IN THE CORONERS COURT
OF VICTORIA
AT MELBOURNE

Court Reference: COR 2017 3973

FINDING INTO DEATH WITHOUT INQUEST

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

Findings of:	Coroner Leveasque Peterson
Deceased:	HC
Date of birth:	5 August 2017
Date of death:	11 August 2017
Cause of death:	1(a) Global cerebral ischaemia 1(b) Perinatal asphyxia
Place of death:	Royal Children's Hospital, 50 Flemington Road, Parkville, Victoria, 3052
Keywords:	Infant death, CALD

INTRODUCTION

1. HC was the firstborn child of PV and BH. HC died when he was six days old.

2. On 4 August 2017, at 3.31pm, PV presented to Werribee Mercy Hospital[1] at 39 weeks gestation in early labour with contractions that had commenced earlier that morning. During her labour, PV was supported by two doulas[2] from Birth for Humankind.[3] The labour became obstructed, and PV ultimately underwent an urgent category one caesarean section in the context of an obstructed labour and fetal distress just before midnight that day.

3. On 5 August 2017, at 12.02am, HC was born in poor condition. He received resuscitative interventions and was intubated. After he was stabilised, he was transported to the Royal Children's Hospital Neonatal Intensive Care Unit (**NICU**) where he was diagnosed with hypoxic ischaemic encephalopathy,[4] meconium aspiration and coagulopathy.

4. Despite medical treatment, HC's condition never improved and following a discussion with his family, a decision was made to redirect care to palliation. HC died peacefully in his mother's arms on 11 August 2017 at 7.09pm.

THE CORONIAL INVESTIGATION

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

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

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[1] Werribee Mercy Hospital is administered by Mercy Health, a Catholic Organisation that provides acute and subacute hospital care, aged care, mental health programs, maternity and specialist women's and newborns' health services, early parenting services, home care services and health worker training and development.

[2] A doula or professional birth attendant provides non-medical physical and emotional support to a woman during pregnancy, childbirth and the post-partum period.

[3] Birth for Humankind is a not for profit organisation supporting vulnerable at risk and disadvantaged women through their pregnancy and birth. The organisation provides education, support and care for vulnerable women.

[4] Hypoxic ischaemic encephalopathy is a condition in which the whole brain does not receive enough oxygen. The term most often refers to injury sustained by newborns and can be fatal. Within as little as five minutes of oxygen deprivation, brain cells can begin dying. The disease can cause long term damage, including intellectual disability, delayed development, seizures, and cerebral palsy.

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

8. Due to the medical complexities associated with HC's death, this case was referred to the Health and Medical Investigation Team within the Coroners Prevention Unit (**CPU**) for a comprehensive review and assessment of the medical care and management of HC which is discussed in further detail below.

9. The role of the CPU is to assist coroners investigating deaths, particularly deaths which occur in a healthcare setting. The CPU is staffed by healthcare professionals, including practising physicians and nurses, who are independent of the health professionals and institutions under consideration. The CPU draw on their medical, nursing and research experience to evaluate the clinical management and care provided in particular cases by reviewing and evaluating relevant medical evidence on behalf of coroners. The CPU assists coroners to identify factors that may help improve patient safety and risk management in the healthcare settings. The CPU provided advice which has informed and guided the coronial investigation.

10. This finding draws on the totality of the coronial investigation into the death of HC, including evidence contained in the medical records, statements and submissions received on behalf of the healthcare professionals and institutions involved in PV and HC's care, advice from the CPU and expert opinions obtained by the court from paediatrician Dr Simon Fraser and obstetrician gynaecologist Dr Elizabeth Bolton.

11. After considering all the material obtained during the coronial investigation, I determined that I had sufficient information to complete my tasks as coroner and that further investigation was not required.

12. Whilst I have reviewed all the material, I will only refer to that which is directly relevant to my findings or necessary for narrative clarity. In the coronial jurisdiction, facts must be established on the balance of probabilities.[5]

[5] Subject to the principles enunciated in *Briginshaw v Briginshaw* (1938) 60 CLR 336. The effect of this and similar authorities is that coroners should not make adverse findings against, or comments about, individuals unless the evidence provides a comfortable level of satisfaction as to those matters taking into account the consequences of such findings or comments.

13. 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.[6] Adverse findings or comments against individuals in their professional capacity, or against institutions, are not to be made with the benefit of hindsight but only on the basis of what was known or should reasonably have been known or done at the time, and only where the evidence supports a finding that they departed materially from the standards of their profession and, in so doing, caused or contributed to the death under investigation.

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

Circumstances in which the death occurred

PV's pregnancy

14. PV was a 19-year-old Sudanese refugee who arrived in Australia in 2013. Her partner, and the father of HC, BH, was in Uganda at the time of HC's birth.

15. PV's primary language was Dinka, and a Dinka interpreter was present at two out of a total of 10 pregnancy appointments. PV had limited social supports and no family in Australia. As part of her antenatal care, PV was referred for a social work service assessment early on in her pregnancy and was supported by doulas from Birth for Humankind.

16. PV had a relatively uncomplicated pregnancy, apart from having positive Hepatitis B serology.[7] Antenatal screening blood tests on 29 May 2017 and ultrasound scans at 13, 23 and 30 weeks were unremarkable, with the scans showing good growth and no fetal abnormalities. PV also had normal haemoglobin and oral glucose tolerance tests. Her serum ferritin was borderline low and may have been suggestive of iron deficiency. There was no haemoglobinopathy detected on Hb electrophoresis. General biochemistry on 23 June 2017 demonstrated mild elevations in alkaline phosphatase[8] (**ALP**) and gamma-glutamyl

[6] Qantas Airways Limited v Gama (2008) 167 FCR 537, [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 s. 140 of the Evidence Act 1995 (Cth); Neat Holdings Pty Ltd v Karajan Holdings Pty Ltd (1992) 67 ALJR 170, 170-171 per Mason CJ, Brennan, Deane and Gaudron JJ.

[7] Women found to carry hepatitis B during pregnancy should be cared for by a multidisciplinary team with special expertise in infectious disease. Antiviral medication is offered to women with a high level of virus in the blood to minimise the risk of transmission of the virus from mother to baby. See: The Royal Australian and New Zealand College of Obstetricians and Gynaecologists 'Management of Hepatitis B in pregnancy' statement dated November 2019 (first endorsed November 1990) available at: https://ranzcog.edu.au/RANZCOG_SITE/media/RANZCOG-MEDIA/Women%27s%20Health/Statement%20and%20guidelines/Clinical-Obstetrics/Management-of-Hepatitis-B-in-pregnancy-(C-Obs-50).pdf?ext=.pdf

[8] Alkaline phosphatase (**ALP**) is an enzyme found in blood which helps break down proteins in the body. The normal range of ALP varies from person to person and depends on age, blood type, gender and whether a person is pregnant.

transferase[9] (**GGT**) and a mildly low serum Albumin.[10] Group B streptococci, a bacterium that can be passed from mother to baby during labour and lead to infection in the first week of life, was not identified in a genital swab on 7 July 2017.

Early stages of labour

17. On 4 August 2017, at 3.31pm, PV presented to Werribee Mercy Hospital in spontaneous early labour, having experienced regular contractions since the early hours of that morning. At that time, the contractions were occurring regularly every five minutes. PV reported that she had reduced fetal movements and back pain. Her abdomen was hard and tender. She was not suffering from any vaginal loss. Her temperature was 36.7°C, pulse was 101 beats per minute and her blood pressure was 136/90 mmHg. A placental swab grew Mycoplasma hominis[11] and a moderate growth of vaginal flora, but neither Listeria species[12] or Group B streptococci were isolated.

18. On examination at 4.00pm, the fetal heart rate was recorded as being 140 beats per minute with variable decelerations noted with a contraction where the fetal rate dropped to 125 beats per minute. PV was not feverish, had a heart rate of 101 beats per minute, and a blood pressure of 136/90 mmHg. She had an abnormally high number of neutrophils (a type of white blood cell). However, the pathologist later reported that this was *"essentially normal for a pregnant patient"*. PV was transferred to the birth suite[13] and cardiotocograph[14] (**CTG**) monitoring was commenced. During her labour, PV was supported by two doulas and her grandmother.

19. At 5.00pm, PV's CTG trace was interpreted as reassuring and was removed. At that time, PV reported that she had suffered a spontaneous rupture of her membranes at 4.25pm and that clear liquor was seen.

20. At 5.45pm, PV experienced involuntary pushing and clear liquor was draining. A mucous show was seen on the bedding. The fetal heart rate was auscultated at 138 beats per minute,

Abnormal levels of ALP can indicate a problem with liver, gallbladder or bones, or malnutrition, kidney cancer tumors, intestinal issues, a pancreas problem or a serious infection.

[9] Gamma-glutamyl transferase (**GGT**) is an enzyme that is found in many organs throughout the body, with the highest concentrations found in the liver. GGT is elevated in disease of the bile ducts and in some liver diseases.

[10] Albumin is a protein made by the liver. Low albumin levels can indicate a problem with the liver or kidneys.

[11] Mycoplasma hominis is a bacteria that live in the urinary tract and genitals of about half of women. They rarely cause infection.

[12] Listeria is a foodborne bacterial illness that can be very serious for pregnant women.

[13] There were six midwives rostered for each shift in the birth suite, as standard.

[14] Cardiotocography (**CTG**) is a technical means of recording the fetal heartbeat and the uterine contractions during pregnancy.

and PV was experiencing two contractions of moderate strength every ten minutes. Her temperature was 36.7°C. She continued to experience occasional involuntary pushes.

21. At 6.30pm, an examination was performed with PV's consent to assess her progress. That examination revealed her cervix was 6 cm dilated, 0.5 cm thick and well applied, clear liquor was draining, and HC was 2/5 above the maternal brim, at a station of -1. HC's position was not clear. The fetal heart rate was 130 beats per minute on auscultation, and PV was experiencing three moderate contractions every ten minutes. Her blood pressure was 150/100 mmHg and her pulse was 88 beats per minute. The midwives encouraged PV not to push.

22. At 7.00pm, the fetal rate was auscultated and was 135 beats per minute with no decelerations heard. Clear liquor continued to drain and PV was experiencing one moderate contraction every ten minutes. PV's blood pressure was 140/90 mmHg and her pulse was 80 beats per minute.

23. At 7.30pm, clear liquor continued to drain and PV's pulse was 80 beats per minute.

Decelerations in fetal heart rate

24. At 7.50pm, one of the doulas reported the presence of fresh vaginal loss following pushing by PV. On examination, pink liquor was noted. The fetal heart rate was auscultated with variable decelerations down to 80 beats per minute being noted during contractions with a quick recovery. A CTG was again applied.

25. By 8.00pm, PV was experiencing four moderate contractions every ten minutes and her pulse was 100 beats per minute. The attending midwife requested assistance as she was having difficulty monitoring the fetal heart rate. Another midwife attended.

26. At 8.10pm, a further vaginal examination was performed which revealed PV's cervix was 8 cm dilated, fully effaced and well applied. Pink liquor was seen. HC was at the ischial spines, with significant caput and no moulding present. The midwives advised PV that her continuous pushing was causing her cervix to swell. Decelerations were heard on the CTG.

Pain relief

27. At 8.25pm, pain relief options were discussed with PV. The midwives discussed the use of morphine for relaxation. One of the doulas reportedly said that morphine should not be recommended. PV subsequently said she would consent to an epidural being inserted, and she

was advised that an intravenous (**IV**) bung would need to be inserted and blood taken prior to its insertion.

28. At 8.30am, midwives inserted an IV bung into PV's left hand and bloods were taken and sent to pathology. However, it does not appear that PV was administered an epidural for pain relief at any stage of her labour.

Concerns and difficulties with CTG monitoring

29. At 8.40pm, the CTG was not recording appropriately due to excessive maternal movement. The CTG was repositioned in an attempt to accurately trace the fetal rate. PV was reminded again not to push.

30. At 8.55pm, the CTG continued to provide a poor recording of the fetal heart rate. The attending midwife was having difficulty distinguishing between the maternal heart rate and the fetal heart rate. They discussed with PV about the possibility of inserting a fetal scalp electrode (**FSE**) to more accurately monitor the fetal heart rate. However, PV declined this option.

31. At 9.05pm, PV was commenced on nitrous oxide. At this time, the CTG was recording the fetal heart rate well. It was considered the trace revealed an increasing fetal heart rate baseline, absent variability and the presence of variable decelerations.

32. At 9.15pm, the midwife noted concern about the appearance of the CTG trace, although the doulas reportedly stated words to the effect that they were happy the baby was okay. PV declined a further vaginal examination.

Escalation of care

33. At 9.30pm, the CTG trace for the previous 60 minutes was interpreted as revealing baseline rising above 150 beats per minute, absent variability and variable decelerations. It was assessed overall as being abnormal.

34. At this time, the midwife provided a handover to Dr Kellogg and relayed her concerns regarding the CTG trace. Dr Kellogg reviewed PV and noted she appeared to be involuntarily pushing, was not very communicative and her bladder was distended. With her consent, PV's bladder was drained with 500ml of clear urine being drained.

35. A vaginal examination revealed PV was 9 cm dilated, there was some asynclitism and HC was in a vertex presentation at +1 station, with significant caput. PV consented to an FSE being applied. It was considered that the appearance of the CTG trace was improved following the bladder drainage, with the fetal heart rate baseline recorded at 140 beats per minute with decelerations coinciding with contractions. Dr Kellogg planned to reassess PV's progress in two hours.

36. At 10.00pm, the fetal heart rate was 154 beats per minute and pink liquor was draining. PV was experiencing four moderate contractions every ten minutes, her pulse was 95 and her temperature was 36.4°C. The midwife who had taken over PV's care noted her obstetric history, the previous variable decelerations seen on the CTG and that an FSE had been applied and was recording the fetal heart rate well.

37. PV was administered IV fluids, a catheter was inserted and she was using nitrous oxide at 70/30 with good effect. However, she was becoming more agitated, rolling from side to side and changing her position.

38. At 10.50pm, the in-charge midwife attended to PV as the CTG trace was considered impossible to interpret as the tocodynamometer was not recording due to maternal position changes. PV was asked to stay in the left lateral position for 10-15 minutes to enable assessment of the CTG trace. It was considered there was a rising fetal heart baseline and it was noted that PV was pushing. The registrar was notified and attended shortly afterwards.

<u>Decision for immediate delivery and obtaining consent</u>

39. At approximately 11.00pm, Dr Kellogg was asked to review PV because of rising fetal heart rate baselines and reduced variability. It was considered the CTG trace revealed a rising fetal heart rate baseline, absent variability, no accelerations and shallow variable decelerations. Dr Kellogg considered the CTG trace was non-reactive and that HC needed to be immediately delivered. Dr Kellogg performed a vaginal examination which revealed PV was fully dilated, HC was in a vertex presentation at +1 station and significant caput was present. Dr Kellogg considered it likely that labour was obstructed and sought PV's consent for immediate delivery by trial of forceps and/or a caesarean section for obstructed labour.

40. PV initially refused to provide consent for the instrumental / caesarean section. Dr Kellogg outlined to PV the maternal and fetal risks of continuing the labour without intervention, including the risk that HC might suffer from brain damage or might die. However, PV refused to sign the consent form permitting the recommended intervention as she wanted to speak

with her family members about the proposed intervention. At this time, the fetal heart rate was 173 beats per minute.

41. At 11.15pm, consultant obstetrician Dr Wijewardana and the anaesthetist were informed of the need for an expedited delivery in theatre due to the non-reassuring CTG trace. The paediatric team, including consultant paediatrician Dr Joshi, were also notified of the need to attend an emergency caesarean. They were initially told to present as per hospital policy for a caesarean section for obstructed labour and fetal distress.

42. At 11.20pm, after discussing the matter on the telephone with a family member, PV provided her consent for the trial of forceps and/or caesarean section, signed the consent form and was immediately taken to the operating theatre.

Delivery of HC

43. At 11.30pm, Dr Wijewardana reviewed the CTG trace. According to Dr Wijewardana, the indications for the emergency caesarean section were fetal distress evidenced on the CTG trace by bradycardia, tachycardia, reduced variability and variable decelerations.

44. Dr Wijewardana later explained that given PV's young age, and the fact that she was fully dilated, she considered an instrumental delivery, if possible, was the preferable option. An instrumental delivery cannot be performed under a general anaesthetic, and it was for that reason a spinal anaesthetic was inserted. A uterine relaxant was not considered by Dr Wijewardana as PV was already in theatre being prepared for a caesarean section.

45. At 11.57pm, PV was undergoing the necessary preparations to allow surgery to commence when the CTG trace revealed a deep deceleration of fetal heart rate to 86 beats per minute. A second phone call was made to inform the paediatric team of the delay in the CTG findings and the need to deliver urgently. Although it is uncertain the precise time Dr Joshi attended, the evidence indicates Dr Joshi arrived a couple of minutes before HC's birth.

46. At 11.58pm, the caesarean section was commenced. A Pfannenstiel incision was made and PV's abdomen was opened. Her bladder was pushed down, and the uterus opened. Thick meconium-stained liquor[15] was found following commencement of the caesarean section.

[15] Meconium-stained amniotic fluid is relatively common. It can be seen with fetal distress but can also occur in normal labour. It is one of the indications for continuous fetal heart rate monitoring and is a factor in decisions made about duration of labour and the response to any suspected fetal distress. Meconium is also a risk factor for meconium aspiration and its presence will usually require the attendance of a paediatrician at delivery. The change from clear liquor early in labour to meconium indicates the presence of intrapartum fetal distress.

47. Dr Wijewardana explained that there was difficulty with the extraction of the fetal head at the time of the caesarean section, which is not uncommon in circumstances of an obstructed labour. Dr Kellogg manually applied steady firm upward pressure vaginally to achieve dis-impaction (dislodgement) of the fetal head. No other difficulties were encountered during the caesarean section.

48. HC was born at 12.02am on 5 August 2017, at a birthweight of 3260 grams. Suction was undertaken, and a saturation probe and continuous positive airway was applied.

Post-natal period and the circumstances leading to death

49. HC was born in poor condition with Apgar scores[16] of 2 at 1 minute, 4 at 5 minutes and 4 at 10 minutes. Thick meconium was aspirated from below his vocal cords. HC's heart rate improved, but he had poor respiratory effort with no spontaneous breathing. He received intermittent positive-pressure ventilation (**IPPV**)[17] from birth and was intubated at around five to seven minutes of age, before being admitted to the Special Care Nursery.

50. HC was assessed by the Royal Children's Hospital Paediatric Infant Perinatal Emergency Retrieval (**PIPER**) Team within thirty minutes and was transferred to the Butterfly Ward at the Royal Children's Hospital Neonatal Unit, where he was admitted at 5.15am. He was diagnosed with severe hypoxic ischaemic encephalopathy (Grade III), and received therapeutic hypothermia, inotropes and antibiotics for treatment. Over the following days, HC developed seizures, for which he was treated with multiple anticonvulsants, and hypotension, for which he was administered packed red blood cells.

51. Despite medical intervention, HC continued to have diminished awareness, fixed dilated pupils, no respiratory drive, no suck or gag reflexes and no spontaneous movements. Magnetic resonance imaging (**MRI**) was consistent with the clinical findings and revealed profound generalised hypoxic ischaemic brain injury with marked cerebral oedema and mass effect.

52. Following discussions with HC's family, a decision was made to reorientate his care to comfort care.

[16] The Apgar score is a measure of a baby's condition after birth. It guides midwives, doctors and nurses as to whether a baby needs immediate treatment or monitoring. The Apgar score is based on a total score of 1 to 10. The higher the score, the better the baby is doing after birth. A score of 7, 8 or 9 is normal and is a sign that the newborn is in good health.

[17] Intermittent positive pressure ventilation is the process of manually or mechanically ventilating a patient to assist or replace spontaneous breathing.

53. HC died peacefully in his mother's arms at 7.07pm on 11 August 2017.

Identity of the deceased

54. On 11 August 2017, HC, born 5 August 2017, was visually identified by his mother, PV. Identity is not in dispute and requires no further investigation.

Medical cause of death

55. Forensic Pathologist Dr Sarah Parsons from the Victorian Institute of Forensic Medicine (**VIFM**), conducted an autopsy on 15 August 2017 and reviewed the Victorian Police Report of Death Form 83 and medical deposition from the Royal Children's Hospital. Dr Parsons provided a written report of her findings dated 25 January 2018.

56. The autopsy revealed global cerebral ischaemic injury with subgaleal haematoma,[18] minor extra/intradural haemorrhage in the parasagittal region, thin film subdural convexity haematoma, minor convexity subarachnoid haemorrhage and marked softening and liquefaction of HC's brain.

57. The placenta[19] was found to be a third trimester singleton placenta with a hypercoiled umbilical cord. There was meconium exposure, possibly prolonged, acute chorioammionitis, chronic vasculitis, foetal inflammatory response Stage 1, Grade 1, and chorangiosis.

58. HC was also found to have a raised C-reactive protein (**CRP**), a marker of inflammation. Dr Parsons noted there was focal left lower lobe pneumonia and cultured Staphylococcus species from the left lung. She considered that this was likely the cause of the raised CRP and was likely a complication of intubation.

59. Dr Parsons provided an opinion that the medical cause of death was:

1(a) Global cerebral ischaemia

[18] According to specialist paediatrician Dr Kevin Dunne, a subgaleal haematoma is seen after an instrumental or ventouse delivery. Subgaleal haemorrhage is a potentially lethal condition in newborns and is the result of bleeding into the space between the epicranial aponeurosis and the periosteum, caused by rupture of the emissary veins (which are connections between the dural sinuses and scalp veins). The morbidity and mortality associated with subgaleal haemorrhage is due to the potential space beneath the aponeurosis being large and therefore blood loss into this space can be significant and life threatening. Obstetrician gynaecologist and Clinical Director of Women's and Children's Services at Mercy Health explained that he would consider the presence of any subgaleal haemorrhage in this case to support the opinion of the fetal head being well down in the pelvis, and the indicated Caesarean section requiring a 'dis-impaction' of the fetal head from the pelvis as part of the abdominal delivery. Given other factors present and the resuscitation applied, Dr Rasmussen opined that he would not consider it of itself a factor in the final outcome for HC.

[19] Reviewed by the Royal Children's Hospital.

1(b) Perinatal asphyxia

60. Dr Parsons explained that perinatal asphyxia is a lack of oxygen in the perinatal period, either just before, during or after birth. The causes are many and include: too little oxygen in the mother's blood; problems with the placenta or umbilical cord; a long or difficult delivery; and blockage of the baby's airways.

61. Dr Parsons explained that in this case, the pathology suggested a combination of insults leading to the acute ischaemic event including:

    (a) HC's airways were blocked with meconium causing upper airway obstruction which was aspirated from below the cords during resuscitation;

    (b) the changes in the placenta suggested a degree of asphyxia prior to birth with possible prolonged meconium exposure to the cord and evidence of an infection;

    (c) the hypercoiled umbilical cord was a risk factor for hypoxia;

    (d) the haematomas and haemorrhages identified at autopsy were likely due to birth trauma;

    (e) issues with the placenta may have led to expulsion of meconium and aspiration by HC causing upper airways obstruction; and

    (f) HC required fluid and blood products due to the subgaleal haematoma which may have contributed to the ischaemic event.

62. I accept and adopt Dr Parson's opinion.

REVIEW OF CARE

Mercy Health Clinical Review

63. HC's death was reviewed internally by Clinical Director Dr Michael Rasmussen and a formal Root Cause Analysis (**RCA**) was undertaken through the Serious Incident Review Committee (**SIRC**). The case was also presented at the Perinatal Mortality and Morbidity Meeting. The outcomes of the reviews were circulated through the Quality Program and back through the Women's and Children's Program. An open disclosure meeting was also held with PV on 6 December 2017.

64. The RCA identified issues in relation to the:

(a) scheduling of a medical review at 9.40pm;

(b) difficulties in communicating with PV; and

(c) opportunities to engage consultants when treatment options were refused.

65. As part of the open disclosure process, Mr Rasmussen also identified an additional issue regarding language comprehension.

Scheduling of Medical Review

66. The RCA considered that the two-hour interval for scheduling the medical review at 9.40pm was longer than appropriate, given the deterioration previously seen on the CTG trace. However, it was considered that the CTG trace was not indicative of the need for a caesarean section at that time, and PV was reviewed within an hour following appropriate escalation of care by the midwifery team.

Communication between staff, PV and Doulas

67. The RCA explored the complexity of communication between the hospital, PV and the birth support attendants. It was felt that there was a *"failure of communication"* which led to an apparent reluctance by PV to agree to requested treatments, and in particular the recommendation late in labour for delivery by caesarean section. Staff reported that there were communication difficulties between themselves and the patient and themselves and the attending birth supports or doulas. Staff also reported that they experienced or perceived a gap between the patient's expectations regarding management of her labour and delivery and the reality and urgency of events as they unfolded.

Conducting difficult conversations

68. The RCA felt that the attending staff appeared to have an inadequate skill set for conducting difficult conversations as described above. The RCA considered there were opportunities to engage a consultant at various times when treatment options were refused by the patient but that this was not initiated by either medical or midwifery staff.

Language comprehension

69. An interpreter was not provided during the labour. PV stated that she had to telephone community members to be explained the proposed procedures.

70. The RCA suggested that the issues in communication were not necessarily difficulties due to the language barrier, but rather more associated with issues around culture and cultural sensitivity. PV reported that she felt she was not being understood during the procedure and felt let down. She considered that the midwife was not being helpful and was not communicating with her.

Recommendations

71. In response to the identified issues, three recommendations were identified by Werribee Mercy Hospital to:

    (a) implement a program for staff to enhance communication skills including the need for escalation in the context of patients during labour having divergent expectations regarding treatment options;

    (b) review the 'Support Persons in Birth Suite' procedure to provide greater detail and clarity of the role of doulas as support persons; and

    (c) implement a culturally specific liaison service for women of non-English speaking backgrounds to enhance the understanding of such women regarding the types of services and intervention that may be required during labour and birth and also of staff in relation to the expectations of such patients.

72. Mercy Health has implemented mandatory training via the Mercy Health intranet 'PROMPT', focused on the importance and ways in which to escalate clinical concerns. This is implemented through escalation education and reviewed on an ongoing basis through the Quality program.

73. Mercy Health has also completed a review and update of the 'Support Persons in Birth Suite' procedure, with staff advised to make all attending support persons aware of the roles and responsibilities of support persons leading up to and in labour.

74. In 2018, a working group was established to review the hospital's relationships with the local African community. The impetus for this came from this incident in particular, but also issues that had been identified with interpreters, booking processes, options for antenatal care and options for birth support. The African Liaison Officer at Mercy Heidelberg was included in

the working group, which surveyed the local African community and held meetings with relevant stakeholders to assess what it considered to be the main needs and issues in the provision of Obstetric and Newborn services through Werribee Mercy.

75. Further, Dr Rasmussen commented that after speaking with PV, in his opinion, language comprehension was an issue, and an interpreter should have been provided until such time as she deemed it unnecessary. He explained that securing interpreter services during labour is difficult, but efforts should have been made. Dr Rasmussen advised that this issue has been raised through the Division of Obstetrics. It is agreed a request for an interpreter implies a request that should not be overturned other than at the patient's specific direction. It was noted that at the first antenatal visit at 12.5 weeks' gestation that PV's '*English is good'*. An interpreter was offered, and PV reportedly advised she '*would like for the next visit*'. An interpreter was arranged and attended the next visit, however it seems an interpreter was not arranged for all subsequent visits. It was felt by staff in the clinic and the labour ward that PV's English and comprehension was '*satisfactory'*.

76. Dr Rasmussen commented that in his opinion, improved awareness of the cultural background and circumstances of a young mother in PV's circumstances and improved culturally sensitive and accessible antenatal education and birth preparation, could have helped create a more informed and trusting relationship making for better, easier and safer intra-partum care and decision making.

77. Dr Rasmussen commented that the doulas provided much needed support for PV, who was a young and isolated woman. In his opinion, the doulas only ever acted as support persons and did not in any way step outside their competency and role as lay support persons without midwifery training or qualification. Their words of support in his opinion were made in good faith, and they did not interfere enough to compromise patient outcomes. However, Dr Rasmussen considered improved communication and trust between midwifery and medical staff, the doulas present and the patient, with provision of interpreter support as required, could have eased understanding and decision making as labour unfolded and as fetal compromise and the need for action was recognised. These issues have been recognised and have been responded to through the support persons documentation referred to above.

78. Dr Rasmussen stated that in his opinion the labour admission CTG was reassuring. The decision to remove the CTG at around 4.30pm and monitor by intermittent auscultation was appropriate and as per the intrapartum care guideline. The decision to recommence continuous CTG monitoring in response to an auscultated deceleration at 7.50pm was appropriate. From

this point on there were difficulties obtaining an accurate CTG trace due to maternal movement and urge to push. The need for a scalp clip was recognised and there was some delay getting this applied and in getting patient permission for this to be done. The CTG from 7.50pm to 9.20pm was not normal and reportedly difficult to interpret.

79. Dr Rasmussen agreed with the SIRC review in that a decision at this stage to review in 2 hours was inappropriate. The appropriate response at 9.30pm was either to deliver or wait a short period of time with the support of a normal scalp lactate. The CTG remained abnormal and was reviewed at 11.00pm when the recommendation was for immediate delivery and at full dilatation.

80. Dr Rasmussen considered it unlikely that the 20-minute delay in the reported refusal to consent led to the tragic outcome. In his opinion the scalp electrode should have been applied sooner and the discussion around the need for caesarean section or perhaps scalp lactate estimation should have occurred earlier. As the CTG was applied, Dr Rasmussen considered discussion around a caesarean section should have occurred closer to 9.30pm. He noted that it is unknown how this suggestion would have been received or whether the outcome could have been changed.

81. Dr Rasmussen acknowledged that an important response to this incident is to reaffirm the importance of CTG education, the role of considered and selected use of fetal scalp and lactate estimation, the educational role of more widespread use of cord blood pH and lactate estimation, and the efforts to engender a culture of required escalation of clinical concern. In Dr Rasmussen's opinion these learnings have been instilled in the Division and Labour Ward at Werribee Mercy. I acknowledge their ongoing efforts in these areas.

82. Dr Rasmussen further explained that

> "*During the open disclosure meetings with PV I was disappointed to hear how poorly the hospital had supported her while she was leaving the hospital to be with her baby at Royal Women's (sic) Hospital. PV's experience of feeling left alone and unsupported at this time shows an unsatisfactory level of care. Improvements in the pathways of women experiencing perinatal loss or stillbirth have been instituted, and learnings from PV's experience have been fed back to leadership and staff. The experience of PV at the hospital particularly after delivery were presented by me to the Mercy Leadership Meeting as part of a regular 'patient experience' presentation*."

Escalation of Care

83. According to Dr Rasmussen, escalation is a critical component of safety and best practice in labour management and CTG assessment of fetal wellbeing. Easy and unchallenged 'escalation' of concern is an important part of a safe labour ward culture. Making it part of a hospital's culture requires training and effort.

84. Dr Rasmussen explained that medical and nursing staff are encouraged and required to escalate up the chain of responsibility if they feel their concerns are not being acknowledged or responded to. Escalation means a clinician's concerns do not stop with their immediate superior. Their concern can be escalated as they see appropriate, and up to the level of the Clinical Services Director if they feel it even *might be* warranted. Escalation is not allowed to be dismissed, challenged or 'talked down'. Dr Rasmussen advised that escalation has become an important part of staff orientation, Professional Development Review, and all audit and QA processes in the hospital.

85. If a midwife or clinician is concerned about a CTG or labour progress, appropriate escalation would be required to the Nurse Unit Manager (**NUM**), Consultant on Duty, Clinical Director of Obstetrics, or to the Clinical Director of Women's and Children's. If there are specific concerns about CTG interpretation, this will be relayed to the registrar or consultant on duty at Mercy Heidelberg or in hours to the NUM of fetal monitoring for opinion and support.

CPU Review

86. Due to the medical complexities associated with HC's death, this case was referred to the Health and Medical Investigation Team within the CPU for a comprehensive review and assessment of the medical care and management of HC.

Family Concerns

87. PV met with Dr Parsons, the VIFM forensic pathologist to discuss the autopsy findings and met with the hospital representatives on two occasions. It was at these meetings PV expressed dissatisfaction in the care provided during her labour. PV asserted the hospital staff told her HC died because she delayed consent for an emergency caesarean. The hospital has subsequently apologised for this.

88. PV's issues centred on poor communication as no Dinka interpreter was used during her labour, and she considered the staff to be rude and abrupt. PV requested, but did not receive, an epidural during her labour. In theatre, she reported hearing her baby's heart rate fall at the beginning of the caesarean section. In addition, there seemed to be inadequate discharge support for PV. She was unclear on the location of the RCH NICU and became lost in the

hospital. Further, she didn't understand the instructions she was given on discharge medications and was subsequently readmitted to the Royal Women's Hospital for a wound infection.

Review and Suggested Actions

89. Statements were provided to the court from Dr Michael Rasmussen, Dr Wijewardana, consultant obstetrician, Ms Jennifer McLeod, Acting Birth Suite Manager along with paediatricians Dr Kevin Dunne and Dr Datta Joshi. The majority of the statements are outlined in the circumstances of death above, and the remaining issues are summarised below.

90. Questions asked of the physicians focussed on when labour and fetal wellbeing was considered abnormal and whether there were any delays in management. In addition, the statements addressed what the degree of consultant obstetrician support was and the supervision of doctors to enable appropriate labour clinical decision making. The physicians were also questioned on central and remote access to real time CTG monitoring, partograms and all labour events to ensure the on-call consultant obstetrician has timely access to vital clinical information.

91. According to Dr Rasmussen, the death of HC was reviewed by both the Werribee Mercy Hospital Serious Incident Review Committee and the mortality committee which identified multiple shortcomings in the quality of care provided.

92. There were a number of cumulative factors which possibly contributed to the death of HC. In addition to the forensic pathology findings, there was a history consistent with decreased fetal movements, a prolonged and obstructed labour compounded by delays in timely escalation and recognition of a compromised fetus. In addition, there were injuries secondary to birth trauma which may have been preventable.

93. The CPU considered that the death of HC highlighted the importance of preparation for labour and birth for women from culturally and linguistically diverse (**CALD**) communities and the importance of effective communication strategies to enable informed consent.

94. The CPU suggested that further information be obtained from Werribee Mercy Hospital about the relevant protocols and guidelines, as well as an update on the implementation of centralised CTG monitoring and any changes implemented to address staff cultural sensitivity in communicating birthing options. A summary report was also requested on the contributing factors leading to preventability by the Consultative Council on Obstetric and Paediatric

Mortality and Morbidity (**CCOPMM**) and Safer Care Victoria Sentinel Event Program Reviews.

95. It was further suggested that expert opinions be obtained from an obstetrician and a neonatologist. The expert opinions were focussed on the factors which may have facilitated earlier identification of the need for delivery and the likely degree of contribution of any delays to the eventual outcome. In addition, the experts were asked to review the changes made by Werribee Mercy Hospital to assess the adequacy in preventing a similar future death.

Subsequent improvements by Werribee Mercy Hospital

96. Dr Michael Rasmussen informed me that Werribee Mercy has now established a Phillips OBTV system which 'live links' all CTG machines in the Birth Suite, Fetal Assessment and Perinatal Day Stay with a 'Central Viewing Station' located at the central desk in the Birth Suite. The system is live, searchable and 'reviewable'. The central station can also be searched and reviewed from the Clinical Director's desk adjacent to the Birth Suite, and from the Fetal Monitoring central desk Phillips OBTV central station located in Heidelberg at Mercy Hospital for Women. CTGs can be accessed remotely.

97. Werribee Mercy Hospital further advised that they have implemented central CTG monitoring which is now in use in all assessment and birthing suite rooms.

98. The hospital has also implemented a number of changes to address staff cultural sensitivity and to assist in communicating birthing options to women from CALD communities including:

    (a) A pilot of Mandarin language antenatal classes has commenced, and the plan is to expand to other languages;

    (b) A large project with involvement from the community, Murdoch Children's Research Institute and the Mercy Support Foundation is in its planning stages. The aim of the project is to assess the needs of the South-Sudanese community and to then provide customised antenatal and birthing care. The project is modelled on Mercy Health's already very successful 'Healthy Happy Beginnings' program which is run in the Karen community and is reportedly associated with very good outcomes; and

    (c) There is ongoing staff orientation and education with regards to the use of interpreters at all times.

99. Werribee Mercy Hospital, upon my request, also provided copies of updated policies including the following:

(a) Intrapartum Fetal Surveillance Clinical Guideline, dated February 2019. Notably, this guideline includes that continuous CTG in labour should be initiated in circumstances where decreased fetal movements have been recorded in the week prior to labour. The CTG should be reviewed and signed every 15-30 minutes by the midwife caring for the patient and after each medical review by the attending doctor. CTG is to be recorded hourly in the presence of any abnormal features. This guideline also includes an escalation process for abnormal CTG including notification to the associate unit manager (AUM), Resident, or Registrar. Medical Review of the CTG is warranted where there is suspected fetal compromise, and for immediate action and management with notification to the AUM, Registrar or Consultant for review of the CTG. Delivery is to be expedited where the features are highly suspicious of fetal compromise;

(b) Maternity Escalation of Care Procedure, dated March 2018;

(c) Escalation of Senior Obstetric and Gynaecological Medical Support Procedure, dated December 2016;

(d) Paediatrician Attendance at Deliveries in Operating Suite Procedure, dated September 2018;

(e) Interpreting Services Procedure, dated March 2019; and

(f) Language Services Policy, July 2018.

Outcomes of changes

100. A number of years had passed since the implementation of a number of these policies and programs. As such, I requested an update from Werribee Hospital as to the success of the changes implemented.

101. The implementation of centralised CTG monitoring remains in use in all assessment and birthing suite rooms at the hospital.

102. The pilot of Mandarin ante-natal classes was discontinued due to low attendance rates. A number of these sessions were affected by the COVID-19 pandemic. As such, ante-natal

education was provided through a series of on-line modules, in various languages, for expectant mothers to access at home.

103. Plans to implement a project with the Murdoch Children's Research Institute to assess the needs of the South Sudanese Community were also affected by COVID-19 and a lack of funding. The hospital has recognised the importance of investing in this area and advised they are in the process of developing a business case proposal to establish an African Liaison position at the hospital.

104. The hospital has partnered with the Wyndham Community and Education Centre to deliver a project which aims to improve the health literacy of migrant and refugee communities in Wyndham. The program is an 8-week educational course. In 2021, the hospital ran four online group programs and another is currently in progress. This project is targeted at the general community, however pregnant people are encouraged to attend.

105. The hospital has also published journal articles and studies around the care provided to refugee and migrant women and have expressed a commitment to ongoing staff orientation and education regarding the use of interpreters. Regular reminders are provided through Senior Medical Staff and a greater awareness has reportedly been created through regular reporting at local departmental governance meetings.

Expert Opinion – Dr Elizabeth Bolton, Consultant Obstetrician

106. Dr Bolton reviewed the care provided to PV and HC and provided an expert opinion.

107. Dr Bolton identified several factors which increased PV's labour and birth risks. These included that PV described decreased fetal movements in the week prior to labour commencement. Continuous CTG monitoring was not immediately commenced when PV presented in labour to the hospital. Given her history of decreased fetal movements, the intrapartum assessment was appropriate, but the management was not in accordance with the Royal Australian and New Zealand College of Obstetrician and Gynaecologist (**RANZCOG**) clinical guidelines with respect to the application of the CTG on arrival.[20]

108. It was noted that there were some difficulties in communicating with the doulas present supporting PV. Retrospective entries from the midwives indicate that a doula questioned care suggested by the midwife and encouraged PV to mobilise as she wished, going against the

[20] The Royal Australian and New Zealand College of Obstetrician and Gynaecologists (RANZCOG) clinical guideline 'Intrapartum Fetal Surveillance' 2014.

request from the midwife to remain still to obtain a CTG trace. Dr Bolton considered that it appeared that PV favoured the advice and support from the doula rather than following instructions from the midwife. This would have made caring for PV more challenging and would have distracted from providing the standard care in labour. Dr Bolton noted that education of the care providers about the role of support persons and how to communicate with them effectively may be a valuable consideration for Werribee Mercy Hospital.

109. At 9:16pm, the midwife recognised the abnormal CTG, and appropriately managed and escalated the findings to a Registrar. The Registrar's plan included a review in two hours, but when the CTG became significantly abnormal, this review did not occur in a timely manner.

110. At 9:30pm, when the CTG was abnormal, appropriate management required either a fetal blood sample or expedited birth and an explanation to PV, which ideally should have been assisted by an interpreter. Given PV did not understand the CTG was abnormal, she was not prepared for the later likelihood of a caesarean section.

111. Dr Bolton considered that upon review of the material, the appropriate time to have contacted the on-call obstetric consultant was at 9:30pm. The obstetric consultant remained unaware of the abnormal CTG until 10:45pm.

112. At 10:48pm, the obstetric registrar noted a persistent abnormal CTG and decided delivery by an urgent caesarean section was required. The decision to deliver by a caesarean section occurred at 11:00pm. Dr Bolton believed the decision to deliver was made too late and was compounded by PV's initial reluctance to provide consent. Further, there was a delay in the paediatric team being notified when PV was being prepared for a caesarean section.

113. Dr Bolton considered the histological findings from the placenta, and whether these contributed to the degree of asphyxia. Dr Bolton concluded that all of the histological findings represented processes which may have reduced HC's tolerance to the stresses of labour, and therefore may have contributed to the asphyxia. However, they were not considered to be the sole cause of the asphyxia.

114. Dr Bolton suggested Werribee Mercy Hospital may wish to consider a dedicated antenatal service with a clinical lead and allocated midwives to provide care to women from CALD communities.

Expert Opinion – Dr Simon Fraser, Consultant Neonatologist

115. Dr Fraser reviewed the care provided to PV and HC and provided an expert opinion.

116. Dr Fraser was of the view that HC died from severe hypoxic ischaemic encephalopathy associated with multiple organ involvement including cardiac, coagulation system and renal impairment. This occurred despite appropriate neonatal resuscitation and full intensive care.

117. Dr Fraser noted that HC had a prolonged and persistent metabolic acidosis following birth. He also had a subgaleal haemorrhage which likely contributed to, but did not cause, his death. Dr Fraser noted the possibility of meconium aspiration but again did not consider this to have caused the death. Although placental pathology suggested acute chorioamnionitis, there was no evidence of perinatal bacterial infection in HC.

118. Dr Fraser considered that the neonatal resuscitation provided was consistent with ANZCOR and the Werribee Mercy Hospital guidelines. Although HC was not successfully intubated until he was 19 minutes of age, he had appropriate clearing of the upper airway, IPPV and 100% oxygen up until intubation. An oxygen saturation probe was attached early and external cardiac compressions and adrenaline was not required. A Pedicap was attached following intubation and PIPER was called early and attended approximately an hour after birth. In Dr Fraser's opinion the support and interventions provided by PIPER were appropriate.

119. HC was born in poor condition, as was evidenced by his low cord (venous) pH of 7.07 with its mixed acidosis. His initial Apgar score of 2 at 1 minute of age and the presence of thick meconium staining of the liquor just prior to birth support an intrapartum event having occurred. Dr Fraser was concerned by the reduced fetal movement on the day prior to delivery and considered this suggested a potential earlier onset of fetal distress.

120. Although PV carried Hepatitis B, this would not have contributed to HC's poor neonatal condition, and he appropriately received Hepatits B Immunoglobulin and Hepatitis B immunisation following delivery and prior to transfer to the Royal Children's Hospital.

121. Dr Fraser was further concerned by the presence of Herpes virus multiplex PCR – Virus DNA within the nasopharyngeal aspirate left and right lung tissue, cerebrospinal fluid and bowel contents.

FINDINGS AND CONCLUSION

122. Pursuant to section 67(1) of the *Coroners Act 2008* I make the following findings:

    (a) the identity of the deceased was HC, born 5 August 2017;

(b) the death occurred on 11 August 2017 at Royal Children's Hospital, 50 Flemington Road, Parkville, Victoria, 3052, from global cerebral ischaemia secondary to perinatal asphyxia; and

(c) the death occurred in the circumstances described above.

123. There were several factors that potentially contributed to the death of HC. This included a history consistent with decreased fetal movements, an obstructed labour heightened by delays in timely escalation, a compromised fetus, and the forensic pathology findings. In addition, Dr Fraser noted injuries secondary to birth trauma and herpes simplex virus was identified by microbiological testing at autopsy.

124. Dr Fraser opined the asphyxia event occurred most likely sometime before birth and may have been prior to labour. Dr Bolton noted the 2014 RANZCOG intrapartum fetal surveillance guidelines outlines antenatal and intrapartum management in response to a history of decreased fetal movements. Since the 2017 death of HC, Safer Care Victoria has further promoted the RANZCOG guideline in the published E-Maternity Handbook.[21]

125. Dr Bolton concluded the CTG was abnormal at 9:30pm and appropriate management required either a fetal blood sample or expedited birth. Either action required an explanation to PV, ideally assisted by an interpreter.

126. I agree with the CPU's finding that HC's death highlights the importance of preparation for labour and birth during pregnancy for women from CALD communities and of effective communication strategies to enable informed consent. Research on this topic by the Murdoch Children's Research Institute is currently underway and Werribee Mercy Hospital intend to continue working on strategies to improve effective communication with the CALD communities.

127. Overall, Dr Fraser concluded that the neonatal resuscitation provided to HC was adequate, however the late notification for paediatric attendance may have contributed to difficulties experienced in equipment malfunction.

128. I consider that deficiencies in intrapartum management of HC were identified and have been adequately addressed by Werribee Mercy Hospital. Werribee Mercy Hospital identified

[21] Victorian Department of Health and Human Services, Safer Care Victoria. Maternityehandbook@safercare.vic.gov.au 'Decreased Fetal Movements' Updated November 2021.

opportunities to improve communication with CALD communities and continues to engage in processes to assist this endeavour.

129. I extend my sincere condolences to HC's parents for the tragic and unexpected death of their son.

COMMENTS

Pursuant to section 67(3) of the Act, I make the following comments connected with the death.

130. Women from a refugee background are at increased risk of poor maternal and perinatal outcomes. Research has shown that they are more likely to have a baby that is still born or that dies soon after birth compared with Australian born women. The Clinical Practice Guidelines: Pregnancy Care (Department of Health 2018) identifies antenatal groups as having the potential to meet the needs of populations vulnerable to poor outcomes, including women of refugee background. Healthy Happy Beginnings was named by and co-designed with Karen community members (women and men predominantly from refugee camps on the Thai/Burma Border) – a local partnership group was established to enable collaboration between Werribee Mercy Hospital, Wyndham City Council maternal and child health service, VicSEG New Futures and the Karen community.

131. Since the 2017 death of HC, Safer Care Victoria has further promoted the RANZCOG intrapartum fetal surveillance guideline which outlines antenatal and intrapartum management in response to a history of decreased fetal movements – see Victorian Department of Health and Human Services, Safety Care Victoria, Maternity E Handbook – 'Decreased fetal movements' updated November 2019.

132. Werribee Mercy Hospital should also be acknowledged and commended for having commenced significant efforts to improve outcomes for CALD communities. However as noted by Werribee Mercy Hospital, the emergence of the COVID-19 pandemic adversely impacted the progress of some initiatives. It is critical that, as we emerge from the pandemic, important work like this is reinvigorated and not lost to history.

RECOMMENDATIONS

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

(i) Finalise and submit the business case for an African Liaison position at the hospital.

(ii) Develop an information package for staff on the roles of support people and how to communicate with them effectively, with guidance on how to escalate issues that may impact on safe birthing outcomes.

(iii) Documentation on partograms should include all findings to allow for accurate assessment and help with recognition of an abnormal labour process.

(iv) Consider the use of stickers for the documentation of an abnormal CTG as stipulated in the Intrapartum Fetal Surveillance Clinical Guideline.

(v) Encourage staff to attend the Fetal Surveillance Education Program offered by RANZCOG on a regular basis.

ORDERS AND DIRECTIONS

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:

PV, Senior Next of Kin
Mercy Health
Paediatric Infant Perinatal Emergency Retrieval, Royal Children's Hospital
Birth for Humankind
Consultative Council on Obstetric and Paediatric Mortality and Morbidity
Safer Care Victoria, Department of Health and Human Services
Murdoch Children's Research Institute

Signature:

Coroner Leveasque Peterson

Date: 28 July 2022

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