrician.
- Professor Mark Umstad – Obstetrician.
- Dr David Eddey – Emergency Physician.
- Professor George Braitberg – Emergency Physician.
- Adjunct Professor Tony Korman – Infectious Diseases.
- Professor William Rawlinson – Infectious Diseases.
- Associate Professor Craig French – Intensivist.

33. At the conclusion of the inquest, Counsel Assisting, Counsel for all interested parties and Dr Moylan made oral submissions. In writing this finding, I have considered all of the evidence and the submissions of the interested parties.[20]

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

IDENTITY OF THE DECEASED, PURSUANT TO SECTION 67(1)(A) OF THE ACT

34. On 15 August 2017, Antoinette O'Brien, born 24 November 1979, was visually identified by her father, Dr Brian Moylan.

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

[20] The absence of reference to any particular aspect of the evidence does not imply that it has not been considered.

MEDICAL CAUSE OF DEATH, PURSUANT TO SECTION 67(1)(B) OF THE ACT

36. On 18 August 2017, Dr Melanie Archer, Forensic Pathology Registrar at the Victorian Institute of Forensic Medicine performed a partial autopsy upon Annie's body.

37. Dr Archer formulated the cause of death as:

'1(a) Intra-partum septicaemia secondary to ascending genital tract infection by streptococcus pyogenes (Group A).'

38. Dr Archer commented that:

- 'The mechanism of death in sepsis is cardiovascular collapse in the setting of profound hypotension and potential disseminated intravascular coagulation. There was a petechial rash externally, as well as multiple petechiae seen externally and internally. This could be in keeping with sepsis and/or disseminated intravascular coagulation.

- There was acute hepatitis and haemorrhage with early infarction of the fallopian tubes and ovaries bilaterally. These findings were likely due to the effects of hypotension with systematic inflammation and micro-thrombosis and can be seen in the setting of fulminant sepsis.

- Toxicological analysis of blood was non-contributory. Both ante-mortem and post-mortem specimens were analysed and there was detection of free morphine (approximately 0.02mg/L), frusemide (approximately 1.8 mg/L), paracetamol (approximately 7mg/L) and lignocaine (not quantitated). This is in keeping with therapeutic administration'.

39. I accept Dr Archer's opinion as to the cause of death, with the exception that Annie was pregnant when she developed sepsis and was not in labour.

CIRCUMSTANCES IN WHICH THE DEATH OCCURRED PURSUANT TO SECTION 67(1)(C) OF THE ACT

40. The circumstances in which a death occurred, within the meaning section 67(1)(c) of the Act, are:

> 'those acts, omissions and circumstances which are, at least potentially, to be characterised as causing or a cause of the death of the deceased. This is to be

undertaken by applying ordinary common sense and experience to the facts of the particular case.'[21]

41. I have provided below, a summary of the circumstances proximate to Annie's death.

EVENTS AT HGPH

Holmesglen Private Hospital

42. On Monday 14 August 2017, Annie had lunch with colleagues and ate a chicken salad. Upon returning to the office, she began to feel unwell. She continued to feel unwell through the course of the afternoon developing profuse vomiting, with diarrhoea, sweats, fevers and back flank pain.

43. Andrew (Annie's husband) telephoned the rooms of her obstetrician, Dr Vicki Nott. Dr Nott was away from the practice and Andrew spoke with an obstetrician colleague of Dr Nott. Andrew said that Annie was feeling nauseous, as well as hot and cold. Dr Nott's colleague advised rest and paracetamol.

44. That evening at 6.00pm, Annie telephoned her father, Dr Moylan and asked him to come and check on her. Shortly after the phone call she telephoned her father again to advise him that she thought that she needed to go to hospital with Dr Moylan suggesting that she attend the HGPH. Andrew drove Annie to HGPH arriving at the emergency department (**ED**) at 7.27pm.

45. On admission, Annie was complaining of fever, rigors, vomiting and diarrhoea. The triage entry recorded stated:

'*Profuse vomiting since midday, and diarrhoea also, sweats and fevers. Hx nil. Meds vitamins, NKDA. 18140, G2P1*.'[22]

46. Annie was given a triage category of 3,[23] to be seen by a doctor within 30 minutes and placed into Bed 5,[24] which was the cubicle nearest the toilet. Annie was seen by nursing staff who took observations.

47. Upon Annie arriving in the HGPH ED and after her vital sign observations were taken, nursing staff consulted emergency physician, Dr Hui Li Shi (**Dr Shi**) who charted PRN medications[25] including paracetamol and antiemetic ondansetron and intravenous fluids. A nurse also brought a prefilled

[21] *Re State Coroner; Ex parte Minister for Health* at [46] and see *March v E & MH Stramare Pty Ltd* (1991) 171 CLR 506 at 515, 522.
[22] Statement of Dr Hui Shi, CB 9 [3.1(b)]; Discharge letter by Dr Hui Shi, CB 40.
[23] Emergency patient record HGPH, CB 399.
[24] Statement of Dr Hui Shi, CB 9 [3.1(c)].
[25] PRN medication means medication ordered that is not to be administered routinely but is prescribed to be taken only as required.

'nurse-initiated' pathology request for a full blood examination (**FBE**), urea and electrolytes, C-reactive protein (**CRP**), and blood cultures to Dr Shi.[26] Dr Shi signed this pathology request.[27]

48. I have included below the entries that were made in Annie's medical record by nursing staff from the time she arrived at HGPH ED at 7.27pm to her leaving at 11.58pm:

    (i) The nursing staff recorded:

        (a) 'Profuse vomiting since midday, and diarrhoea also, sweats and fevers. Hx nil. Meds vitamins. NKDA. 18/40, G2P1'[28]; and

        (b) 'Vomiting 1200, profuse Diarrhoea +++, rigours (sic), febrile, diaphoretic, ? food poisoning. Back flank pain.'[29]

    (ii) at 8.00pm: Temperature 40.3°C, HR 112, RR 20, BP 104/62 mmHg, O_2 sats 100% on room air, pain score either 5/10 or 8/10[30],

    (iii) at 8.18pm: HR 115, RR 18, BP 96/57 mmHg, O_2 sats 100% on room air[31],

    (iv) at 8.30pm: HR 117, RR 18, BP 116/76 mmHg, O_2 sats 100% on room air, pain score 8/10[32],

    (v) at 9.30pm: HR 108, RR 16, BP 96/57 mmHg, O_2 sats 100% on room air,[33]

    (vi) at 11.08pm: Temperature 38.5°C (addit: being 90 minutes after IV paracetamol), HR 98, RR 22, BP 146/81, O_2 sats 98% on room air,[34] and

    (vii) at 11.40pm: HR 96, RR 24, BP 120/83, O_2 sats 98% on room air;[35]

49. At 8.10pm, intravenous (**IV**) access was obtained. IV fluids, ondansetron and paracetamol were administered for a presumed diagnosis of infectious gastroenteritis. Initial blood pathology tests including blood cultures were obtained and sent offsite for processing.

50. In August 2017, Australian Clinical Labs (**ACL**) pathology services at HGPH operated during office-hours only. After hours, bloods were couriered to ACL pathology at Knox Private Hospital for processing. Annie's bloods arrived at the ACL lab at Knox Private hospital at 9.30pm. The blood cultures were not processed at Knox Private Hospital, and they were forwarded to ACL Clayton for urgent processing.

[26] Statement of Dr Hui Shi, CB 9 [3.1(d)]; T 59:16-22.
[27] Statement of Dr Hui Shi, CB 9 [3.1(e)]; T 49.
[28] CB 399.
[29] CB 407.
[30] CB 410.
[31] Ibid.
[32] Ibid.
[33] Ibid.
[34] Ibid.
[35] Ibid.

51. At 8.30pm, Annie was first assessed by Dr Shi. Annie advised Dr Shi that she had eaten a chicken salad for lunch at approximately 1:00pm. She then started to feel poorly and feverish in the hours following. From 5:00pm, she had experienced approximately 20 episodes of either vomiting and/or diarrhoea.

52. Annie informed Dr Shi that she had no abdominal pain or vaginal bleeding and that while she did experience some back pain, it had now resolved. Dr Shi's examination revealed a soft non-tender abdomen, and a bedside ultrasound noted a 'good' foetal heart rate.[36]

53. At 9.30pm, Annie was assessed by Dr Shi for a second time, and she indicated that she was feeling better and was interested in going home. Dr Shi advised that Annie should stay overnight for more IV fluid and observation.[37]

54. At 10.15pm, arrangements were made by Dr Shi for Annie to be admitted at HGPH under the care of a physician.

55. The results of the testing of Annie's blood taken at 8pm were reported as:

    (i) Urea and electrolytes: Na+ 137 mmol/L (range 135 – 145), K+ 2.9 mmol/L (range 3.5 – 5.2), Cl- 103 mmol/L (range 95-110), HCO3 19 mmol/L (range 22 – 32), urea 3.6 mmol/L (range 2.5 – 8.0), creatinine 77 µmol/L (range 45 –90), eGFR 84 mL/min/1.73m2 (range >59). Dr Shi accessed this result at 11.12pm;[38]

    (ii) FBE: Hb 129 g/L (range 115 – 165), WCC 6.5 x 109/L (range 4.0 – 11.0), lymphocytes 0.2 x 109/L (range 1.0 – 4.0), plat 170 x 109/L (range 150 – 450). Dr Shi accessed this result at 10.52pm and 11.15pm[39], and

    (iii) CRP: 18.0 mg/L (range < 3.0). Dr Shi accessed this result at 11.16pm.[40]

56. Annie's improvement was however short-lived and at 10.30pm, she was moaning with back pain. Annie was reviewed by Dr Shi who recorded in the notes that Annie was '*moaning with persistent back pain, not comes in wave, minor abdo pain but front abdo pain increasing*'.[41] Dr Shi prescribed 2.5 mg of morphine IV.[42] An additional 2.5mg of IV morphine was administered at 10.55pm and 11.40pm.

[36] Statement of Dr Hui Shi, CB 11 [6(d)].
[37] Statement of Dr Hui Shi, CB 9 [3.1(p)].
[38] CB 397.
[39] CB 395.
[40] CB 396.
[41] CB 402.
[42] CB 408.

57. As Annie's symptoms had changed, Dr Shi started to consider other diagnoses and wondered if she was in the early stages of miscarriage.[43]

58. Faced with this change in Annie's condition, Dr Shi made the first of two calls that evening to Dr Vicki Nott (Annie's obstetrician). This first call occurred at 11.21pm. Dr Nott advised Dr Shi that if Annie miscarried that the baby would not be viable, Annie should remain at HGPH and there was no need to transfer to SVPHM. Shortly after this first call to Dr Nott, Dr Shi was informed that Annie's membranes had ruptured.

59. Dr Shi made a second phone call to Dr Nott at 11.31pm to provide her with the updated information. Dr Shi and Dr Nott agreed that Annie would be transferred to SVPHM under the care of Dr Nott. Aspects of the content of both phone calls are not agreed as between Dr Shi and Dr Nott. I deal with this issue later in this finding.

60. Dr Shi discussed the transfer with the Nurse in Charge at the HGPH ED and requested an urgent category 1 transfer with Ambulance Victoria. Dr Shi said that she requested a Category 1 ambulance (lights and sirens) because she did not know how quickly Annie might deliver the foetus and she was concerned about postpartum bleeding. [44]

61. At 11.40pm, Dr Shi returned to Annie's cubicle and made a clinical record noting that she had discussed the potential miscarriage with Annie's husband, as well as Dr Nott and that an urgent transfer had been organised to transfer Annie to SVPHM.[45]

62. At 11:58pm, Annie was transferred from HGPH ED to SVPHM by Ambulance Victoria.

St Vincent's Private Hospital Melbourne

63. On 15 August 2017 at 12.05am in the ambulance, Annie was given a further dose of morphine by the paramedics.[46]

64. On 15 August 2017 at 12:15am, Annie arrived at SVPHM.[47] On arrival, Annie was met by Midwife in Charge Gillian Codd and Midwife Raechel Marshall. At 12.30am, Annie was moved from her ambulance bed to a bed in the SVPHM delivery suite.[48] A verbal handover was given to Midwife Marshall by Ambulance Victoria paramedics.

[43] Statement of Dr Hui Shi, CB 10 [3.1(w)].
[44] T 51:22-26.
[45] Statement of Dr Hui Shi, CB 11 [3.1(gg) –(hh)]; CB 402.
[46] Exhibit 4 – Ambulance Victoria Electronic Patient Care Record.
[47] Ibid.
[48] Exhibit 4 – Ambulance Victoria Electronic Patient Care Record.

65. Annie was having rigors, with moderate vaginal blood loss.[49] Her observations were taken and recorded as:

- temperature of 39.0°C,
- heart rate of 112 beats per minute,
- respiratory rate of 28 breaths per minute;
- blood pressure of 110/70 mmHg; and
- O_2 saturation of 91% on room air.[50]

66. Midwife Codd contacted Dr Nott at around 12.40am to advise that Annie had arrived at the hospital and to provide Dr Nott with an update on Annie's situation. Dr Nott informed Midwife Codd that she was coming into the hospital and asked for some bloods as well as blood cultures to be obtained.[51]

67. At 1.00am, Annie's oxygen saturation on room air was 90%, and she was started on supplemental oxygen at 4L/min. At 1.15am, bloods were taken, including for blood cultures as instructed by Dr Nott.[52]

68. At 1.30am, Dr Nott arrived at Annie's bedside in the delivery suite. Annie was in labour with the umbilical cord presenting and moderate bleeding, but she was not quite ready to deliver. Dr Nott had initially told Annie to push, but then advised her to stop.[53]

69. Dr Nott noticed that Annie had an altered mental state[54] and considered sepsis as a diagnosis. Dr Nott knew that if Annie had sepsis that her condition was serious.[55]

70. At approximately 1.45am, Dr Nott left the delivery suite to source the SVPHM 'Management of post-partum infection' guideline to determine the appropriate antibiotic to prescribe. Dr Nott informed the midwife that she would be back in five minutes.[56]

71. Dr Nott initially tried to locate the relevant guideline on the ward but was unable to locate it. She subsequently attended her office in the adjacent building because she knew she had a copy on her desk.[57] She also asked Midwife Codd to contact the intensive care unit (**ICU**) team for assistance.[58]

[49] Statement of Midwife Raechel Marshall, CB 27; Exhibit 4 – Ambulance Victoria Electronic Patient Care Record.
[50] Exhibit 5 – Coloured copy of observation chart at SVPHM; CB 472.
[51] Statement of Midwife Gillian Codd, CB 75-3.
[52] Statement of Midwife Raechel Marshall, CB 27 – 28; SVPHM Patient Progress Report, CB 431.
[53] Statement of Midwife Raechel Marshall, CB 28; SVPHM Patient Progress Report, CB 431.
[54] T 388:19-22.
[55] T 389:2-6.
[56] SVPHM Patient Progress Report, CB 431; Statement of Dr Nott, CB 50.

72. By 1.55am, Annie had lost 580 mls of blood since arrival at SVPHM.[59]

73. At around 2.05am, Dr Nott returned to the delivery suite and wrote up antibiotics for Annie, being IV metronidazole and ceftriaxone. Annie's observations had deteriorated, and she was needing an increasing amount of supplementary oxygen. An ICU doctor had also arrived on the delivery ward and attended to Annie with Dr Nott.[60]

74. At 2.10am, Dr Nott inserted an indwelling urinary catheter for Annie. At 2.12am, Annie delivered her stillborn baby.[61] Between 2:13am and 2.30am, Annie was given syntometrine, ergometrine and a syntocinon infusion for post-partum haemorrhage.[62]

75. In addition, the results of the bloods taken at 1.15am showed that Annie had a low platelet count, renal impairment and disseminated intravascular coagulation.[63] At 2.31am, Annie's first arterial blood gas showed pH 7.217 (range 7.35 – 7.45) and a raised lactate 8.2 of mmol/L.

76. At 2.46am, ceftriaxone was first administered to Annie.[64] At 3.10am, Annie was given IV piperacillin & tazobactam. The delay in administering these antibiotics will be addressed later in this finding.

77. At 3.30am, Dr Nott requested assistance from an anaesthetist and another obstetrician.[65] Annie was peripherally shut down.[66] At 3.50am, Annie was taken to the operating theatre and underwent an examination under anaesthesia and insertion of a Bakri balloon. From this time, Annie remained intubated and ventilated. She was attended by Dr Nott, another obstetrician and two consultant anaesthetists. An arterial line and a central venous line were inserted. Annie was given platelets, cryoprecipitate, fresh frozen plasma, prothrombinex, packed red blood cells, calcium gluconate, dextrose and sodium bicarbonate.[67]

78. At 5.00am, Annie's arterial blood gas showed a pH of 7.030 and at 7.00am Annie was transferred from the operating theatre to ICU at SVPHM. At 8:00am, Annie had a cardiac arrest and was resuscitated.

79. Between 8.30am and 12.45pm, Annie was in the operating theatre for the commencement of extracorporeal membrane oxygenation by a cardiothoracic surgeon and an exploratory laparotomy. She received adrenaline and noradrenaline infusions with bolus doses of vasopressin and adrenaline.

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[57] T 390:9-10.
[58] Statement of Dr Vicki Nott, CB 50.
[59] Statement of Midwife Raechel Marshall, CB 29; SVPHM Patient Progress Report, CB 431.
[60] Statement of Midwife Raechel Marshall, CB 29; Statement of Dr Nott, CB 51.
[61] Statement of Midwife Raechel Marshall, CB 29; SVPHM Patient Progress Report, CB 432.
[62] Statement of Dr Vicki Nott, CB 52; SVPHM Patient Progress Report, CB 432.
[63] CB 638; Haematology Report SVPHM, CB 568; T 103:1-13.
[64] Statement of Dr Vicki Nott, CB 52.
[65] Ibid.
[66] SVPHM Patient Progress Report, CB 434.
[67] SVPHM Patient Progress Report, CB 433 – 435.

80. At a time after 1.00pm, Annie returned to the ICU at SVPHM. Her condition continued to deteriorate.

81. On 15 August 2017 at 1.55pm, Annie sadly passed away.

MATTERS CONNECTED WITH THE DEATH PURSUANT TO SECTION 67(3) OF THE ACT

82. For the reasons set out below, I have not made any findings in relation to Annie's nursing and medical management at HGPH ED and SVPHM. My determinations are rather comments within the meaning of section 67(3) of the Act which provides:

> 'A coroner may comment on any matter connected with the death, including matters relating to public health and safety or the administration of justice.'

83. Notwithstanding the fact that I am not making findings in relation to Annie's nursing and medical management at HGPH ED and SVPHM, it is clear from the evidence before me that there were deficiencies in the care that was provided to Annie and there are several complex and interrelated issues which warrant comment by me.

84. My comments do not address issues which are directly causative of Annie's death but are directed to those issues connected with Annie's death. This includes, but is not limited to, the actions and decisions of those involved in Annie's nursing and medical management at HGPH ED and SVPHM, as well as matters of public health and safety for the improvement of medical services provided to pregnant women with sepsis.

MEDICAL MANAGEMENT AT HOLMESGLEN PRIVATE HOSPITAL

85. Having considered all of the evidence before me, I am satisfied that by the time that Annie's symptoms changed at 10.15pm whilst at HGPH ED, requiring the administration of intravenous antibiotics, there was no nursing or medical management, including the administration of intravenous antibiotics that could have been undertaken that would have prevented her death. My comments and the conclusions that I have reached in relation to Annie's medical and nursing management at HGPH ED are set out in further detail below.

Sepsis pathways and guidelines at HGPH

86. The relevance and use of sepsis pathways and guidelines at HGPH ED and the reasonableness of Dr Shi's diagnosis and treatment of Annie for gastroenteritis were considered at inquest.

87. Dr Raja Barua is the co-director and managing director of HED Ltd, which is a company that provides the doctors required to staff the HGPH ED. This arrangement is under a contract with

Healthscope Ltd the owner and operator of HGPH.[68] HED Ltd is a separate legal entity to HGPH and HGPH ED.

88. In his first statement to the Court in February 2021, Dr Barua attached a copy of an Adult Sepsis Pathway (**ASP**) document from HGPH.[69] The relevance of the ASP in Annie's case is whether the diagnosis of gastroenteritis made by Dr Shi at HGPH ED was reasonable.

89. Dr Barua gave evidence that the ASP was available in the HGPH ED at some time in 2017 and had been '*put up on the walls of the emergency department...in the resus bay*', with a laminated copy also being on the wall in the doctor's station.[70] When pressed as to his recollection of when in 2017 the ASP was displayed at those locations and the communication to hospital staff that accompanied the document being distributed, he was unable to recollect an exact date or if/how the communication would have occurred.[71] He was also unable to recollect whether the ASP may have been there prior to or at the time of Annie's attendance at HGPH ED in August 2017.[72]

90. Dr Barua's evidence was that he does believe that staff would have been advised about the ASP either verbally or by email and that there may have been some training. Dr Barua was confident that '*everyone was notified that there was a sepsis pathway*'.[73] There was no documentary evidence produced of any kind to confirm that staff had been notified about the ASP at HGPH. Dr Barua also confirmed in a supplementary statement to the Court that HED Ltd was not involved in introducing or implementing the ASP at HGPH, including the ED.

91. Ms Katrina Hoskin, a Clinical Care Nurse who previously worked at Knox Private Hospital, provided a statutory declaration to the Court regarding the origins of the ASP. Knox Private Hospital is also owned and operated by HealthScope Ltd.

92. Ms Hoskin's evidence is that she developed the ASP whilst employed as a Clinical Nurse Educator at Knox Private Hospital and that the document attached to Dr Barua's statement is an incomplete copy of a final sepsis management pathway which was for the use of staff in the Knox Private Hospital ED only. Ms Hoskin's evidence is that the final version of the document was not endorsed by HealthScope Ltd but simply displayed in the Knox Private Hospital ED for the staff to use and reference until an endorsed guideline was developed and released.[74]

93. Ms Keryn Hopkins, General Manager of HGPH confirmed that a version of the ASP was displayed at Knox Private Hospital in 2017 and would have likely been available to doctors who worked across

[68] Further statement of Dr Raja Barua, CB 794.
[69] CB 222.
[70] T 232:17-31.
[71] T 233:6.
[72] T 233:1-5.
[73] T 233:16.
[74] Exhibit 2 – Statutory Declaration of Katrina Hoskin dated 15 August 2022.

both hospitals. Ms Hopkins also confirmed that there was no sepsis pathway or guideline in place at HGPH (or Knox Private Hospital) in 2017 which was endorsed and/or distributed by HGPH or Healthscope Ltd.[75]

94. Dr Shi's evidence on whether she did or did not see the ASP, is that she was not aware of the ASP in 2017 and only saw it for the first time when she reviewed the coronial brief and Dr Barua's statement.[76]

95. Having considered the available evidence, including the recollection of Dr Barua, the state of the current evidence does not enable me to determine whether the ASP was displayed in the HGPD ED on 15 August 2017. However, even if it was, I accept the evidence of Dr Shi that she did not see the ASP displayed in the HGPH ED.

96. It appears that in 2017, the HealthScope Ltd procedures for implementing and informing staff of new procedures and guidelines, such as the ASP, lacked rigor and accountability. The dissemination of an important document like the ASP to guide medical staff in diagnosing possible sepsis ought to be accompanied by a rigorous process that ensures the document is implemented company wide, displayed in a prominent location and communication of its existence to staff is also comprehensive.

97. Dr Barua had to rely on his memory over five years later of the availability of the ASP and what may or may not have been laminated and displayed on the wall in the doctor's station and the resuscitation room. This is unsatisfactory.

98. The issues that I have articulated and conclusions I have reached in relation to the ASP, highlight the importance of hospitals maintaining good records and having audit trails which regulate the implementation, adoption, distribution of procedures and guidelines and subsequent version control, including how that information is communication and how staff are trained.

99. At a private hospital such as HGPH there should be, at the very least, an audit trail which confirms the distribution of a document such as the ASP, as well as the communication plan to staff.

Dr Shi's diagnosis of gastroenteritis and management of Annie at HGPH

100. On 14 August 2017, Annie presented to HGPH ED at 7.27pm. It is recorded in the HGPH medical records by nursing staff that Annie presented with profuse vomiting, diarrhea, rigors, she was febrile and had back flank pain with possible food poisoning.[77] Annie was also 18 weeks pregnant with her second child.

[75] Exhibit 8 – Further supplementary statement of Keryn Hopkins.
[76] T 108:19-31.
[77] Holmesglen Private Hospital observation chart, CB 407.

101. Annie was assessed as a triage category 3 which meant that she had to be seen by a doctor within 30 minutes.

102. At approximately 8.00pm, an IV cannula was inserted, and blood was taken for blood cultures, FBE, urea and electrolytes and a CRP. These tests had been authorised by Dr Shi who had signed a prefilled form that had been prepared by nursing staff following the initial assessment of Annie.[78] In addition to the blood tests Dr Shi also ordered paracetamol, ondansetron and intravenous fluids.[79]

103. The history that is recorded by nursing staff and the history taken by Dr Shi differ in some respects. The nursing notes report a history of rigors[80] whilst Dr Shi in her evidence states that Annie told her that she did not have rigors.[81] There is also a discrepancy in relation to the time that Annie's vomiting commenced. The nursing notes record '*1200*'[82] whilst the notes recorded by Dr Shi state '*1700*'.[83] Nursing staff from HGPH were not called to give evidence about this issue and this was not specifically put to Dr Shi. Therefore, I am unable to draw any conclusion but simply note the different account.

104. Dr Shi first saw Annie at 8.30pm in the HGPH ED, approximately one hour after her presentation. This was half an hour after the time that would have been expected for a triage category 3 patient. Dr Shi stated that there are 10 beds in the HGPH ED and there were two patients to be seen before Annie. Although another doctor can be called to assist in the ED when it is busy, she did not consider Annie's symptoms and signs to be of such concern that another doctor was required. In her evidence, Dr Shi conceded that she did not see Annie within the required timeframe.

105. After reviewing Annie at 8.30pm, Dr Shi diagnosed gastroenteritis and the management plan was to commence and treat Annie with IV fluids. An ultrasound examination of the foetus' heart rate was performed by Dr Shi, and this did not reveal any concerns for the baby.[84]

Was the initial diagnosis of gastroenteritis by Dr Shi reasonable?

106. Dr Shi examined Annie for the first time at 8:30pm on 14 August 2017.[85] Following that examination and consideration of Annie's observations, Dr Shi made a diagnosis of gastroenteritis and provided appropriate treatment.

107. In her evidence, Dr Shi explained why she considered her diagnosis of gastroenteritis to be reasonable and appropriate. The objective clinical signs that are relevant to a consideration as to

[78] T 59:17-25.
[79] Statement of Dr Hui Shi, CB 9.
[80] Holmesglen Private Hospital observation chart, CB 407.
[81] T 66:1-16.
[82] Holmesglen Private Hospital observation chart, CB 407
[83] Statement of Dr Hui Shi, CB 9; Holmesglen Private Hospital, CB 401.
[84] Statement of Dr Hui Shi, CB 9 [3.1(n)].
[85] Statement of Dr Hui Shi, CB 9 [3.1(j)].

whether gastroenteritis was a reasonable diagnosis or whether sepsis should have been considered are:

- at 8.00pm: temperature 40.3°C, HR 112, RR 20, BP 104/62 mmHg, O_2 sats 100% on room air, pain score either 5/10 or 8/10,
- at 8.18pm, HR 115, RR 18, BP 96/57 mmHg, O_2 sats 100%,
- at 8.30pm, HR 117, RR 18, BP 116/76 mmHg, O_2 sats 100% on room air, pain score of 5/10 or 8/10, and
- at 9.30pm, BP 96/57 mmHg.

108. Expert medical evidence was sought to determine whether Dr Shi's diagnosis of gastroenteritis was appropriate. I will deal with the various considerations which relate to this diagnosis in turn.

109. At the time that Annie presented to HGPH ED, her heart rate was 100bpm and her respiratory rate was 20bpm. Dr Shi did not consider either of these observations to increase the risk that Annie had sepsis.[86]

110. There was no expert opinion to indicate that Annie's heart rate and/or respiratory rate were of particular concern at the time of the initial diagnosis by Dr Shi. However, both Annie's temperature and blood pressure were relevant.

111. In her evidence, Dr Shi agreed that the nursing documentation showed Annie to have had a temperature of 40.3°C when she arrived in the HGPH ED, and that Dr Shi signed a prefilled form for bloods cultures and a full blood examination. In her evidence, Dr Shi acknowledged that the only reason for taking blood cultures is to look for septicaemia in a patient.[87] Notwithstanding this, Dr Shi said that she did not consider that a temperature of 40.3°C to be an indication of a risk of sepsis.[88]

112. Dr David Eddey, an emergency physician, provided expert evidence to the effect that Annie's persistent high temperature despite administration of paracetamol was and is a marker for sepsis.[89] Professor George Braitberg, another emergency physician, said that while Annie's temperature was a bit high, it was coming down while she was in the ED and that he had seen patients with a temperature of 38.5°C with gastroenteritis.[90]

[86] T 69:7-9; T 86 – T 87.
[87] T 64:29-31.
[88] T 69:1-6.
[89] T 517:27 – T 518:3.
[90] T 514:12-20.

113. Annie's blood pressure was measured on two occasions during her time at HGPH ED as being 96/57 mmHg. Dr Shi said that she relied on Annie's mean arterial blood pressure and did not consider that an individual reading of systolic blood pressure below 100mmHg to be an indicator of risk of sepsis.[91] Dr Shi also said that all of a patient's vital signs should be considered and not just their blood pressure, including her heart rate and oxygen saturation.[92]

114. There is no consensus view from the experts as to the relevance of Annie's blood pressure to the diagnosis of sepsis. Professor Braitberg did not consider that there was consistent hypotension in between the two episodes of Annie's systolic blood pressure being below 100mmHg. He also commented that there are other factors which can affect a reading of systolic blood pressure including the way in which it was taken.[93] Dr Eddey, in his evidence stated that Annie's blood pressure readings could be consistent with gastroenteritis or sepsis.[94]

115. I have already accepted Dr Shi's evidence that she was not aware of the ASP at the time of treating Annie. In her evidence, Dr Shi said that she assessed Annie's signs and symptoms against the SOMANZ guidelines (which were published in 2017) and are specifically modified for use in pregant women, as well as the qSOFA guideline and her own knowledge.

116. The qSOFA is one of a suite of clinical tools, including the SOFA, qSOFA, lqSOFA, omSOFA and omqSOFA. Dr Eddey said that the SOFA tools are not used for predicting sepsis and are rather used for patients who are suspected to be septic to predict bad outcomes.[95] Dr Eddey is not aware of the SOFA tools being used in isolation to determine whether a patient should or shouldn't be investigated for sepsis.[96] Dr Braitberg said that the SOFA tools are not for use in EDs, but for Intensive Care Unit (**ICU**) patients.[97] This is supported by Dr Eddey who said that the qSOFA is not a screening tool and not a score for determining sepsis.[98]

117. Dr Shi said that as she applied the qSOFA criteria to guide her in assessing Annie, and as her clinical observations did not meet the criteria in the qSOFA tool, she concluded that Annie had gastroenteritis and not sepsis. This is despite Annie being very unwell which according to Dr Eddey warranted the consideration of a differential diagnosis[99]. There is also support from the experts Dr Eddey and Professor Braitberg that Dr Shi should have known the limitations of the SOFA suite of tools, and they should not have been relied upon as a screening tool in assessing Annie.[100] Dr Eddey also said

[91] T 69:23 – T 70:4.
[92] T 107:23-27.
[93] T 513:11-16.
[94] T 515:29 – T 516:16.
[95] T 567:8-16.
[96] T 503:20-27.
[97] T 509:28-29.
[98] T 567:8-16.
[99] Statement of Dr David Eddey, CB 119.
[100] T 568:3-14.

that regardless of the presence of a sepsis pathway or guideline, he would expect an emergency physician to be aware of the signs and symptoms of sepsis.

118. It is also relevant in considering Dr Shi's diagnosis of gastroenteritis that at 9.30pm, when Dr Shi reviewed Annie for the second time, Dr Shi says that Annie reported that she was feeling better and thought that she may be able to manage going home.[101] Dr Shi considered the more prudent course was for Annie to stay in hospital overnight and continue with IV fluid and observation[102] with this being the usual practice in the private hospital setting. There is no contemporaneous note made by Dr Shi in the HGPH medical record of this discussion between Dr Shi and Annie.

119. Professor Braitberg stated that at 9.30pm when Annie reported feeling better and had responded to the fluids that she had been given, the diagnosis of gastroenteritis was reasonable.[103] Dr Eddey did not comment on the relevance of Annie's improvement at 9.30pm.

120. Having reviewed all the evidence relevant to the initial diagnosis of gastroenteritis, I have concluded that Dr Shi's diagnosis of gastroenteritis on admission was reasonable, albeit Dr Shi should have been aware of the signs and symptoms of sepsis and known the limitations of the SOFA suite of tools and that Dr Shi should not have relied upon it as a screening tool for Annie.

Annie's changed symptoms at 10.15pm

121. Annie's improvement at 9.30pm was short lived. At around 10.15pm, Annie was observed to be moaning in bed and complaining of severe back pain with minor abdominal pain increasing.[104] She was examined again by Dr Shi and prescribed morphine for the pain.[105] On the return of the back pain, Dr Shi did give consideration to the possible cause of the pain. Her evidence was to the effect that the pain was likely postural, that is due to the vomiting and diarrhoea forcing Annie into awkward positions which in turn was the cause of the back pain.[106] Dr Shi also considered that miscarriage was a possible cause of the pain in the back and stomach.[107] Whilst she considered the pain unusual in a case of gastroenteritis, she did not consider it unusual in a pregnant woman.[108]

122. When asked about the onset of back pain that Annie experienced at 10.15pm, Dr Eddey said that significant back pain and new back pain were concerning symptoms and not consistent with straightforward gastroenteritis.[109] Professor Braitberg acknowledged that, while he has seen patients

[101] Statement of Dr Hui Shi, CB 12 [9(a)]; T 78:12-13.
[102] Statement of Dr Hui Shi, CB 9 [3.1(p)]; T 177:19 – 178:3; T 179:1-5.
[103] T 501 – T 502.
[104] Statement of Dr Hui Shi, CB 10 [3.1(u)]; T 50:8-18.
[105] Statement of Dr Hui Shi, CB 10 [3.1(t)].
[106] T 73:8-18.
[107] T 72:26 – T 73:1.
[108] T 72:16-24.
[109] T 516:21 – T 517:13.

who have had morphine for gastroenteritis and abdominal cramping, it is nevertheless a concern.[110] Professor Braitberg considered sepsis to be the diagnosis to exclude at 10.15pm and thereafter when Annie had an ongoing morphine requirement and ruptured her membranes.[111]

123. The expert evidence of Dr Eddey and Professor Braitberg supports the conclusion that from 10.15pm with the change in Annie's condition (with developing back pain requiring treatment with morphine, in the setting of her systolic blood pressure and her temperature), Dr Shi should have reconsidered her diagnosis of gastroenteritis and turned her mind to other possible diagnosis including sepsis. In the words of Professor Braitberg, it was the diagnosis to exclude in the light of the changed conditions. Dr Shi did not do this.

124. Dr Shi, through her Counsel, did acknowledge with the benefit of hindsight that her maintenance of a diagnosis of gastroenteritis and the fact that she did not reconsider sepsis between 10.15pm and 11.40pm may be consistent with confirmation bias or cognitive bias.[112]

Comment 1: Gastroenteritis was a reasonable diagnosis for Dr Shi to make until 10.15pm on 14 August 2017. Dr Shi should have known that Annie's severe back pain requiring morphine was not consistent with gastroenteritis.

Comment 2: Dr Shi should have reconsidered the diagnosis of gastroenteritis from 10.15pm being the time of the onset of Annie's severe back pain. Dr Shi did not do so.

Rupture of Membranes

125. Annie ruptured her membranes at 11.30pm.[113] The expert evidence on this issue supports the conclusion that at this time Dr Shi should have considered a different diagnosis to her initial diagnosis of gastroenteritis, if this had not already been considered by Dr Shi with the onset of Annie's severe back pain at 10.15pm.

126. Dr Shi did not consider chorioamnionitis as a possible diagnosis on the basis it was inconsistent with Annie's presentation of profuse watery diarrhoea and vomiting, no history of vaginal discharge, uterine or abdominal pain. Annie's fluid discharge was clear like urine and there was no foul smell. In addition, Dr Shi considered that Annie had no risk factors for chorioamnionitis, such as prolonged

[110] T 513:28 – T 514:6.
[111] T 515:6-19.
[112] T 816:5-10.
[113] Statement of Dr Hui Shi, CB 10 [3.1(bb)].

membrane rupture, prolonged labour, multiple vaginal exams, sexually transmitted diseases, colonisation with group B streptococcus, or alcohol and drug abuse.[114]

127. Dr Shi considered that Annie ruptured her membranes consequent to gastroenteritis.[115] With the benefit of hindsight, Dr Shi considered that she should have turned her mind to whether gastroenteritis was not the cause of Annie's ruptured membranes.[116]

128. Both Professor Braitberg and Dr Eddey in their evidence said that Annie's rupture of membranes was not consistent with gastroenteritis[117] According to Professor Braitberg, between 10.15pm with the onset of Annie's severe backpain and 11.30pm with the rupture of membranes, Dr Shi was required to consider an alternative diagnosis to gastroenteritis for Annie.[118]

129. On the basis of the opinions of Professor Braitberg and Dr Eddey, I consider that Dr Shi should have been aware that Annie's rupture of membranes was not consistent with gastroenteritis and that when Annie ruptured her membranes at 11.30pm, Dr Shi was required to consider an alternative diagnosis to gastroenteritis.

Comment 3: Dr Shi should have known that Annie's rupture of membranes at 11.30pm was not consistent with gastroenteritis and ought to have reconsidered the diagnosis of gastroenteritis. Dr Shi did not do so.

At what time should Dr Shi have administered antibiotics to Annie at HGPH ED?

130. Annie did not receive antibiotics whilst at HGPH ED. Dr Shi gave evidence to the effect that she did not consider Annie to require antibiotics as she did not suspect that Annie had sepsis.[119] Dr Shi acknowledged that with the benefit of hindsight, she should have considered sepsis as another possible cause of Annie's rupture of membranes and that in those circumstance she would have administered antibiotics.[120]

131. Professor Braitberg said that after Annie ruptured her membranes, Dr Shi was required to administer broad spectrum antibiotics for the risk of chorioamnionitis and ascending infection.[121] The antibiotics

[114] Statement of Dr Hui Shi, CB 12 [9(f)].
[115] T 81:13-28.
[116] T 82:6-8; T 118:7-17.
[117] T 515:1-5; T 518:4-6.
[118] T 547:30 – T 548:10.
[119] T 96:31 – T 97:5.
[120] T 118: 10-17.
[121] T 547:30 – T 548:10.

to be administered in Professor Braitberg's opinion were to be amoxycillin, metronidazole and to consider gentamicin if pyelonephritis was considered because of Annie's backpain.[122]

132. Dr Eddey, in agreeing with Professor Braitberg, stated that IV antibiotics should have been given to Annie as soon as it became apparent that she was deteriorating beyond a diagnosis of simple gastroenteritis.[123] Dr Lucy Bowyer and Professor Mark Umstad agreed with the evidence of Professor Braitberg and Dr Eddey.[124]

133. On the basis of the expert evidence, I consider that Dr Shi should have known that gastroenteritis was not likely to be the cause of Annie's ruptured membranes and at the time her condition changed, Dr Shi should have known to prescribe IV antibiotics to Annie.

Comment 4: When Annie ruptured her membranes at 11.30pm, Dr Shi should have known to prescribe broad spectrum intravenous antibiotics for Annie. Dr Shi did not do so.

The requirement for a lactate

134. The evidence shows that a lactate could have been performed at any time from when Annie presented to HGPH ED at 7:27pm to the time she was transferred to SVPHM at 11.58pm. Dr Shi gave evidence that there was a blood gas machine available for use in the ICU at HGPH and it was available to her or someone that she deputised to undertake a lactate.[125] The timing and the number of tests that should have been undertaken is not agreed among the experts.[126]

135. I have already accepted Dr Shi's evidence that she was not aware and had not seen the ASP at the time she treated Annie on 14 August 2017. Notwithstanding this, the expert evidence supports a conclusion that it is likely that had Dr Shi assessed Annie's symptoms against the ASP, that it would have indicated the requirement for a lactate to be undertaken at or around 8.30pm on 14 August 2017.[127] A lactate, if conducted, may have indicated an early diagnosis of sepsis and prompted appropriate administration of antibiotics.

136. In his evidence, Dr Eddey said that undertaking a serum lactate allows clinicians to identify patients on a poor trajectory including those with sepsis, but it does not necessarily change the outcome. Dr Eddey was also of the opinion that Dr Shi ought to have considered performing a lactate when Annie

[122] T 548:14-22.
[123] T 548:26 – T 549:5.
[124] T 549:10-20; T 550:3-5.
[125] T 164:7 – T 165:9.
[126] T 519 – T 520.
[127] T 502:20-29; T 502:31 – T 503:3.

first arrived at HGPH ED, irrespective of any sepsis pathway.[128] In the setting where this did not occur, Dr Shi should have performed a lactate when Annie's symptoms changed with the development of severe backpain and certainly when Annie ruptured her membranes. [129]

137. In her evidence, Dr Shi said that she did not perform a lactate as she did not consider Annie to be septic. However, Dr Shi conceded that with the benefit of hindsight she should have performed a lactate when Annie presented to HGPH ED, which could have been repeated after rehydration.[130]

138. Professor Braitberg in his evidence said that a lactate should have been performed when Annie had severe back pain at 10.15pm. This is not consistent with the view expressed in his amended reports in which he states that two lactates would be preferable with the first being performed around the time Annie presented to HGPH ED and the second after rehydration.[131]

139. Dr Shi did not disagree with Professor Braitberg's opinion on this issue.[132]

140. I am satisfied that Dr Shi, as a qualified emergency physician, should have considered performing a lactate at the time that Annie presented to HGPH ED. As this was not done, Dr Shi should have performed a lactate at the time that Annie's symptoms changed with the onset of severe back pain, and certainly when Annie ruptured her membranes.

Comment 5: Dr Shi as a qualified emergency physician should have considered performing a lactate when Annie arrived at HGPH ED. In a setting where this did not occur, Dr Shi should have performed a lactate when Annie's symptoms changed with the development of severe back pain at 10.15pm and certainly when Annie ruptured her membranes at 11.31pm. Dr Shi did not do so.

Annie's urine output

141. Dr Shi gave evidence that she observed Annie moving to the bathroom on regular occasions and that she therefore believed that Annie was passing urine.[133] Dr Shi is unable to recall if she asked Annie whether she had passed urine. At no time were nursing staff asked to record Annie's urine output and no record of this was kept.[134]

[128] T 519:27 – T 520:7.
[129] T 519 – T 520.
[130] T 93:18-27.
[131] Exhibit 3 – Amended Expert Medical Opinions of Professor Braitberg.
[132] T 149 – T 150.
[133] T 61:8-19; T 206:2-21.
[134] T 63:12-15; T 64:9-14.

142. Midwife Raechel Marshall (Midwife at SVPHM) said that Annie reported to her that she had not passed urine since 5.00pm the previous day.[135] This is consistent with Dr Nott's evidence that she was not provided with any information regarding Annie's urine output at HGPH ED during her first phone call with Dr Shi at 11.21pm.[136]

143. It is Dr Eddey's opinion that Dr Shi could not rely on observing Annie going into the bathroom as evidence of either her urine output or that she was passing urine.[137] Dr Eddey also said that urine output is often used as an indicator of a patient's fluid or hydration status which can be relevant in diagnosing sepsis.[138] I accept this opinion of Dr Eddey.

144. I am satisfied that the evidence supports a conclusion that Annie did not pass urine in the HGPH ED, Dr Shi did not instruct the nursing staff to measure Annie's urine output and her urine output was not measured by nursing staff. I consider that Dr Shi should have instructed nursing staff to monitor Annie's urine output whilst in the HGPH ED. If this had been monitored and recorded it may have been another useful input into Annie's diagnosis.

Comment 6: Annie did not pass urine in the HGPH ED, and this was not identified by Dr Shi or nursing staff.

Comment 7: Dr Shi should have instructed nursing staff to monitor and measure Annie's urine output during her stay in the HGPH ED.

CONCLUSIONS REGARDING DR SHI'S MANAGEMENT OF ANNIE AT HGPH ED

145. The conclusions that I have reached in relation to Dr Shi's management of Annie at HGPH ED, are as follows:

- Dr Shi's initial diagnosis of gastroenteritis was reasonable based on the history and symptoms that Annie presented with at HGPH ED.
- I am satisfied that it was reasonable for Dr Shi to persist with the diagnosis of gastroenteritis until 10.15pm when Annie's symptoms changed, and she developed severe back pain requiring morphine. This is particularly relevant in the context of Annie reporting that she was feeling better at 9.30pm and that she was considering going home.

[135] Statement of Midwife Raechel Marshall, CB 26; T 351:18-27.
[136] T 382:6-7.
[137] T 522.
[138] T 521 – T 522.

- Dr Shi should have known that Annie's rupture of membranes at 11.30pm was not consistent with gastroenteritis. Dr Shi ought to have reconsidered the diagnosis of gastroenteritis. Dr Shi did not do so.

- When Annie ruptured her membranes at 11.30pm, Dr Shi should have known to prescribe broad spectrum antibiotics for Annie.

- Dr Shi, as a qualified emergency physician, should have considered performing a lactate when Annie arrived at HGPH ED. In a setting where this did not occur, Dr Shi should have performed a lactate when Annie's symptoms changed with the development of severe back pain at 10.15pm and certainly when Annie ruptured her membranes at 11.30pm.

- Dr Shi should have instructed nursing staff to monitor and measure Annie's urine output during her stay in the HGPH ED.

- Annie did not pass urine in the HGPH ED and this was not identified by Dr Shi or nursing staff.

COMMUNICATION BETWEEN DR SHI AND DR NOTT

146. Dr Shi had two telephone conversations with Annie's obstetrician, Dr Nott on 14 August 2017. The first of those phone calls was at 11.21pm and the second phone call was at 11.31pm. As a result of those phone calls, a decision was made by Dr Shi and Dr Nott to transfer Annie to SVPHM.

FIRST PHONE CALL AT 11.21PM ON 14 AUGUST 2017

147. Dr Shi's evidence is that she was concerned that Annie's change in symptoms (onset of severe back pain at 10.15pm) were the early stages of miscarriage which prompted her to call Dr Nott on the first occasion.[139] Dr Shi and Dr Nott agree on the content of some parts of the conversation but there are critical areas where they do not agree.

148. What is agreed can be summarised as follows:

    a) Dr Shi told Dr Nott that she was an emergency physician at HGPH ED, and that Annie had presented with gastroenteritis, with vomiting and diarrhoea after eating a chicken salad for lunch. Annie had received IV fluids and paracetamol. An ultrasound examination performed by Dr Shi showed that the baby was fine.

[139] Statement of Dr Hui Shi, CB 10 [3.1(w)]; T 120:1-5.

b) Dr Shi did not tell Dr Nott that Annie had rigors, (Dr Shi was not aware that Annie reported rigors).[140] Dr Shi did not tell Dr Nott that Annie had a temperature of 38.5°C after paracetamol.[141]

c) Dr Shi does not think that she told Dr Nott that Annie had had two instances where her systolic blood pressure was below 100 mmHg.[142] Dr Nott said that Dr Shi did not tell her that Annie had had two instances where her systolic blood pressure was below 100 mmHg.[143] Dr Shi cannot recall if she told Dr Nott of Annie's blood pressure at all.[144]

d) Dr Shi did not tell Dr Nott that blood cultures had been taken.[145] Dr Shi does not think, and has no recollection, that she told Dr Nott that Annie had received morphine.[146] Dr Nott said that Dr Shi did not tell her that Annie had received morphine.[147]

149. The areas of disagreement between Dr Shi and Dr Nott are as follows:

a) Dr Shi said that she told Dr Nott that Annie had a temperature of 40.3°C.[148] Dr Nott denies being told that Annie's temperature had been 40.3°C.[149] Dr Nott did not ask Dr Shi what Annie's temperature was. [150]

b) Dr Shi said that she told Dr Nott that a FBE had been done.[151] Dr Shi presumes that she told Dr Nott that urea and electrolytes had been done but she cannot recall.[152] Dr Nott said that Dr Shi did not tell her that any blood tests had been done.[153] Dr Shi said that Dr Nott did not ask about Annie's blood pressure or urine output[154] and Dr Shi does not think that Dr Nott asked about Annie's state of hydration.[155]

c) Dr Shi told Dr Nott that she was worried that Annie might miscarry and asked if Annie could be transferred to Dr Nott's care and that Dr Nott declined transfer.[156] Dr Shi said that Dr Nott told her that if Annie did miscarry, the baby would not be viable, so Annie could remain at HGPH and would likely improve by tomorrow.

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[140] T 121:1-2.
[141] T 121:10-12.
[142] T 121:27-29.
[143] T 369:15-17.
[144] T 121:30-31.
[145] T 122:1.
[146] T 122:8-13.
[147] T 369:18-26.
[148] Statement of Dr Hui Shi, CB 10 [3.1(y)]; T 121:8-9.
[149] Statement of Dr Vicki Nott, CB 46; T 367:23-24.
[150] T 375:15-16; T 444:11-16.
[151] T 122:2.
[152] T 122:3-4.
[153] Statement of Dr Vicki Nott, CB 47; T 369:12-14.
[154] T 124:11 – is this correct?
[155] T 124:12-13.
[156] T 120:15-25; T 191:30 – T 192:3.

d) Dr Shi said Dr Nott said that there was no need for Annie to be transferred to SVPHM. Dr Nott said that there was no discussion regarding miscarriage during the first phone call with Dr Shi,[157] and Dr Shi did not request admission for Annie to SVPHM during the first call.[158] Dr Nott considered that the first call from Dr Shi seemed to be a courtesy call.[159] Dr Shi stated that she would not make a courtesy call for a specialist not at HGPH at 11.00pm and that she would only call a specialist outside of her hospital if she had concerns.[160]

e) In addition, Dr Nott said that she asked if they were happy that this was '*simple* gastro' and Dr Shi said, yes.[161] Dr Nott said that she does not recall if Dr Shi informed her that Annie had back flank pain.[162] Dr Nott said that she asked if Annie was being discharged and Dr Shi said as Annie was tired, they could keep her overnight.[163]

150. This disagreement and the inconsistencies in recollection of both Dr Shi and Dr Nott regarding the content of the first phone call is concerning. It is reasonable to expect that two experienced medical practitioners would be able to have an important conversation about a mutual patient and leave it with a shared understanding as to the purpose of the call and agree on the information conveyed.

151. Dr Eddey said that it is the responsibility of the referring doctor to provide full clinical information, including blood test results, observations and the trend in the patient's illness to the doctor to whom the patient is being transferred.[164] Professor Braitberg agreed with Dr Eddey.[165] I accept this opinion.

152. I accept at the very least that the purpose of Dr Shi's first call to Dr Nott was to relay concerns in respect of Annie to her treating obstetrician.

153. I am not able to resolve the issue of the different recollections of Dr Shi and Dr Nott on the available evidence. Nevertheless, it is clear that critical information about Annie's condition was either not conveyed by Dr Shi or was conveyed but misunderstood by Dr Nott, resulting in Dr Nott not fully understanding Annie's clinical condition at HGPH ED.

SECOND PHONE CALL AT 11.31PM ON 14 AUGUST 2017

154. The second phone call between Dr Shi and Dr Nott was made at 11.31pm with the update from Dr Shi that Annie's membranes had ruptured. The relevant aspects of this second call are:

[157] T 367:5-12.
[158] T 367:12-14; T 368:5-7.
[159] Statement of Dr Vicki Nott, CB 46.
[160] T 184:6-7.
[161] T 407:5-6.
[162] T 368:8-9.
[163] Statement of Dr Vicki Nott, CB 46.
[164] T 616:11-17; T 529:14-26; T 532:2-5.
[165] T 530:29-31.

a) Dr Shi and Dr Nott agree that Dr Shi said that Annie's membranes had ruptured, and that Dr Nott agreed to accept transfer of Annie to SVPHM;[166]

b) Dr Nott did not enquire about Annie's temperature, blood pressure, oxygen saturations, respiratory rate, fluid resuscitation and urinary output;[167]

c) Dr Shi said that she told Dr Nott that a miscarriage was occurring;[168] and

d) Dr Shi said that it was agreed that the transfer was urgent[169] and that it was a medical emergency.[170] In contrast, Dr Nott said that:

- there was no suggestion of urgency,[171]
- she was unaware that an urgent transfer had been arranged, and
- she was not told that this was a medical emergency.[172]

e) Dr Nott said that she suggested an ambulance because Annie was exhausted and had an IV and thus could not get into her husband's car.[173]

155. Dr Nott said that she expected all relevant information to be provided to her by Dr Shi, although accepted that a handover of care from one specialist to another does not involve one doctor playing an active role and the other doctor playing a passive role.[174]

156. It is unacceptable that there is again a difference in understanding between the two doctors of critical information relevant to Annie's condition and transfer from HGPH ED to SVPHM. Two experienced doctors should be able to communicate effectively and while they may blame each other as being the source of this miscommunication, that is unhelpful. Miscommunications such as this simply should not happen.

157. Prior to Dr Nott being informed of the rupture of membranes, I accept that it was reasonable for Dr Nott to rely on Dr Shi's handover, including the diagnosis of gastroenteritis, where Dr Shi is an emergency physician, the given information sounds like a case of routine gastroenteritis without going through a list of the patient's vital signs, and if Dr Nott was not informed that Annie had a fever, back pain, a BP of 96/57 on two occasions, that blood cultures, FBE, urea and electrolytes,

[166] Statement of Dr Vicki Nott, CB 46.
[167] T 444:14-22.
[168] Statement of Dr Hui Shi, CB 10 [3.1(cc)].
[169] Statement of Dr Hui Shi, CB 10 [3.1(cc) & (dd)]; T 122:14-23; T 190:19-23.
[170] T 192:14-17.
[171] Statement of Dr Vicki Nott, CB 49.
[172] Statement of Dr Vicki Nott, CB 46.
[173] T 369:27 – T 370:5.
[174] T 444 – T 445.

CRP were done or that morphine had been given.[175] Obstetricians Professor Umstad and Dr Bowyer said that it was reasonable for Dr Nott to accept Dr Shi's diagnosis during the first phone call. I accept this opinion.

Comment 8: Prior to Dr Nott being informed of the rupture of membranes, it was reasonable for Dr Nott to rely on Dr Shi's volunteered information and diagnosis of gastroenteritis. This is on the basis that Dr Shi is an emergency physician and that the information given sounded like a case of routine gastroenteritis, without Dr Nott being required to go through the list of the patient's vital signs.

REASONABLENESS OF ANNIE'S TRANSFER TO SVPHM

158. Dr Nott's evidence is that had she known or been told by Dr Shi that sepsis or critical illness was suspected, Annie had a significant temperature, urgent transfer had been arranged or it was a medical emergency, she would not have accepted Annie's transfer to SVPH. [176] Dr Nott also said that if she had been told that a serious infection or sepsis was suspected, or that Annie had a temperature of 40°C, she would have advised Dr Shi to treat with antibiotics, admit Annie to HGPH ICU or transfer her to the nearest hospital such as Monash Medical Centre with the required medical facilities.[177]

159. Dr Shi's evidence was that had Dr Nott not accepted Annie into her care on 14 August 2017, she would have transferred Annie to Monash Medical Centre for treatment at a tertiary level obstetric unit. However, Dr Shi had not considered an alternative diagnosis of sepsis or that Annie was that unwell. Due to this, she did not consider sending Annie to a tertiary referral centre instead of SVPHM, prior to, or after consulting with Dr Nott.[178]

160. Both Dr Eddey and Professor Braitberg agree that if there had been any concern about either the delivery or Annie's wellbeing, transfer to a tertiary referral centre would have been appropriate.

161. There is no expert evidence before the Court that explicitly or indirectly supports the conclusion that Annie should have been transferred to a tertiary referral centre instead of SVPHM. Therefore, I am unable to reach a conclusion on this issue.

[175] T 533:23 – T 535:4; T 538:28 – T 539:13; T 544:4-9; T 537:7-12.
[176] T 407 – T 408.
[177] Statement of Dr Vicki Nott, CB 54; T 415:2-14.
[178] T 139 – T 140; T 216.

INFORMATION PROVIDED BY HGPH AND SVPHM AT THE TIME OF ANNIE'S TRANSFER

162. Whilst the communication between Dr Shi and Dr Nott resulted in no shared understanding of Annie's clinical condition, the communication between the nursing staff at HGPH ED and SVPH did convey information that was relevant to Annie's treatment and condition.

163. In her statement to the Court, Karen Clark, Chief Executive Officer at SVPHM states:

> 'Between 2330 – 2340 hours the [SVPHM] clinical co-ordinator received a telephone call from the transferring health service Emergency Department [Associate Nurse Unit Manager] (**ANUM**), advising that Mrs O'Brien, a private patient of [Dr Nott]…had presented with gastroenteritis, a spontaneous rupture of membranes (SROM)…at 18 weeks gestation, was febrile, and was leaving for a transfer to [SVPHM]'.

164. Ms Clark continues:

> 'The phone call was then transferred to the SVPHM delivery suite, and a handover was provided by the transferring service ANUM to the SVPHM ANUM. The discussion centred around Mrs O'Brien's earlier presentation to the Emergency Department with gastroenteritis and SROM. The information provided was to the effect that Mrs O'Brien was 18 weeks pregnant, was suffering from gastroenteritis, had a SROM, a blood loss of 250-300mls and had a temperature of 40 degrees.[179]

165. In her evidence, the midwife in charge of the labour ward at SVPHM, Gillian Codd, said that she had no recollection of having a discussion with any staff member from HGPH regarding Annie.[180] Midwife Codd did not disagree with the statement of Ms Clark, in which it is stated that before Annie arrived at SVPHM, a handover was given to the SVPHM ANUM (being Midwife Codd) that included the information to the effect that Annie was 18 weeks pregnant, was suffering from gastroenteritis, had ruptured her membranes, had a blood loss of 250 to 300 mls and had a temperature of 40°C at HPGH.[181] Midwife Marshall does not recall receiving or reading any documentation from HGPH whilst Annie was at SVPHM.

[179] Statement of Ms Karen Clark, CB 55 – 56.
[180] Statement of Midwife Gillian Codd, CB 75-2; T 298:5-9; T 307:4-10; T 308:1-20.
[181] T 308:20-29.

166. In her evidence, Dr Shi said that all notes from HGPH, including drug charts, IV Fluid and vital signs were copied and sent to SVPHM with Annie.[182] Midwife Codd said that she recalled a transfer letter from HGPH ED and that is how she became aware of Annie's temperature of 40°C.

167. Midwife Codd also confirmed that when a transfer occurs from one hospital to another, the full suite of information provided by the transferring hospital is incorporated into the receiving hospital's medical record. In Annie's case, the HGPH ED records were incorporated into the SVPHM medical records which were provided to the Court.

Comment 9: Prior to Annie's transfer from the HGPH ED to SVPHM, a handover (telephone call) regarding Annie was given by a nurse in the HGPH ED to the SVPHM ANUM, being Midwife Codd, which included information that Annie was 18 weeks pregnant, was suffering from gastroenteritis, had ruptured her membranes, blood loss of 250 – 300mls and a temperature of 40°C at HGPH ED.

Comment 10: On 15 August 2017, Annie's medical records, including her observation charts, drug charts and clinical notes were transferred from HGPH ED to SVPHMM with Annie.

ST VINCENT'S PRIVATE HOSPITAL MELBOURNE

168. Having considered all the available evidence, I am satisfied that by the time Annie arrived at SVPHM at 12.30am on 15 August 2017, her clinical condition was so serious that there was no medical or nursing management that could have been undertaken that would have prevented her death. My comments and the conclusions that I have reached in relation to Annie's medical and nursing management at SVPHM are set out in detail below.

THE ESCALATION OF MEDICAL CARE AT SVPHM FROM 12.30AM AND 1.30AM ON 15 AUGUST 2017

169. Midwife Marshall stated that when Annie arrived at the delivery suite at SVPHM, she appeared very unwell, was shivering and having rigors with a respiratory rate of 20. [183] At 12:30am on 15 August 2017, Midwife Marshall took Annie's vital sign observations, recorded as temperature 39.0ºC, heart rate 114, respiratory rate 25, blood pressure 110/70 mmHg and O_2 stats on room air 91%.[184] She had

[182] T 124:15-28.
[183] Statement of Midwife Raechel Marshall, CB 25.
[184] Statement of Midwife Raechel Marshall, CB 27.

moderate vaginal blood loss.[185] Annie said that she had not passed urine since 5.00pm the previous day. [186]

Telephone call between Midwife Codd and Dr Nott

170. At approximately 12.40am on 15 August 2017, Midwife Codd spoke with Dr Nott and advised that Annie had arrived at SVPHM labour ward. Dr Nott and Midwife Codd agree on the content of some parts of the conversation but there are some areas where they do not agree. The information conveyed during that conversation can be summarised as follows:

- Midwife Codd said that she advised Dr Nott that Annie had moderate vaginal loss, a temperature of 39.0°C, and a heart rate of 112/min or had tachycardia.[187]

- Dr Nott said that the sentiment of the call was one of surprise, for two reasons. The first being that Annie had arrived at SVPHM far quicker than she expected[188] and the second that she had presented with the temperature that she did. [189] In her evidence, Dr Nott maintained her position that she was unaware that Annie had a raised temperature at HGPH ED and considered it to be a new symptom upon presentation at SVPHM.[190] Midwife Codd told the Court that when Annie's observations had been taken at SVPHM, she knew that Annie's temperature had been 40°C at HGPH.[191] Dr Nott said that she was not told that Annie had rigors and shivering by Midwife Codd.[192]

- Midwife Codd told the Court that she was not particularly surprised when Annie arrived at SVPHM 45 minutes after Dr Nott's initial call to the labour ward to advise of Annie's transfer.[193]

- Midwife Codd said that she would have told Dr Nott that Annie's respiratory rate was increased and that her respiratory rate was 28/min.[194] In her evidence, Dr Nott said that she was confident that she was not told of Annie's respiratory rate by Midwife Codd and that she did not ask about Annie's respiratory rate.[195]

[185] Statement of Midwife Raechel Marshall, CB 26.
[186] Statement of Midwife Raechel Marshall, CB 26.
[187] Statement of Midwife Gillian Codd, CB 75-3; SVPHM Patient Progress Report, CB 431; T 550:25 – T 551:1.
[188] T 375:24-28.
[189] T 376:1-9.
[190] T 376.
[191] T 312:28-31.
[192] T 378:24-26.
[193] T 275:12-13.
[194] T 266:20-26.
[195] T 379.

- Midwife Codd said that, during this phone call, she told Dr Nott that she was very seriously worried about Annie's condition,[196] and that with a temperature that high, Annie was more seriously ill than with gastroenteritis.[197] She also said that she told Dr Nott that Annie was more unwell that she thought she was going to be, but that Annie was not seriously unwell at that stage.[198] Dr Nott said that she was not advised by Midwife Codd of her concerns that Annie was seriously unwell.[199]

- Midwife Codd said that she was aware of Annie's oxygen saturation of 91% at the time of her call to Dr Nott[200], and that she would normally tell all of the observations that she had on hand, but she has no recollection of advising Dr Nott about Annie's oxygen saturation.[201] Dr Nott was confident that she was not made aware of Annie's oxygen saturation and says that she if she had been so informed, she would have asked Midwife Codd to contact ICU whilst she was preparing to attend.[202] Dr Nott said that she did not ask about Annie's oxygen saturation.[203]

- Dr Nott said that she asked Midwife Codd about Annie's blood pressure and was told it was normal.[204] In her evidence, Dr Nott said that because Annie's blood pressure was normal and there was no concern given about her mental state, she did not consider sepsis as a diagnosis and thought it was a new presentation of an infection.[205]

- Dr Nott said that she asked Midwife Codd about the potential miscarriage, and she was told that Annie was not contracting.[206]

171. After being advised of Annie's observations, Dr Nott considered Annie to be more unwell than had been reported by Dr Shi. Dr Nott requested an urgent full blood examination, urea and electrolytes, clotting, CRP, blood cultures, group and hold + x2 units). Dr Nott also ordered paracetamol and IV fluids of 500 mls compound sodium lactate, then 1 litre hourly.[207] Dr Nott told Midwife Codd that she was on her way to the hospital.[208]

172. The content of the telephone call between Midwife Codd and Dr Nott at 12.40am is the subject of some disagreement. Midwife Codd says that she provided a more comprehensive clinical picture than

[196] T 285:20-25.
[197] T 290:7-15.
[198] T 313:18-23 .
[199] Statement of Dr Vicki Nott, CB 48; T 376:25-28.
[200] T 286:5-7.
[201] T 286:23 – T 287:4.
[202] T 379:13-18.
[203] T 378:2- 4.
[204] T 377: 28-31.
[205] T 377:26 – T 378:1.
[206] T 377:6-10.
[207] SVPHM Patient Progress Report, CB 431.
[208] Statement of Dr Vicki Nott, CB 48.

Dr Nott recalls, and which is also recorded in the SVPHM medical records, which were available to Midwife Codd at the time of the 12.40am phone call.

173. In my opinion, Midwife Codd presented as an honest witness whose evidence was truthful and reliable. Midwife Codd also made appropriate concessions in her evidence in acknowledging that she could not specifically recall each detail of what occurred that evening. I accept Midwife Codd's version of events, including that she relayed the concerns about the seriousness of Annie's condition to Dr Nott during the phone call.

Comment 11: On 15 August 2017, during the 12.40am phone call with Dr Nott, Midwife Codd relayed her concerns about the seriousness of Annie's condition.

Escalation of care

174. At around 12.35am, Midwife Marshall escalated her concerns regarding Annie's condition to Midwife Codd and advised that Annie was febrile, tachycardic and was feeling uncomfortable. She also conveyed that Annie had rigors and was shivering. Midwife Codd then herself escalated these concerns and acted appropriately by paging Dr Nott.

175. Midwives Codd and Marshall continued to monitor Annie's observations as they awaited Dr Nott's arrival to the labour ward. At 1.25am, Midwife Marshall pressed the staff assist buzzer after Annie suffered further vaginal loss and the umbilical cord was on view. Midwife Codd recalls that there was some difficulty in reading Annie's oxygen saturation levels, however, they appeared low.

176. Midwife Codd was concerned for Annie and again, appropriately paged Dr Nott to advise that she thought delivery was imminent and to ask when Dr Nott would be in attendance at the hospital. Dr Nott advised she was pulling into the carpark and would soon present.

177. It is evident that the nursing staff at SVPHM, including Midwives Codd and Marshall, were unaware of the severity of Annie's condition, prior to her arrival on the labour ward. The nursing staff were faced with a difficult situation where they were required to simultaneously manage the delivery of a stillborn baby and Annie's deteriorating condition. I consider that Midwives Codd and Marshall should be commended on their management of Annie between 12.30am and 1.30am on 15 August 2017, prior to Dr Nott's arrival on the labour ward.

Comment 12: Between 12.30am and 1.30am on 15 August 2017, Midwives Codd and Marshall took reasonable and appropriate steps to escalate Annie's medical care.

Time taken for Dr Nott to arrive at the SVPHM labour ward

178. From the time that Dr Nott spoke to Midwife Codd at 12.40am and her arrival at SVPHM, 45 minutes had elapsed. I accept that Dr Nott was surprised that Annie had arrived at SVPHM as quickly as she did.[209] Once Dr Nott was informed of Annie's arrival, it is relevant to consider whether Dr Nott's attendance was timely.

179. Dr Nott stated that her usual transit time to the SVPHM labour ward from her home was 20 minutes, but in this case, she did not consider her attendance to be urgent.[210] Dr Nott thought that Annie's raised temperature was a new presentation at SVPHM and wanted to allow staff time to undertake the necessary tests and for the midwives to make an assessment about the possible ruptured membranes.[211]

180. Dr Nott said that she was on her iPad in the hospital carpark, approximately 10 minutes before attending the labour ward, reading about the antibiotics to be prescribed for severe gastroenteritis and other possible differential diagnoses.[212] Dr Nott acknowledged that in retrospect that she should have attended Annie as quickly as possible rather than stopping to look up which antibiotics to prescribe.[213] Dr Nott also said that she did not attend quickly as she had no appreciation of how seriously unwell Annie was.[214]

181. The expert evidence supports the conclusion that it was not reasonable for Dr Nott to take 45 minutes to attend the labour ward, unless some other action was put in place. Dr Lucy Bowyer said that Dr Nott should have attended more urgently than 45 minutes after the call from Midwife Codd at 12.40am[215] and qualified her opinion on the basis that it assumed that Dr Nott was aware that Annie was unwell.[216] Professor Mark Umstad considered that 45 minutes is an acceptable timeframe provided that antibiotics were administered while Dr Nott was *en route*.[217]

182. I am satisfied that the evidence supports the conclusion that if Dr Nott anticipated that she would be delayed or that it would take her 45 minutes to arrive at the labour ward, it was open to her to ask another doctor to review Annie, as was noted by Dr Bowyer.[218]

183. Annie and her family were entitled to expect a timelier attendance than the 45 minutes taken by Dr Nott to attend the labour ward. This was in the absence of steps being taken for Annie to be reviewed

[209] T 375:24 – T 376:9.
[210] T 384:29 – T 385:3.
[211] T 385:5-15.
[212] T 385:17-21.
[213] T 386:14-20.
[214] T 386:7-13.
[215] T 620:15-25.
[216] Ibid.
[217] T 622:1-7.
[218] T 621:19-23.

by another doctor or other mitigating steps, such as ordering antibiotics to be administered pending arrival.

Comment 13: It was not reasonable for Dr Nott to take 45 minutes to attend the labour ward at SVPHM unless some other action was put in place, such as prescribing and administering antibiotics to Annie.

At what time should antibiotics have been prescribed and administered to Annie at SVPHM?

184. At 12.40am, Midwife Codd spoke to Dr Nott and appraised her of Annie's situation. Without repeating the analysis on this issue, I accept that Midwife Codd told Dr Nott of the seriousness of Annie's condition. In her evidence, Dr Nott said that although she would have been in a position to order antibiotics over the phone when she spoke to Midwife Codd she '*did not believe on the basis of the information given that they were needed immediately. A diagnosis of sepsis had not been made at that point*'.[219]

185. Dr Nott arrived at the SVPHM labour ward at approximately 1.30am.

186. When Dr Nott attended at Annie's bedside for the first time, she was taken back by how unwell Annie was and her appearance. Dr Nott described Annie as being grossly bloated, oedematous and clearly agitated[220] and she also had an altered mental state.

187. Dr Nott quickly identified that Annie likely had sepsis, stating: '*the thing that convinced me she had sepsis was her altered mental state and no one else had decided she had an altered mental state*'.[221] Within 15 minutes of examining Annie, Dr Nott asked the nursing supervisor to ask a doctor from ICU to attend.

188. Dr Nott prioritised delivering the baby over prescribing antibiotics for Annie, as she assumed that it would only take two or three minutes. Upon realising that it would in fact take longer to deliver the baby and how serious Annie's condition was, Dr Nott left the room to find the sepsis guideline that she recalled had been recently published and circulated.[222] She was unable to locate the guideline in hard copy or on the intranet, even with the assistance of the nursing supervisor. Dr Nott knew that she had a copy of the guidelines on her desk in her rooms.

[219] T 381:4-6.
[220] T 386:25-29.
[221] T 388:19-22.
[222] T 390.

189. She left the labour ward to go to her rooms, which were in an immediately adjacent building at around 1.50am to obtain the sepsis guidelines. Dr Nott said that she wanted to obtain the sepsis guidelines as the required antibiotics differ by source of sepsis.[223]

190. Dr Nott returned to the labour ward at 2.00am and prescribed ceftriaxone and Flagyl for Annie. She also ordered tranexamic acid, syntometrine and ergometrine. Although these antibiotics were drawn up and the ceftriaxone was placed on the bedside locker in Annie's room, Annie was delivering her baby and attention was given to administering drugs to reduce the risk of post-partem haemorrhage rather than to the administration of the antibiotics.

191. When asked to comment on the decision to prioritise the risk of post partum bleeding over the administration of the antibiotics, Dr Bowyer understood the midwives' concern. Professor Umstad agreed and qualified his opinion by saying that it must have been frantic with a lot of things happening at the same time.[224]

192. Annie was first administered antibiotics, being IV ceftriaxone, at 2.46am. Midwife Codd was unable to recall the administration of the antibiotics and was unable to recollect why it was not administered beforehand.[225] The metronidazole was not administered to Annie at all, and was later found on a window-sill in Annie's room.[226] Dr Bowyer said that this was a very sad oversight.[227] Dr Nott said that she did not expect it to take until 2.46am for the antibiotics to be administered and that she assumed this would have been done promptly.[228] I accept Dr Nott's evidence on this issue.

193. When asked about the timing of the prescription of antibiotics for Annie, both Dr Bowyer and Prof Umstad were of the opinion that the time for the prescription of antibiotics was the 12.40am phone call between Dr Nott and Midwife Codd.[229] Dr Bowyer describing the failure to do so as a missed opportunity.[230] Both Dr Bowyer and Professor Umstad agree that Dr Nott should have known which antibiotics to prescribe.

194. Both Dr Bowyer and Professor Umstad stated that the antibiotics that were required are usually available on all delivery wards, and it would be expected that the antibiotics would be given within 15 minutes of the prescription.[231]

195. I accept the opinions of Dr Bowyer and Professor Umstad that Dr Nott should have prescribed antibiotics for Annie during the 12.40am phone call with Midwife Codd. The antibiotics should have

[223] T 390.
[224] T 562:22-24.
[225] Statement of Midwife Gillian Codd, CB 75-6.
[226] Statement of Midwife Raechel Marshall, CB 32.
[227] T 562:1-3.
[228] T 398:22 – T 399:9.
[229] T 553:10-19.
[230] Expert Opinion of Dr Lucy Bowyer, CB 103.
[231] T 561:1-8.

been administered within 15 to 30 minutes of prescription and Dr Nott should have known which antibiotics to prescribe.

Comment 14: Dr Nott should have prescribed antibiotics to Annie during the 12.40am phone call with Midwife Codd on 15 August 2017. The antibiotics should have been administered within 15 to 30 minutes of prescription and Dr Nott should have known which antibiotics to prescribe.

REQUIREMENT FOR A HYSTERECTOMY

196. In her evidence, Dr Bowyer said that a hysterectomy would not have changed the outcome for Annie.[232] Professor Umstad stated that when Annie was failing to respond to other therapy, a hysterectomy should have been considered.[233]

197. In the absence of conclusive expert evidence on this issue, no comment will be made.

COMMUNICATION BETWEEN DR NOTT AND ANNIE'S FAMILY

198. In circumstances where Annie's senior next of kin on 14 and 15 August 2017 was her husband, and where he was present at her bedside, except for when she was in theatre, and where he has not made a statement for the Court, no comment can be made regarding Dr Nott's communication with the family.

WAS ANNIE'S DEATH PREVENTABLE?

199. I will now turn to the issue of causation. As I explained earlier in this finding, a fundamental function of a coroner is to determine, if possible, the cause of death, including the causative circumstances in which a death occurred. In undertaking this function, a coroner is required to conduct an examination of the facts and expert opinions to determine the cause or causes of death, if possible.

200. In Annie's case, the question of causation is whether Annie would have survived if antibiotics and supportive measures were administered at the time that the experts consider these measures were reasonably required at HGPH and SVPHM.

201. Six expert witnesses provided written and oral opinion on this issue:

[232] T 597:20-27.
[233] T 599:1-13.

EMERGENCY PHYSICIANS

Dr David Eddey

202. Dr Eddey's opinion was that Annie was required to be given antibiotics '*when sepsis should have been considered and that would have been at HGPH*'. Dr Eddey qualified his opinion and said that this was when it became clear that this was not simple gastroenteritis and Annie had severe back pain, her membranes ruptured, and she had not improved. Dr Eddey said that knowing that significant sepsis can be represented by severe pain anywhere, he '*would have erred on the onset of severe back pain*'. In the alternative, Dr Eddey said that antibiotics should have been given when Annie ruptured her membranes.

203. Dr Eddey did not provide an opinion in his oral evidence in relation to whether Annie was more likely than not to have survived with the administration of antibiotics at HGPH ED or SVPHM. In his statement, he said that it was possible that Annie would have survived if given antibiotics at HGPH ED.[234]

Professor George Braitberg

204. Professor Braitberg's opinion was that broad spectrum antibiotics should have been given at the time that Annie ruptured her membranes at 11.30pm. When asked if Annie would have survived if she was given antibiotics at this time, Professor Braitberg said '*we know that antibiotics improve likelihood of survival*', however, he was unable to comment on what would have happened in Annie's case.[235]

OBSTETRICIANS

Dr Lucy Bowyer

205. It was Dr Bowyer's opinion, from reading the evidence in this case and being the lead author of the SOMANZ guidelines, that if Annie had received antibiotics at HGPH at any point in time, she would have been '*more likely to survive, than had she not*'.[236]

206. Dr Bowyer also opined that the immediate administration of antibiotics after Annie's arrival at SVPHM may have increased her chance of survival. Dr Bowyer was unable to say whether Annie had a greater than 50 percent chance of survival.[237]

[234] Expert Opinion of Dr David Eddey, CB 126.
[235] T 584:23 – T 585:14.
[236] T 586:25-29.
[237] T 588:19-20.

Professor Mark Umstad

207. Professor Umstad said that Annie was required to be given the first batch of antibiotics when she had the back pain which required morphine at 10.15pm for her survival to have been more likely than not. However, he added that the administration of amoxycillin to treat Group A *Streptococcal* infection can make the situation worse, as there is a sudden release of toxins, which is one of the reasons why clindamycin is given in combination to counteract some of that toxin affect.[238]

208. Professor Umstad subsequently stated that he was unable to provide an opinion about whether Annie was more likely or not to survive if given antibiotics at any particular time.[239]

INFECTIOUS DISEASE PHYSICIANS

Professor William Rawlinson

209. Professor Rawlinson's opinion is that Annie was required to have received antibiotics by 8.30pm on 14 August 2017, in order to have a survival rate that is more likely than not.[240]

210. Professor Rawlinson said that it cannot be definitively stated as to whether Annie was likely to have succumbed to her illness if she had been given antibiotics after 8.30pm.[241] He adds that if broad spectrum antibiotics without clindamycin were given and surgery was not performed to remove the source of the infection, it is likely that Annie would have ultimately succumbed.[242]

211. In relation to whether Annie would have succumbed to her illness if she had been given antibiotics any earlier at SVPHM, Professor Rawlinson said that Annie was unlikely to have survived.[243]

Adjunct Professor Tony Korman

212. In his report, Adjunct Professor Korman said that the window of opportunity to intervene and provide Annie was a significantly improved chance of survival was the recognition of sepsis at HGPH.[244]

213. In his oral evidence, Adjunct Professor Korman agreed with Professor Rawlinson that the issue of survivability is a difficult question without a definite answer.[245] He also said that early in the condition, prior to the development of septic shock, which in Annie's case was at HGPH when she was clinically stable that:

[238] T 585:20-31.
[239] T 586:1-10.
[240] T 661:17-24.
[241] Expert Opinion of Professor William Rawlinson, CB 193.
[242] Ibid.
[243] T 667:25-28.
[244] Expert Opinion of Adjunct Professor Tony Korman, CB 146.
[245] T 664:20-21.

'...if the condition had been recognised, if the appropriate investigations and then early antibiotic management and importantly involvement of an obstetric team to assist with other management, I think on the balance of probabilities she may have survived, yes'.[246]

214. In relation to Annie's likelihood of survival at SVPHM, if she had received antibiotics at an earlier time, Adjunct Professor Korman said that it would have been unlikely that she would have survived.[247]

INTENSIVISTS

Professor Craig French

215. In his evidence, Professor French said that if antibiotics were given earlier Annie's chance of survival was increased but she was suffering from a condition that has a very high mortality, in the order of 50 per cent. The deterioration in Annie's condition within the space of less than 12 hours, meant that '*she was on a pathway that was going to unfortunately lead to her death*'.[248]

216. He added that antibiotics would have influenced the risk of death for Annie. In an ideal world and with the benefit of hindsight, if Annie had received penicillin on presentation (plus clindamycin), it is possible that on the balance of probabilities that she would have survived. If she had been given other antibiotics which may have had some effectiveness on Group A streptococcal infection, whether she would have survived, is uncertain.[249]

217. Professor French concurred with Adjunct Professor Korman's opinion regarding Annie's chance of survival with the administration of antibiotics at SVPHM.[250]

218. I have carefully reviewed all the evidence on the issue of causation including the expert evidence, as well as the various submissions from Counsel Assisting and Counsel for the interested parties and Dr Moylan.

219. In summary, the experts concluded as follows:

- Dr Bowyer was the only expert to conclude that with the administration of antibiotics at any time HGPH ED, Annie was more likely than not to have survived.

[246] T 664:28 – T 665:4.
[247] T 666:1-5.
[248] T 663:17 – T 664:14.
[249] T 664:3-14.
[250] T 667:2-12.

- Professor Rawlinson was quite definitive that if Annie had been given antibiotics within one hour of presentation to the HGPH ED, including being given clindamycin, she is more likely than not to have survived. He added that if broad spectrum antibiotics without clindamycin were given and surgery was not performed to remove the source of the infection, it is likely that Annie would have ultimately succumbed;

- Adjunct Professor Korman said that with early antibiotic therapy when Annie was clinically stable at HGPH ED, on the balance of probabilities, Annie may have survived;

- Professor Braitberg was of the opinion that if Annie had been given antibiotics at the time that she ruptured her membranes at 11.30pm, she would have had an improved likelihood of survival;

- Professor French said she would not have survived with the administration of antibiotics at any time;

- Dr Eddey stated in his report that it was possible that Annie would have survived if given antibiotics at HGPH ED and in his oral evidence he did not add to that opinion or provide any further clarification on that point; and

- Professor Umstad stated that he was unable to provide an opinion about whether Annie was more likely or not to survive if given antibiotics at any particular time.[251]

220. The expert evidence as to whether Annie's death was preventable at the time when antibiotics were required to have been administered intravenously to Annie and whether this would have adequately treated the sepsis, could only be described as unsettled. Having considered the expert evidence, I have concluded as follows:

(a) Annie's greatest chance of survival would have been if antibiotics were administered by 8.30pm on 14 August 2017 in the HGPH ED;

(b) I have previously found that (i) gastroenteritis was a reasonable diagnosis for Dr Shi to make until 10.15pm; and (ii) Dr Shi should have reconsidered the diagnosis at 10.15pm due to the onset of Annie's severe back pain and again at 11.30pm due to Annie's membranes rupturing; and (iii) when Annie's membranes ruptured at 11.30pm, Dr Shi should have prescribed broad spectrum intravenous antibiotics. The weight of the expert evidence supports a conclusion that even with the administration of antibiotics at either 10.15pm or 11.30pm at HGPH ED, it is more likely than not that Annie's death would not have been prevented;

[251] T 585:15 – T 586:10.

(c) A preponderance of the expert opinion supports the conclusion that even with the administration of antibiotics *at any time* during her admission at SVPHM, it is more likely than not that Annie's death would not have been prevented. Dr Bowyer expressed the opinion that administration of antibiotics shortly after arrival at SVPHM may have led to a likelihood of Annie's survival. Dr Bowyer has an outlier opinion on this issue; and

(d) the evidence does not support a conclusion on the balance of probabilities that Annie was able to be saved with any management at SVPHM, including the administration of antibiotics at an earlier time than antibiotics were given.

Comment 15: The expert evidence does not support the conclusion that if Annie had been administered antibiotics at or after 10.15pm at HGPH, she would have survived. The lack of antibiotics given at HGPH ED was not a cause of Annie's death.

Comment 16: The expert evidence does not support the conclusion that if Annie had been administered antibiotics at SVPHM at a time earlier than antibiotics were given, she would have survived. The timing of antibiotics given at SVPHM was not a cause of Annie's death.

THE ROLE OF THE USE OF INTER-HOSPITAL TRANSFER COMMUNICATION TOOLS, SUCH AS CHECKLISTS

221. I have already addressed the issues which relate to Annie's transfer from HGPH and SVPHM and the communication of relevant information between Dr Shi, Dr Nott and nursing staff. Without repeating the conclusions from that analysis, it is clear that there was disagreement about the information sharing that had occurred and whether it was comprehensive, pertinent and relevant.

222. I am of the view that the potential for pertinent patient information to be missed, overlooked or misinterpreted by transferring or receiving doctors or health services is a critical issue that requires comment. The need for a better communication framework is evident through the evidence of Dr Shi when contrasted with Dr Nott's evidence around what was conveyed in the two phone calls on 14 August 2017, as well as the information conveyed during the phone call between Dr Nott and Midwife Codd and the question of what information was transferred or provided to SVPHM at the time of Annie's transfer.

223. This issue was identified in an internal review conducted by SVPHM following Annie's death which found that the absence of a standard inter-agency transfer checklist/handover tool was one factor that may have contributed to a delay in the provisional diagnosis of sepsis being made.[252]

224. An example of such a communication framework is the ISBAR which stands for 'Introduction, Situation, Background, Assessment and Recommendation, as per the SVPHM, Clinical Handover Policy.[253] The elements consist of:

- Introduction
    - Who you are, your role, where you are and why you are communicating,
    - The patient, to be identified using at least 3 identifiers.
- Situation
    - What is the reason for handing over / what is happening at the moment?
    - State the clinical situation, issues, concerns and risks.
    - Risks include allergies, deterioration, falls, pressure injury and resuscitation limitations.
- Background
    - What are the issues that led up to this situation?
    - Clinical background or context and relevant history.
- Assessment
    - What do you believe the problem is?
    - What are the patient's observations and recent investigation results?
    - What risk management strategies are in place?
- Recommendation
    - What do you believe should be done? Includes further assessments and investigations, frequency of observations, and discharge planning.
    - Requests.
    - Read back – confirm shared understanding of information conveyed.[254]

225. The ISBAR framework appears to capture relevant information and provide prompts for the transferring and receiving medical service to assist in gathering all relevant information.

[252] Statement of Ms Karen Clark, CB 59.
[253] SVPHM Clinical Handover Policy, CB 354 – 362.
[254] SVPHM Clinical Handover Policy, CB 355.

226. It is surprising that a communication framework such as the ISBAR has not been adopted across Victoria to manage transfers between health services both public and private. If this does not exist at present, it may be appropriate for SCV to have a role in developing and collaborating with health services both private and public to adopt a state-wide standard. My recommendations on this issue are outlined below.

SCV AND ITS ROLE IN ADVERSE EVENTS

227. SCV was established in 2017 with the aim of improving the quality and safety of healthcare. I received written and heard oral evidence in this inquest regarding the role of SCV in monitoring and reviewing sentinel events in Victoria. Sentinel events are broadly defined as wholly preventable adverse patient safety events that result in serious harm or death to individuals.

228. Of relevance to this inquest, public health services in Victoria are required to participate in the SCV Sentinel Event Program (**SEP**) as part of the health services funding agreement with the Victorian Department of Health. The SEP requires that sentinel events be notified to SCV and that the root cause analysis report be provided to SCV for review with the objective of improving the quality of the investigation and sharing any lessons learned.

229. Since 1 July 2017, public health services have also been required to have an independent member on any review board of root cause analysis investigations of sentinel events.[255]

230. The position of public health services is to be contrasted with the private health services, as their participation in the sentinel event program is voluntary.[256] Private health services are also not required to include an independent member on the review panel, as this is currently only mandated for public hospitals.

231. Following Annie's passing, both HGPH and SVPHM undertook independent reviews of the circumstances surrounding the incident. Both HGPH and SVPHM are private hospitals, and neither of them notified SCV through the SEP.

232. HGPH did provide a copy of their report regarding Annie's death to SCV upon request. In contrast, SVPHM did not provide a copy of their report to SCV as they considered it to be confidential. SCV were granted access to the report in a meeting with SVPHM representatives, however, they were not permitted to retain a copy.[257] SVPHM did provide a written summary of their report to SCV.[258]

[255] Safer Care Victoria – Review of multiagency investigations into the systems of care following the unexpected sepsis-related death of Antoinette O'Brien, CB 697 – 698; T 26:17 – T 27:5.
[256] T 27:23-29.
[257] Safer Care Victoria – Review of multiagency investigations into the systems of care following the unexpected sepsis-related death of Antoinette O'Brien, CB 700; T 27:7-16.

233. On 1 July 2018, Regulation 46A of the *Health Services (Health Services Establishment) Regulations 2013* (Vic) came into effect requiring that all health services, public and private, including inpatient day patients, notify SCV of sentinel events.[259] This is an improved situation as it ensures that SCV are notified of all sentinel events across Victoria regardless of whether the health service is private or public.

234. In reviewing sentinel events and their engagement with health services, SCV has adopted an approach that relies on the voluntary participation of health services.[260] This is described by Mr Nathan Farrow the then Director, Centre for Patient Safety and Experiences at SCV in material that he provided to the court in the following terms:

> 'Whilst the CEO of SCV has been given these delegated powers under the [*Health Services Act 1988*], SCV has not relied on these powers to compel public hospitals to participate in reviews or investigations of adverse events. Rather, SCV liaises with public hospitals in the context of the Department's quality and safety functions under its policy and funding guidelines to request that those entities voluntarily participate in any review which SCV undertakes. As part of this process, terms of reference as to the conduct of these reviews are agreed between SCV and the public hospital voluntarily.'[261]

235. In relation to private health services, Mr Farrow stated:

> 'As with public hospitals, SCV's reviews of events that have occurred at private hospitals are conducted with the consent of the hospital.'[262]

236. SCV has the power to compel a public health service to provide a copy of their root cause analyses, but this authority does not extend to private health services.[263] This is a significant short coming in the current process which has been addressed by the March 2022 amendments to the *Health Services Act 1988* (Vic) (**HS Act**) which introduced requirements regarding significant adverse patient safety events (**SAPSE**). These amendments came into operation on 30 November 2022.

237. A SAPSE must be investigated, and a report may be prepared, and a copy of this report provided to the patient. If a SAPSE is also a sentinel event, then SCV will be notified and SCV can then require that a copy of the report be provided to SCV. These provisions apply whether it is a private or public health service.

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[258] Safer Care Victoria – Review of multiagency investigations into the systems of care following the unexpected sepsis-related death of Antoinette O'Brien, CB 700; T27:17-21.
[259] T 31:2-11.
[260] T 31:19-24.
[261] Appendix A – Safer Care Victoria's response to request for further information, CB 714.
[262] Ibid.
[263] T 31:28 – T 32:6.

238. In addition to these changes there are also additional amendments to the HS Act that impose a duty of candour on health service to provide information to a patient or family where an adverse event has occurred.[264]

239. Since 30 November 2022, SCV now have enhanced powers to compel health services to provide them with original data or a copy of the review undertaken. In her evidence, Ms Megan Goadby, Acting Director, Centre for Patient Safety and Experiences at SCV said that if a similar circumstances to Annie's were to arise after 30 November 2022, SCV would be able to undertake a more fulsome or multiagency review which would involve representatives from all of the health services involved, as well as external experts and safety review methodological experts.[265]

240. Ms Goadby qualified that statement by noting that it is the intention of SCV to work co-operatively with health services and seek their voluntary participation in reviews:[266]

> 'SCV want to encourage…communication and cooperation with health services. We don't want to become…an adversary body…we are independent.'

241. Ms Goadby also added that:

> '…we want them to be happy to give us – to provide us with their data, full amount of information that we give…that we need to do to conduct these reviews…we ask for access to patient records as well as health service personnel, and we want them to be open with their communication with us. The outcomes...is that we have a much more fulsome overview of the health services, outcomes are much more broad, excellent finding, learnings and recommendations for improvement'. [267]

242. It is clear that at the time of Annie's passing, SCV lacked the legislative power to compel the cooperation of health services in undertaking its review of sentinel events and relied on their voluntary cooperation. I am satisfied that the enhanced legislative powers which come into effect last year, will allow SCV to be more proactive in managing their interactions and engagement with health services. I am however concerned that root cause analysis reports are not required for all SAPSEs. I am of the view that root cause analysis reports should be mandatory for all SAPSEs and sentinel events regardless of whether they occur in a public or private health service.

[264] T 34:1-11.
[265] T 40:8-28.
[266] T 38:3-27.
[267] T 39:17 – T 40:1.

COMMUNICATION OF IMPLEMENTATION AND CIRCULATION OF POLICIES AND PROCEDURES WITHIN HOSPITALS

243. According to Dr Barua, the ASP was available to doctors at HGPH ED at some time in 2017. He recalls that it was '*put up on the walls of the emergency department...in the resus bay*', with a laminated copy also being on the wall in the doctor's station.[268]

244. Dr Barua was unable to recollect the exact date it was put there and when asked if it was a month, three months or six months, he could not recall.[269] He was also unable to recollect any training that was provided to staff about the ASP, or exactly how medical staff would have been notified. He does not recall if the document was loaded onto the HGPH intranet in 2017.[270]

245. There is also the evidence of Ms Katrina Hoskin who provided a statutory declaration to the Court outlining her role in developing the ASP whilst employed at Knox Private Hospital. Ms Hoskins claims the copy of the ASP provided to the Court by Dr Barua was an incomplete copy of a final document which was never endorsed by HealthScope Ltd and simply displayed in the ED at Knox Private Hospital for staff use and reference.[271]

246. Ms Keryn Hopkins also confirmed in her statement that a version of the ASP was displayed at Knox Private Hospital in 2017 and would have likely been available to doctors who worked across both hospitals.

247. The ASP is not branded in any way to indicate that it is a HGPH or HealthScope Ltd endorsed or approved document and on its face does not have a date or any narrative to indicate that it is the interim or final document. It also has no version history to indicate if it is an earlier or later version of some other document. The details of the process by which the ASP found its way to the wall of the HGPH ED are at best vague and uncertain.

248. It is possible that the passage of time has affected Dr Barua's recollection of the details. Dr Barua was more certain about the status of the 'Think Sepsis Act Fast'[272] which is a state-wide sepsis pathway document produced by SCV. Dr Barua acknowledged that this document was adopted by HGPH and Healthscope Ltd in September 2019.[273] It appears that at the time that the 'Think Sepsis Act Fast' guideline was adopted at HGPH it was accompanied by a communication plan. Ms Hopkins

[268] T 232:17-31.
[269] T 233:2-6.
[270] T 235:21-25.
[271] Exhibit 2 - Statutory Declaration of Katrina Hoskin.
[272] Emergency Department Adult Sepsis Pathway, CB 708 – 712.
[273] T 250:1-3.

confirmed that by December 2019, the 'Think Sepsis Act Fast' guideline had been transposed onto HealthScope Ltd specific documentation.[274]

249. It is troubling to me that there does not appear to have been any formal communication or training for staff at HGPH in relation to the ASP, or regulation by HealthScope Ltd regarding the guidelines and protocols that were being used by staff at HGPH in August 2017.

250. Although I am not in a position to make a determination on this issue as it falls outside the scope of this inquest, I consider that HealthScope Ltd must ensure as part of any future implementation or adoption of a new or refined diagnosis or treatment guideline or protocols, to include a very clear communication plan, appropriate training and regulation of the implementation process.

251. If it is not occurring already, the audit and risk committees of the boards of both public and private hospitals in Victoria have a role to play in ensuring that new policies and procedures are properly communicated, and that training accompanies the roll out of new procedures or guidelines. It cannot be an acceptable position that an unbranded, undated document setting out an important guideline or pathway for diagnosing and treating a significant condition could find its way the wall of an ED in an established private hospital without it being endorsed or adopted by the governing body of the hospital.

THINK SEPSIS ACT FAST - SCV

252. The tools or guidelines that are used to assist doctors in diagnosing sepsis were considered in some depth in this inquest. This included the ASP, SOMANZ guidelines, the SOFA suite and the 'Think Sepsis Act Fast' guideline published by SCV. It is noted that the 'Think Sepsis Act Fast' guideline was not introduced until 2019 and not available at the time of Annie's admission to HGPH.

253. I am of the view that had the SCV 'Think Sepsis Act Fast' guideline been available at the time of Annie's admission to HGPH ED in August 2017, then it is likely that it would have prompted consideration of sepsis as a likely diagnosis and directed Dr Shi that a lactate be undertaken. Annie's fever and low systolic blood pressure would have meant that she met the criteria of sepsis and in that instance, the appropriate treatment would have been the administration of antibiotics. This would have occurred at an early stage at HGPH ED.

254. In its current form, the 'Think Sepsis Act Fast' guideline does not specifically direct clinicians' attention to sepsis in pregnancy. At present, there is no sperate maternal sepsis pathway in Victoria. I consider this to be a gap in the material currently available to clinicians to assist in diagnosing sepsis at an early stage in pregnancy.

[274] Exhibit 8 – Further supplementary statement of Keryn Hopkins.

WHAT CHANGES HAVE BEEN IMPLEMENTED AT HGPH AND SVPHM SINCE ANNIE'S PASSING?

HGPH

255. Following Annie's passing HGPH undertook a Critical Systems Review which produced a number of recommendations, two of which are relevant to the scope of this inquest:

a) a pathology courier log to track transfer of specimens out of hours be introduced; and

b) nursing staff in the ED be provided with further education on early delivery.

256. These recommendations have since been implemented by HGPH. The operating hours of the onsite pathology laboratory at HGPH have also been extended and are now 7.00am to midnight from Monday to Friday and 7.00am to 10.00pm on Saturday and Sunday. The education of emergency delivery for nursing staff has been incorporated as part of the annual education plan for nursing staff in the HGPH ED.

257. As outlined by Dr Barua and Ms Hopkins in their statements to the Court, the 'Think Sepsis Act Fast' guideline was also adopted and implemented by HealthScope Ltd at a national level in November 2019.[275]

SVPHM

258. As outline above in this finding, SVPHM conducted a Critical Incident Review following Annie's passing and a number of recommendations were made. These included:

- SVPHM review the effectiveness of the inter/intra-hospital and ward based clinical handover processes, including current methodology, handover methods and tools used and develop a more structured, concise and consistent approach in all clinical areas. Communication touch points to be considered include:
    - health service to health service;
    - emergency provider to health service;
    - nurse to nurse;
    - doctor to nurse - nurse to doctor; and
    - doctor to doctor.

[275] Supplementary statement of Dr Raja Barua, CB 795 – 795; Exhibit 8 – Further supplementary statement of Keryn Hopkins.

- SVPHM develop and implement a full maternal sepsis package, including a maternal sepsis policy/guideline/pathway, a maternal sepsis e-learning training package and an emergency sepsis kit (with the inclusion of antibiotics) in the delivery suite.

- SVPHM review the multidisciplinary communication/dissemination process of policies from a regional, site and ward level and develop a more robust process of communicating changes to all staff.

- the SVPHM Maternity Services undertake a full review of the current communications surrounding the escalation of care process, including the role of the midwife in escalating care.

- the SVPHM Delivery Suite undertake a review of antibiotics required for emergency scenarios and ensure antibiotics are included on the imprest list and made readily made available at all times.

259. The secondary recommendations included:

- SVPHM ensure a robust/ongoing clinical handover audit schedule is in place to address issues of non-compliance and gaps are actioned in clinical areas.

- SVPHM identify and simulate 2-5 critical emergency scenarios in the delivery suite for learning purposes.

- SVPHM representatives meet with AV to discuss the opportunity to discuss agreements to use ISBARs when transferring care.

260. The recommendations that have already been actioned are:

- dissemination of a maternal sepsis kit.

- education to midwifery staff regarding the maternal sepsis kit.

- availability of antibiotics used to treat maternal sepsis in the delivery suite.[276]

- medical staff become aware of the maternal sepsis kit and apply it.

261. Since the time of this review, SVPHM has implemented a number of new or amended processes, guidelines and policies, as follows:[277]

- admission to midwifery unit policy,

[276] Statement Ms Karen Clark, CB 60 – 61.
[277] Statement of Ms Janine Loader, CB 63 – 69.

- amended the clinical handover policy in 2018,
- implemented a maternal sepsis kit in July 2018, which incorporate the review guidelines for management of post-partum infection,
- implemented a maternal sepsis e-learning package for midwifery staff, regarding the maternal sepsis kit in July 2018,
- implemented a maternal sepsis policy in July 2021 and disseminated it,
- made available in the delivery suite antibiotics used to treat maternal sepsis, implemented in February 2021,
- amended the escalation of care policy in July 2020 to include a medical emergency team, that is the MET call system, that wasn't available when Annie arrived at St Vincent's in 2017.

262. A sepsis kit is now also kept in the SVPHM delivery suite and is available to all medical and nursing staff. SVPHM also devised a new form which has been used for inter-hospital transfers from January 2020, which prompts specific questions regarding a patient's status and multidisciplinary communication dissemination process of policies from regional site and ward level to develop more robust process for communication.[278]

263. The systems and processes that were in place to assist medial and nursing staff to identify and manage maternal sepsis and inter-hospital transfers at the time of Annie's admission to SVPHM were clearly inadequate. Much has now been done at SVPHM to improve these systems and processes that were in place in August 2017.

264. I am satisfied that SVPHM have now put in place appropriate and adequate systems and processes to support their staff in recognising and treating maternal sepsis, to assist staff in escalating concerns of care and in accepting or organising inter-hospital transfers.

265. The evidence does not support the conclusion that had these arrangements been in place on 15 August 2017, the outcome would have been different for Annie. Nevertheless, I am satisfied that the new initiatives that have been implemented at SVPHM, as described above, would have provided the best opportunity for Dr Nott and nursing staff on the labour ward to manage and treat Annie for maternal sepsis from the time of her arrival at SVPHM.

[278] SVPHM Request for admission form, CB 335.

REFERRAL TO AUSTRALIAN HEALTH PRACTITIONER REGULATION AGENCY

266. Dr Moylan, in his submissions to the Court, asked that I consider notifying the Australian Health Practitioner Regulation Agency (**AHPRA**) regarding the conduct of Dr Shi and Dr Nott.

267. Having considered the available evidence, including the expert opinions and the submissions of the interested parties, I do not intend to notify AHPRA regarding the conduct of either doctor. I am also aware that AHPRA has previously reviewed Dr Shi's conduct with respect to Annie's passing.

268. Notwithstanding this, a copy of this Finding will be provided to AHPRA. It is then a matter for AHPRA as to whether they consider that the conduct of either doctor requires further investigation.

RECOMMENDATIONS

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

VICTORIAN DEPARTMENT OF HEALTH

(i) That the Victorian Department of Health amend the *Health Services Establishments Regulations 2013* to mandate that:

- all health facilities, public and private are required to undertake root cause analysis reports of sentinel events and serious adverse patient safety events; and
- private hospitals be required to have an independent member on a root cause analysis panel consistent with the requirements imposed on public hospitals.

SAFER CARE VICTORIA

(i) That SCV review the effectiveness of the inclusion of the SAPSE legislation in the HS Act within 18 months from commencement with particular focus on the cooperation of health services providing reviews and root cause analyses and reports relating to SAPSE's and sentinel events to SCV.

(ii) That SCV give consideration to amending the 'Think Sepsis Act Fast' guideline to include a section on the treatment of maternal sepsis. The amendment should focus on pregnant and post-partem women and include information about recommended antibiotics that should be administered.

(iii) That SCV develop and promote a state-wide tool or tools to assist in the proper handover of patients between health professionals and in transfers between health services. An example of such a tool is the ISBAR which captures relevant information in a meaningful and effective way.

FINDINGS AND COMMENTS

269. Having held an inquest into the death of Antoinette O'Brien, I make the following findings, pursuant to section 67(1) of the Act:

a) the identity of the deceased was Antoinette O'Brien born on 24 November 1979;

b) the death occurred on 15 August 2017 at St Vincent's Private Hospital Melbourne;

c) the cause of death was SEPTICAEMIA DURING PREGNANCY SECONDARY TO ASCENDING GENITAL TRACT INFECTION BY STREPTOCOCCUS PYOGENES (GROUP A); and

d) the death occurred in the circumstances set out herein, however, none of the circumstances were causative of the death.

TABLE OF COMMENTS

Comment 1: Gastroenteritis was a reasonable diagnosis for Dr Shi to make until 10.15pm on 14 August 2017. Dr Shi should have known that Annie's severe back pain requiring morphine was not consistent with gastroenteritis.

Comment 2: Dr Shi should have reconsidered the diagnosis of gastroenteritis from 10.15pm being the time of the onset of Annie's severe back pain. Dr Shi did not do so.

Comment 3: Dr Shi should have known that Annie's rupture of membranes at 11.30pm was not consistent with gastroenteritis and ought to have reconsidered the diagnosis of gastroenteritis. Dr Shi did not do so.

Comment 4: When Annie ruptured her membranes at 11.30pm, Dr Shi should have known to prescribe broad spectrum intravenous antibiotics for Annie. Dr Shi did not do so.

Comment 5: Dr Shi as a qualified emergency physician should have considered performing a lactate when Annie arrived at HGPH ED. In a setting where this did not occur, Dr Shi should have performed a lactate when Annie's symptoms changed with the development of severe back pain at 10.15pm and certainly when Annie ruptured her membranes at 11.31pm. Dr Shi did not do so.

Comment 6: Annie did not pass urine in the HGPH ED, and this was not identified by Dr Shi or nursing staff.

Comment 7: Dr Shi should have instructed nursing staff to monitor and measure Annie's urine output during her stay in the HGPH ED.

Comment 8: Prior to Dr Nott being informed of the rupture of membranes, it was reasonable for Dr Nott to

rely on Dr Shi's volunteered information and diagnosis of gastroenteritis. This is on the basis that Dr Shi is an emergency physician and that the information given sounded like a case of routine gastroenteritis, without Dr Nott being required to go through the list of the patient's vital signs.

Comment 9: Prior to Annie's transfer from the HGPH ED to SVPHM, a handover (telephone call) regarding Annie was given by a nurse in the HGPH ED to the SVPHM ANUM, being Midwife Codd, which included information that Annie was 18 weeks pregnant, was suffering from gastroenteritis, had ruptured her membranes, blood loss of 250 – 300mls and a temperature of 40°C at HGPH ED.

Comment 10: On 15 August 2017, Annie's medical records, including her observation charts, drug charts and clinical notes were transferred from HGPH ED to SVPHM with Annie.

Comment 11: On 15 August 2017, during the 12.40am phone call with Dr Nott, Midwife Codd relayed the concerns about the seriousness of Annie's condition.

Comment 12: Between 12.30am and 1.30am on 15 August 2017, Midwives Codd and Marshall took reasonable and appropriate steps to escalate Annie's medical care.

Comment 13: It was not reasonable for Dr Nott to take 45 minutes to attend the labour ward at SVPHM unless some other action was put in place, such as prescribing and administering antibiotics to Annie.

Comment 14: Dr Nott should have prescribed antibiotics to Annie during the 12.40am phone call with Midwife Codd on 15 August 2017. The antibiotics should have been administered within 15 to 30 minutes of prescription and Dr Nott should have known which antibiotics to prescribe.

Comment 15: The expert evidence does not support the conclusion that if Annie had been administered antibiotics at or after 10.15pm at HGPH ED, she would have survived. The lack of antibiotics given at HGPH ED was not a cause of Annie's death.

Comment 16: The expert evidence does not support the conclusion that if Annie had been administered antibiotics at SVPHM at a time earlier than antibiotics were given, she would have survived. The timing of antibiotics given at SVPHM was not a cause of Annie's death.

I convey my sincerest sympathy to Annie's family for their loss.

Pursuant to section 73(1B) of the Act, I order that this finding be published on the Coroners Court of Victoria website in accordance with the rules.

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

Andrew O'Brien

Dr Brian and Mrs Marguerite Moylan

Safer Care Victoria

Dr Hui Li Shi

Dr Vicki Nott

Holmesglen Private Hospital

Holmesglen Emergency Department Pty Ltd

St Vincent's Private Hospital

Australian Health Practitioner Regulation Agency

Secretary of Victorian Department of Health

Signature:

_____

JUDGE JOHN CAIN
STATE CORONER

Date: 7 March 2023

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 inquest. 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.