IN THE CORONERS COURT
OF VICTORIA
AT MELBOURNE

Court Reference: COR 2022 006477

FINDING INTO DEATH WITHOUT INQUEST

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

Findings of:	Sarah Gebert, Coroner
Deceased:	Baby M
Date of birth:	10 November 2022
Date of death:	10 November 2022
Cause of death:	1(a) Perinatal asphyxia
Place of death:	The Royal Women's Hospital, 20 Flemington Road, Parkville, Victoria
Key words:	Perinatal asphyxia, cord compression, neonatal resuscitation

This finding has been deidentified for publication.

INTRODUCTION

1. On 10 November 2022, Baby M was 24 minutes old when she was pronounced deceased after being born in poor condition.

2. At the time of her death, Baby M's parents lived in Victoria.

THE CORONIAL INVESTIGATION

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

4. 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.

5. 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.

6. This finding draws on the totality of the coronial investigation into Baby M's death. 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.[1]

Background

7. Baby M's parents are TN and AL.

8. This was TN's first pregnancy. She received antenatal care at the Royal Women's Hospital. Her pregnancy was low risk; she had normal routine antenatal investigations including low

[1] 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.

risk screening for foetal aneuploidy (a genetic/chromosomal anomaly) and normal anatomy ultrasound scan.

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

Circumstances in which the death occurred

9. At approximately 2.00am on 8 November 2022, at 38+4 weeks gestation, TN had spontaneous rupture of membranes. She subsequently presented to The Royal Women's Hospital Emergency Department. Cardiotocography[2] (**CTG**) was performed which was normal and she was discharged home while awaiting contractions to develop.

10. TN called The Royal Women's Hospital Assessment Centre at 10.00pm that evening to report contractions and she was advised to attend the hospital for review. She was admitted at 11.21pm on 8 November 2022. At this stage, TN declined recommendations for a vaginal examination, CTG monitoring, and commencement of antibiotics given prolonged pre-labour rupture of membranes (**PROM**).[3]

11. At 4.30am on 9 November 2022, TN consented to a vaginal examination, CTG, and antibiotics. The vaginal examination showed that her cervix was 4 cm dilated.

12. Throughout the day on 9 November, TN's labour was slow to progress; her contractions slowed and at 4.45pm, her cervix remained 4 cm dilated. Labour augmentation with oxytocin[4] was recommended throughout the day and was initially declined. At 5.15pm, labour augmentation with oxytocin was commenced.

13. At 2.30am on 10 November 2022, a vaginal exam showed that the cervix was fully dilated (10 cm). Active pushing commenced at 3.40am.

14. At 4.50am, the CTG was escalated to the medical team due to reduced variability.

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[2] Cardiotocographic (**CTG**) or electronic foetal monitoring (EFM) of the foetal heart rate. The normal antenatal and intrapartum CTG has a baseline of 110-160 beats per minute (bpm). Baseline variability is the single most important feature of the trace in determining foetal wellbeing. Normal variability of between 5-25 bpm is indicative of adequate foetal oxygenation.

[3] Pre-labour rupture of membranes (**PROM**) is defined by rupture of membranes prior to the onset of labour. It is considered prolonged once the membranes have been ruptured more than 18 hours. Antibiotic prophylaxis is recommended at this point to prevent infection developing. At the time of admission at 23:21, TN's membranes had been ruptured approximately 21 hours.

[4] Augmentation of labour is the process of stimulating the uterus to increase the frequency, duration and intensity of contractions after the onset of spontaneous labour. Synthetic oxytocin is an effective drug used to stimulate uterine contractions in induction and augmentation of labour.

15. At 5.45am, TN was reviewed by a junior registrar due to prolonged second stage of labour[5] and a senior registrar attended at 6.02am. They obtained consent for forceps delivery, and the neonatal registrar was paged at 6.07am to attend the birth.

16. At 6.20am, the forceps blades were applied and at 6.22am the head was born with one pull assisted by an episiotomy.

17. At 6.23am on 10 November 2022, Baby M was born weighing 3260 grams. She was in poor condition with a slow heart rate (**HR**). She had an initial gasp then no subsequent respiratory effort. The neonatal registrar palpated Baby M's HR and noted it to be slow (approximately 60 beats per minute (**bpm**) at 10 to 15 seconds of life).

18. At 55 seconds of life, Baby M was transferred to the neonatal resuscitation trolley. The neonatal registrar commenced intermittent positive pressure ventilation (**IPPV**)[6] at pressures of 30/5 in air (21% oxygen).[7] The midwife auscultated the HR, which was less than 60 bpm. Cardiopulmonary resuscitation (**CPR**) with chest compressions was commenced by the midwife.

19. At 6.26am, a Neonatal Code Blue[8] was called and the neonatal fellow, Dr Hannah Bills, and neonatal nurse attended at four minutes of age (6.27am). Dr Bills took over airway management and increased the oxygen delivery to 100% (maximal level). CPR continued.

20. At 6.29am, the neonatal consultant, Dr Sheryl Rogerson, was telephoned to attend and a second Neonatal Code Blue emergency response was called. The second senior neonatal nurse specialist attended.

[5] The second stage of labour is the period of time from when the cervix is fully dilated to when the baby is born. The passive second stage is when there is full cervical dilation in the absence of involuntary contractions or urge to push. The active second stage is when there is expulsive contractions and/or maternal pushing. If a woman has no urge to push one hour after full dilation, a vaginal assessment and clinical assessment should be considered. The second stage is prolonged when lasting more than three hours.

[6] Intermittent positive pressure ventilation **(IPPV**) is the process of manually or mechanically ventilating a patient that is not breathing well or not breathing at all. A mask is placed over the baby's nose and mouth to provide the ventilation via a machine that provides pressure and oxygen.

[7] This is the standard pressure and oxygen levels for the start of resuscitation.

[8] An emergency call for assistance in the management of patients who are having or are anticipated to have a cardiorespiratory arrest. A Code Blue facilitates near immediate review by senior medical and intensive care doctors and nurses with the intention of attempting to resuscitate the patient.

21. At 6.31am, Dr Bills attempted to intubate but was unsuccessful. There was good view of the vocal cords, however she was unable to pass the endotracheal tube (**ETT**)[9] through the vocal cords. CPR continued.

22. At 6.32am, an umbilical venous catheter was inserted, and an umbilical cord clamp was applied to secure it. Dr Bills made a second attempt at intubation with a smaller size ETT but was also unsuccessful. CPR continued.

23. At 6.35am, the umbilical cord clamp was noted to be blocking the umbilical catheter, and the clamp was unable to be removed. The umbilical catheter was removed, and a second umbilical venous catheter was inserted.

24. At 6.37am (14 minutes of life), the first dose of intravenous (**IV**) adrenaline was administered.[10] Neonatal Consultant, Dr Sheryl Rogerson, arrived at 14 minutes of life. Dr Rogerson observed that there was no chest movement despite IPPV.

25. At 6.38am, Dr Rogerson intubated Baby M. Dr Rogerson observed the ETT pass through the vocal cords and into the trachea; she assessed the view of the cords as Grade 1, meaning the cords were easily visualised. However, there was no change in the colour on the Carbon Dioxide detector[11] and no rise and fall of Baby M's chest. Both Dr Bills and Dr Rogerson re-checked the ETT position with direct visualisation. Dr Rogerson stated, *"I observed it was correctly placed through the vocal cord"*. Baby M was not responding (no chest movement) and not improving (her HR and oxygen saturations did not improve) despite intubation and CPR continued.

26. At 6.39am, Dr Rogerson increased the peak inspiratory pressure (**PIP**)[12] to 50 cmH_2O by releasing a safety override switch. There was still no rise and fall of Baby M's chest; she remained pale, floppy, and had a very slow HR at approximately 10 bpm. CPR continued.

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[9] Endotracheal intubation is a procedure by which an endotracheal tube (**ETT**) is inserted through the mouth, between the vocal cords, and down into the trachea (the large airway into the lungs) and enables ventilation. The ETT is a flexible plastic or rubber tube used to maintain an open airway or to serve as a conduit through which to administer certain drugs.
[10] The adrenaline dose was not documented in the medical record. In Dr Jacob's statement, she wrote that the dose was verbally reported to be appropriate (0.5ml of adrenaline 1:10,000), which is in keeping with standard resuscitation guidelines.
[11] Capnometry using the "Pedicap" or similar devices is now standard practice. The device changes colour when exhaled Carbon Dioxide is detected. Carbon Dioxide comes from the lungs and hence gives a quick and mostly reliable indication of successful intubation/endotracheal tube insertion.
[12] Peak inspiratory pressure (**PIP**) is the maximum pressure applied during inhalation in mechanical ventilation. In this instance, the PIP was increased from the standard 30 cmH_2O to 50 cmH_2O as Baby M was not responding (her chest was not rising and falling) with the standard pressure.

27. At 6.41am and 6.43am, two 10 ml saline fluid boluses were administered through the umbilical line. CPR continued.

28. At 6.44am (22 minutes of life), a second dose of IV adrenaline and 5 ml saline was administered via the umbilical line. CPR continued. Dr Rogerson stated that this adrenaline dose would have been 2.5 ml however this may be an error in her statement (2.5 ml is the recommended dose via ETT, and not via IV). Associate Professor Jacobs stated it was the appropriate dose of adrenaline (0.5 ml).

29. At 6.47, a chest ultrasound was performed but only two to three uncoordinated contractions were evident. Dr Rogerson stated that she *"performed a heart ultrasound and I observed no evidence of cardiac contractability, and no evidence of lung inflation. I therefore made the decision to advise the team to cease resuscitation efforts, and Baby M was declared deceased."*

30. There had been no response to resuscitation measures and at 24 minutes of life, the decision was made to discontinue chest compressions and Baby M was declared deceased.

Identity of the deceased

31. On 12 November 2022, Baby M, born 10 November 2022, was visually identified by her father, AL.

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

Medical cause of death

33. On 12 November 2022, Dr Jaqueline Collett from the Victorian Perinatal Autopsy Service at the Royal Children's Hospital conducted an autopsy and provided a written report of her findings dated 13 February 2023.

34. Forensic Pathologist, Dr Judith Fronczek, from the Victorian Institute of Forensic Medicine (**VIFM**), reviewed Dr Collett's report and other additional materials and provided a written report with her findings dated 23 February 2023.

35. The post-mortem examination revealed overall growth and development appropriate for the gestational age. Baby M was normally formed, and the karyotype was normal.

36. The cause of death was perinatal asphyxia. Dr Fronczek explained that perinatal asphyxia results from an inadequate intake of oxygen by the baby during the birth process — before,

during or just after birth. Given the findings in the liver and brain, this has occurred while Baby M was still in utero.

37. There were no structural injuries related to the assisted delivery or resuscitation.

38. The brain and liver weights were above the 95th percentile for gestation, with changes in these organs that indicate that the insult, likely to be hypoxia, occurred prior to delivery (with changes suggestive of less than approximately four to six hours prior to delivery).

39. Placenta showed features indicative of high grade foetal vascular malperfusion, suggestive of prior episodes of cord vascular obstruction. No acute changes. Dr Fronczek noted these changes were insufficient to explain foetal demise. However, these features suggested a vulnerable cord which could be the cause of the brain and liver insult during labour.

40. Bradycardia was noted soon after delivery. Dr Fronczek explained that intrapartum asphyxia is a common cause of bradycardia at delivery and in this case, there appeared to be evidence of at least one prior episode of significant intrapartum insult, likely to be hypoxia, prior to delivery. The heart was normally formed, and the cardiac conduction system was examined with no abnormality identified. Other causes of bradycardia that may not have a morphological correlate cannot be excluded.

41. Dr Fronczek noted that difficulties were experienced with ventilation in the course of the neonatal resuscitation. The ETT was removed prior to autopsy and therefore its location could not be assessed. The oropharynx, larynx, trachea, and lungs were structurally normal. There was no obstruction of the upper airways identified. Congestion and interstitial and intra-alveolar haemorrhage were evident in the lungs. This could be a consequence of the episode of intrapartum hypoxia or hypoxia during the unsuccessful resuscitation. The degree of haemorrhage was typical of that seen in terminal hypoxia in situations where ventilation has not been reported to be difficult.

42. Despite a history of prolonged labour, there was no evidence of sepsis. There was no foetal inflammatory response identified and there was no significant foetal maternal haemorrhage detected by Kleihauer test.

43. Dr Fronczek provided an opinion that the medical cause of death was *"1(a) Perinatal asphyxia"*.

44. I accept Dr Fronczek's opinion.

FURTHER INVESTIGATION

45. As part of my investigation, I reviewed the medical records and obtained statements from:

    (a) Dr Julia Unterscheider, Acting Director of Birth Suite at The Royal Women's Hospital;

    (b) Associate Professor Susan Jacobs, Deputy Clinical Director in Neonatal Services Suite at The Royal Women's Hospital;

    (c) Dr Hannah Elizabeth Bills, former Neonatology Fellow at The Royal Women's Hospital; and

    (d) Dr Sheryle Rosemary Rogerson, Consultant Neonatologist at The Royal Women's Hospital.

46. I also obtained expert opinions from:

    (a) Dr Andrew Watkins, Neonatologist at the Mercy Hospital for Women; and

    (b) Professor Sailesh Kumar, Senior Staff Specialist in Maternal and Fetal Medicine, Obstetrics and Gynaecology at the Mater Mother's Hospital and Royal Brisbane and Women's Hospital.

47. The Coroners Prevention Unit[13] (**CPU**) assisted me to understand the medical events preceding Baby M's death and also reviewed the evidence obtained about the circumstances leading to her death.

The Royal Women's Hospital

48. Evidence from these statements has been incorporated into the finding where relevant.

Statement of Dr Julia Unterscheider

49. Dr Unterscheider's statement outlined the antenatal care, labour, and delivery and has been incorporated into this fining.

[13] The Coroners Prevention Unit (**CPU**) was established in 2008 to strengthen the prevention role of the coroner. The unit assists the coroner with research in matters related to public health and safety and in relation to the formulation of prevention recommendations. The CPU also reviews medical care and treatment in cases referred by the coroner. The CPU is comprised of health professionals with training in a range of areas including medicine, nursing, public health and mental health.

50. I also noted that Dr Unterscheider confirmed the Birth Suite was fully staffed and the demand and complexity was normal/average for a tertiary hospital on 10 November 2022.

51. She also outlined the Sentinel Event review process and findings (see further below) and outlined meetings with the family and the obstetric doctors.

Statement of Dr Hannah Bills

52. Dr Bills outlined her qualifications in her statement. I note that she was appropriately qualified for the role with more than 18 months of neonatal/perinatal training completed prior to 2022 and had completed recent neonatal resuscitation training.

53. Dr Bill's statement outlined her difficulties with intubation (see further below).

Statement of Dr Sheryl Rogerson

54. Dr Rogerson also outlined her qualifications in her statement. She was also appropriately qualified as a consultant neonatologist and had worked at the Royal Women's Hospital since 2001. She participated in a Neonatal Difficult Airway Course in 2018.

55. Dr Rogerson provided further information about the difficulties with ventilation (see further below).

56. Dr Rogerson also made additional comments that staff communication with parents could have been improved during the resuscitation. She stated that senior staff would benefit from training about delivering bad news or providing open disclosure to parents. Since this event, she has attended an open disclosure training session.

Statement of Associate Professor Susan Jacobs

57. Associate Professor Jacobs provided a statement outlining the following:

    (a) The neonatal management from the time of Baby M's birth;

    (b) Confirmation that medical staffing was 'usual' on the day of Baby M's birth and that all staff involved in the resuscitation had the appropriate level of training and expertise in neonatal resuscitation;

    (c) The regular training in neonatal resuscitation for midwives and medical staff at The Royal Women's Hospital;

(d) The requirements for on-call neonatal consultants; and

(e) Details of the hospitals Incident review report of this Sentinel Event.

Obstetric care

58. TN's obstetric management was reviewed by Professor Kumar and The Royal Women's Hospital Incident Review process (which also included an independent external obstetrician). These reviews had consistent conclusions and determined that the overall obstetric care and decision-making during labour and delivery was appropriate and consistent with current obstetric national and international guidelines.

59. Professor Kumar did not believe Baby M's death was preventable:

> *In my view, based on the information that I have been provided, TN's intrapartum management was appropriate and thus, sadly this death was not preventable. There was no obvious indication for urgent delivery at any point during labour.*

60. The CTG tracing has been reviewed by multiple experts and there was consensus that there was no indication for earlier delivery and that there was no indication from the CTG that Baby M would be born in such a poor condition.

61. Dr Unterscheider stated:

> *In the 17 hours preceding birth the CTG tracing was of good quality and not reconcilable with the clinical outcome. Intermittent loss of contact, possible prolonged decelerations/ bradycardias or maternal tracing occurred on 9/11/2022 between 7:55 and 13:30. The application of a fetal scalp electrode*[14] *could have improved the quality and interpretation of the CTG at that time, but given the normality of the CTG thereafter and the normal venous cord gas, it is highly unlikely that any earlier CTG abnormalities would have been so significant as to have prompted an alternative course of clinical action. This is in keeping with the assessment made by senior hospital obstetric and midwifery staff during the review of this incident, and with the opinion sought from an external maternal fetal medicine obstetrician.*

62. Professor Kumar reviewed the CTG monitoring and stated that there was no evidence of severe foetal compromise to indicate urgent or earlier delivery. There were brief periods of

[14] The fetal scalp electrode is a device placed under the skin on the presenting part of the fetus whilst in-utero to assess the fetal heart rate pattern.

loss of contact, but the CTG trace subsequent to these episodes did not indicate foetal compromise and the foetal heart trace for the 12 hours prior to birth was not indicative of an acute intrapartum insult:

> *It is important to note however that there was ~4-hour interval between admission at 1121pm on 8 November 2022 and when the CTG was commenced at 350am on 9 November 2022 during which time there may have been an acute event (perhaps cord compression) that compromised the fetus and was not detected, from which the fetus subsequently recovered. It is also equally possible that there may have been an episode of fetal compromise prior to admission.*
>
> …
>
> *In my view there was no indication for earlier delivery on either maternal or fetal grounds. There was no sentinel event in labour (placental abruption, cord prolapse uterine rupture etc.) nor was the CTG sufficiently abnormal to warrant expedited delivery.*

Perinatal asphyxia and cord compression

63. Dr Fronczek formulated Baby M's cause of death as perinatal asphyxia. Perinatal asphyxia results from inadequate oxygen to the baby during the birth process and Dr Fronczek suggested that this occurred four to six hours prior to delivery.

64. The mechanism causing perinatal asphyxia was not definitive but there were findings suggestive of prior episodes of cord vascular obstruction although they were insufficient to explain foetal demise. However, those features suggest a *"vulnerable cord"* and there appeared to be evidence of at least one prior episode of significant intrapartum insult, likely hypoxia, prior to delivery.

65. Cord compression (or cord vascular obstruction) refers to the compression or obstruction of the umbilical cord blood vessels. Cord compression results in umbilical vein compression which results in the failure of blood returning to the foetus from the placenta. The failure of blood returning to the foetus results in reduced in foetal blood volume and reduced foetal cardiac output.

66. Intermittent cord compression in labour can accentuate the maldistribution of blood between the foetus and the placenta. The resulting fall in foetal blood volume *"greatly increases the*

foetus's vulnerability to cardiac decompensation after complete occlusion of the umbilical vein …".[15]

67. Professor Kumar believed a 'vulnerable cord' did not necessarily correlate with the poor condition at birth:

> *Whilst these changes may be consistent with intermittent or subacute cord compression, they do not necessarily correlate with the extremely poor condition at birth of the neonate. It is well known that although rates of fetal vascular malperfusion abnormalities are higher in cases of perinatal death, they are also present in a high proportion of livebirths.*

68. Dr Watkins provided extensive comments about the post-mortem findings, cord compression, and the cause of death and poor condition at birth. Dr Watkins believed that cord compression was a credible cause of Baby M's unexpectedly poor condition at birth. He stated:

> *My view is that the most likely scenario is that Baby M had suffered intermittent cord compression, leaving her with a reduced effective fetal blood volume, and then suffered a severe episode of cord obstruction before birth causing her to be in a very low-output state at birth, perhaps even in cardiac arrest, this leaving her with a myocardium*[16] *which was severely compromised and likely to be resistant to resuscitation, especially a resuscitation in which effective ventilation*[17] *was never able to be achieved and in which ventricular preload*[18] *was probably compromised by prior cord compression and its effect on fetal blood volume.*

69. Dr Watkins believed that the brain changes at autopsy were *"more characteristic of chronic or acute on chronic injury"* and not of a single acute episode of cardiovascular collapse. He reported that *"a similar pattern has been described in foetal sheep after repeated cord occlusion."* He stated that the brain injuries indicated *"she had suffered significant hypoxic stress in the last 12 hours or so of pregnancy."* He added:

> *My view is that the hypoxic-ischaemic changes seen in the CNS*[19] *are not in themselves a sufficient cause of death but may well be a pointer to the pathophysiology of Baby*

[15] Dr Watkins explained in detail the process of cord compression and its effects on foetal cardiac output in his report.
[16] Myocardium refers to the heart muscle.
[17] Effective ventilation is when air can enter and inflate the lungs and hence chest wall movement (chest rise and fall) should be visible and should also result in improved clinical status, such an improvement in oxygen saturation.
[18] Ventricular preload refers to the volume of blood that has returned to the heart just before a contraction.
[19] Hypoxic-ischaemic changes seen in the CNS refers to signs of Central Nervous System (CNS, ie. brain injuries) caused by low oxygen (hypoxic) and low blood supply (ischaemic).

M's last hours in utero, being consistent with repeated episodes of reduced cardiac output and oxygenation, such as may be seen with intermittent cord compression.

Umbilical cord gas result

70. Baby M had a normal umbilical venous cord gas result,[20] which supported the view that there had been no serious ongoing hypoxia-ischemia[21] in the period immediately leading up to her birth. Of note, there was insufficient blood sampled to test the arterial cord blood, which would have provided a more accurate and reliable reflection of Baby M's condition at birth.[22]

71. Dr Watkins further explained the normal cord gas result:

This result does not exclude the possibility of a period of cardiac arrest or profoundly low cardiac output immediately before birth, such as might occur with acute cord compression …

…

It also does not exclude the possibility of a transient hypoxic event, such as that due to cord compromise, some hours before birth.

…

A final severe episode[23] *immediately before birth may well have caused cardiac arrest or a marked fall in cardiac output without there being time for the equilibration necessary for acidosis due to hypoxia to be reflected in the venous specimen.*

Neonatal resuscitation

72. The neonatal resuscitation has been reviewed in detail by Dr Watkins and The Royal Women's Hospital Incident Review process which also included an independent external neonatologist.

73. There were multiple areas of improvement identified however the core issue related to difficulty intubating and establishing effective ventilation. Despite this, Dr Watkins believed

[20] The umbilical cord gas is a measure of the fetal metabolic condition at the time of birth. It ideally involves collection of both arterial and venous cord blood samples. The umbilical vein is easier to sample due to its large diameter. However, an umbilical artery blood gas gives more accurate information about the foetal condition and correlates better with neonatal outcomes. Low pH and high lactate levels indicate acidemia/acidosis, which is generally caused by hypoxia (low oxygen in the blood).
[21] Hypoxia-ischaemia refers to low oxygen caused by reduced blood supply to any body tissue.
[22] As per Dr Watkins, expert neonatologist.
[23] Dr Watkins is referring to a final severe episode of cord compression.

that the overall resuscitation was in keeping with ILCOR/ANZCOR (international and national) resuscitation guidelines.

74. There were multiple reasons that Baby M did not respond to resuscitation efforts. In summary, these included:

(a) Baby M was extremely unwell when she was born, and this was unexpected. This meant that there were no opportunities for earlier resuscitation preparation;

(b) Effective ventilation (air flow into the lungs) was never established with either mask ventilation or intubation;

(c) There were difficulties with intubation with multiple attempts and possible misplacement or dislodgement of the ETT;

(d) There was a delay in adrenaline and fluid administration; and

(e) Baby M likely had a low chance of survival even with resuscitation.

Timing of Code Blue, staffing, and consultant attendance

75. In his statement, Dr Watkins stated he believed that the timing of the Code Blue (emergency response) was reasonable and that the staff present at the birth was appropriate, based on the available information at the time of birth.

76. Based on medical record documentation and Dr Rogerson's statement, Dr Rogerson was called at 6.29am (six minutes of life) and arrived at 6.37am (14 minutes of life). However, Dr Bills stated that her *"strong recollection"* was that her request to call the consultant occurred earlier than that.

77. Dr Watkins and Associate Professor Jacobs both stated that the on-call neonatal consultant, Dr Rogerson, could have been called earlier, for example, at approximately one minute of life when CPR was started. However, the difference was only a matter of minutes, and the consultant was called appropriately when it became apparent that Baby M was not responding to the resuscitation. Associate Professor Jacobs stated that the consultant arrival time was well within the expected requirement for the on-call neonatal consultant to be within 30 minutes of The Royal Women's Hospital at all times.

78. The Royal Women's Hospital *Emergency Medical Response Procedure*, provided by A/Professor Jacobs, the on-call neonatal consultant is reported to hold a pager that should

receive a group page for neonatal Code Blue calls. Neither A/Professor Jacobs nor Dr Rogerson's statements specified if this occurred in practice.

79. The Royal Women's *Hospital Escalation to the Neonatal Consultant Procedure* states that all clinical staff members are authorised to contact the on-duty or on-call neonatal consultant in the face of concerning clinical developments. There is a long list of indications for escalation to the consultant however a neonatal Code Blue is not automatically an indication for consultant escalation. Given the on-call consultant may be offsite and up to 30 minutes away, there is a provision that if consultant attendance is urgently required, that another consultant who lives closer to The Royal Women's Hospital can be called.

80. Dr Watkins recommended that the consultant should be called routinely with all Code Blues and non-medical staff, especially nursing staff, should be empowered to make the call. However, he acknowledged that in this case:

> *… an earlier call would not have made a defining difference to what happened, but may have had some impact on how it happened and to the wider impact on Baby M's family.*
>
> *…*
>
> *On balance and seen in retrospect, escalation could have been quicker, but occurred at a normal "real world" pace at the time. It would be appropriate for resuscitation protocols and training practices to focus on ways to shorten the escalation cascade for the critically ill baby*.

Initial resuscitation measures

81. Resuscitation was commenced with a pressure[24] of 30cmH_2O and at 16 minutes of life, Dr Rogerson increased this to 50cmH_2O because Baby M was not responding (her chest was not rising and falling) with the lower pressure. Dr Bills stated that she had not considered increasing the pressure to 50cmH_2O because she was unaware it was possible and had not seen it done before.

82. The Sentinel Event review made a finding that the pressure administered was too low.

[24] The pressures here refer to the Peak Inspiratory Pressure (**PIP**). PIP is the maximum pressure applied during inhalation in mechanical ventilation. In this instance, the PIP was increased from the standard 30 cmH_2O to 50 cmH_2O as Baby M was not responding (her chest was not rising and falling) with the standard pressure.

83. A/Professor Jacobs explained that in the hospital's neonatal resuscitation guidelines state that if the heart rate remains below 60 bpm, then the pressure could be increased to ensure chest movement, with a maximum pressure of 40-50cm H_2O.

84. Dr Watkins was of the opinion that the initial resuscitation measures, performed before consultant arrival, were appropriate. He commented that the initial pressure setting of 30 cm H_2O was conventional and appropriate and that although the increase to 100% oxygen could have occurred earlier, the increase at four minutes of age occurred *at "an acceptable real world"* time.

Difficulties with intubation and ventilation

85. Intubation (or endotracheal intubation) is a procedure by which an ETT is inserted through the mouth and then passes between the vocal cords and down into the trachea (the large airway from the mouth to the lungs) to enable ventilation. Effective ventilation is when air can enter and inflate the lungs and hence chest wall movement (chest rise and fall) should be visible and should also result in improved clinical status, such an improvement in oxygen saturation.

86. Dr Bills had two unsuccessful initial attempts at intubation. She reported difficulties with intubation due to low tone (floppy appearance) and a more posterior airway position. Despite her experience, she reported that, *"I had never seen an airway with this appearance, and since this time I have not seen a similar airway in my practice."* Dr Rogerson recalled speculating to Dr Bills that her difficulty with intubation may have occurred due to chest compressions continuing while she was attempting to intubate. Dr Bills stated:

> *I do not recall having a conversation with Dr Rogerson about the cessation of chest compressions, and I do not recall whether I instructed that chest compressions be ceased when I was attempting to intubate Baby M. My usual practice is to request that chest compressions temporarily cease when I intubate, as the movement caused by the compressions creates challenges with intubation.*

87. In relation to Dr Bills' failed attempts at intubation. Dr Watkins opined:

> *These attempts failed but occurred over a reasonable time frame and do not appear to have been unduly prolonged.*
>
> *…*
>
> *The comment by Dr Bills of notably pale and floppy upper airways may provide some answer as to why this proved difficult, it also suggests that Baby M may have been dead or very nearly dead at the time of the attempts.*
>
> *It is impossible as one who was not there to make any further comment as to why Dr Bills may have failed to intubate. It does not necessarily indicate any failure in technical competence, as her statement indicates that she had significant experience at an appropriate level. Even the most experienced of operators can have difficulty at times, especially under pressure such as this.*

88. Dr Rogerson intubated baby Baby M at 6.38am (15 minutes of life). Dr Rogerson stated that, he intubated without difficulty when she ordered that chest compressions to temporarily cease during intubation. She believed that the ETT was correctly placed because she had a clear view of the ETT correctly passing between the vocal cords. When Baby M did not respond, the ETT placement was re-checked by visual inspection by Dr Bills and again by Dr Rogerson herself. Dr Rogerson outlined the possible reasons for the difficulties with ventilation:

> *It is unusual that Baby M demonstrated no lung inflation, and it is possible that her lungs were so congested and inflamed that they were impossible to inflate.*
>
> *…*
>
> *Whilst I cannot rule out the possibility that the ETT inserted by me did not pass through the vocal cords, it is my view that this is unlikely. I say this because during the intubation I could clearly see the vocal cords and I saw the ETT pass through the vocal cords …*
>
> *…*

Whilst an equipment failure is a possibility that I am unable to exclude, I observed the PIP[24] increase from 30mmH_2O to 50mmH_2O, which would indicate that the circuit had flow.[25]

89. Dr Bills stated:

At Dr Rogerson's request, I also confirmed the correct placement of the ETT and I visualised it was correctly placed. Neither I nor Dr Rogerson could ascertain why Baby M was not responding to the resuscitation effort.

90. Despite these statements, there may be a possibility that Baby M was never successfully intubated or that the ETT was misplaced or became dislodged. As the ETT was removed prior to autopsy, its location cannot be definitively confirmed.

91. A/Professor Jacobs and the Sentinel Event review panel also felt that the ETT was possibly misplaced or dislodged as there were no signs of effective ventilation – no rise and fall of the chest, no misting of the ETT, no colour change on the Carbon Dioxide detector, and no clinical improvement in oxygen saturations or other observations. A/Professor Jacobs also highlighted that the autopsy showed no gaseous distention of lungs.

92. Dr Watkins believed that there was a *"significant possibility that Baby M was never successfully intubated"*. He provided some theories as to why Baby M was difficult to ventilate, such as anatomical issues related to poor lung compliance ('stiff' lungs) or obstruction of the ETT by meconium plug (a baby's first stool). However, he acknowledged limited evidence on autopsy to support these theories.

93. The post-mortem report stated that the respiratory tract and lungs were structurally normal that there was *"focal histological evidence of aeration of the lungs."* Successful intubation would have resulted in more aeration of the lungs on autopsy.

94. Dr Watkins questioned the extent of lung aeration as the pathologist's report did not provide explanation/or evidence to explain the inability to achieve any clinically evident lung inflation. He noted that specimens of lung did not float in water, which supported the view of less than complete aeration.

[25] The change in pressure observed on the machine indicated that air was flowing through the ventilation machine circuit.

Consideration of a laryngeal mask airway

95. A Laryngeal mask airway (**LMA**) is a medical device inserted into the pharynx (back of the throat) until just above laryngeal level (above the vocal cords). It is designed to assist ventilation and is used when endotracheal intubation is unsuccessful or not feasible. The Australian and New Zealand Committee on Resuscitation recommends its use in term newborns if face mask ventilation is unsuccessful, although it stated this was a weak recommendation with low certainty of evidence. Currently, its use is situation dependent and based on clinician preference. However, endotracheal intubation is the preferred method of ventilation.

96. The Sentinel Event review panel made a finding that a LMA was not used.

97. Dr Watkins stated that a LMA should have been considered after the second failed intubation. However, he also commended that use of a LMA was unlikely to make a *"defining difference"* given the overall difficulties achieving effective ventilation.

98. Dr Bills stated she would have considered a LMA if the third intubation attempt was unsuccessful. She stated that:

> *In November 2022, my understanding was that laryngeal masks were not commonly used, and it is also preferential to intubate as opposed to applying a laryngeal mask.*

99. Dr Rogerson did not consider using a LMA because she believed that she had correctly intubated Baby M. She stated that *"intubation is the preferred means of ventilation."*

Difficulties with venous access and adrenaline administration

100. The first umbilical venous catheter (**UVC**) inserted was secured with an umbilical cord clamp which caused a blockage in the catheter and required replacement. The time needed to replace the UVC resulted in a delay in adrenaline administration.

101. Adrenaline is a vital medication used in resuscitation to increase cardiac output. The dose can be repeated every three to five minutes if the heart rate remains low and despite effective ventilation and cardiac compressions. In Baby M's case, only two doses of adrenaline were administered (at 14 and 22 minutes of life). However, as per Dr Watkins noted, the focus of resuscitation was on intubation and ventilation as the priority. Adequate ventilation is necessary for adrenaline to have any significant benefit.

102. The adrenaline dose was not documented in the medical record. In Dr Jacob's statement, she wrote that the dose was verbally reported to be appropriate (0.5 ml of adrenaline 1:10,000), which is in keeping with standard resuscitation guidelines. Dr Watkins stated that the second dose of adrenaline could have been larger (up to 0.3 ml/kg instead of the 0.15 ml/kg administered).

103. Overall, Dr Watkins believed that the timing and dose of adrenaline was unlikely to have made a significant contribution to the outcome:

> *The addition of adrenaline to resuscitation has been shown to produce better cerebral perfusion and cardiac output than simple chest compressions.*
>
> *This debate is, however, academic, as by the time it was able to be given Baby M had been without ventilation or cardiac output for some time and it was highly unlikely that a good outcome was possible by this stage.*
>
> *…*
>
> *The timing and dosing of Adrenaline is a secondary issue, as the essential prerequisites for it to have any real effect are inflated lungs which are adequately ventilated and to have sufficient ventricular preload, neither of which pertained.*
>
> *The focus of resuscitation efforts had been, quite correctly, on obtaining adequate ventilation and a stable airway and it is very unlikely that any delay in administration of a sufficient dose of Adrenaline contributed to Baby M's tragic outcome.*

104. Dr Watkins suggested that The Royal Women's Hospital review their technique of using an umbilical cord clamp to secure UVCs, to ensure that it does not cause delays in future. He commented:

> *… the RWH technique has merit, but all aspects of it need to be specifically encompassed in training and equipment provision (clamp cutter availability, check of catheter patency).*

Low chance of survival

105. Dr Watkins believed that Baby M likely had episodes of intermittent cord compression in the hours prior to the birth, followed by a total or near total compression before birth resulting in

either no or very low cardiac output before birth. Due to this, her cardiac muscle was likely severely compromised, and she likely had low blood volume. He explained:

> *This would have required optimal resuscitation and early volume replacement for there to have been any realistic chance of intact survival. Even then, I believe that her chances of intact survival were low.*

106. Effective ventilation was never achieved for Baby M, and she was only intubated at 15 minutes of life. Dr Watkins noted that by that time, it is unlikely that she could have been successfully resuscitated:

> *Even if one assumes successful placement*[26] *Baby M had been without ventilation and effective cardiac output, beyond any which may have been achieved by chest compressions, for 15 minutes. The likely low fetal/neonatal blood volume would have greatly compromised any cardiac output obtainable by chest compressions.*
>
> *It is unlikely that she could have been successfully resuscitated at this stage and have had a good, neurologically intact, outcome.*
>
> *This is reflected in the Australian resuscitation guidelines, which reflect world practice, that abandonment of resuscitation should be considered after 10 minutes of optimal resuscitation without result… …intact survival becomes progressively less likely after 10 minutes.*
>
> *…*
>
> *Had Baby M been able to be intubated immediately after birth and receive prompt volume expansion and adrenaline she may have survived, but it is unlikely that after about 10 minutes anything would have made a defining difference.*

The Royal Women's Hospital Sentinel Event review

107. Baby M's death was reported to Safer Care Victoria as a sentinel event and an incident review undertaken using Accimap methodology.[27] Both an independent external neonatologist and obstetrician participated in the review.

[26] Successful placement of the ETT.
[27] The AcciMap approach is a systems-based technique for accident analysis, specifically for analysing the causes of incidents that occur in complex sociotechnical systems, such as in healthcare.

108. The results of the review were reported to the hospital's Management Quality and Safety Committee. The case was also reviewed on two occasions by the hospital's Maternity Incident Review Panel.

109. The review panel identified the following deficiencies in neonatal resuscitation:

(a) Failure to ventilate during resuscitation;

(b) Peak inspiratory pressure administered was too low;

(c) A laryngeal airway mask was not used;

(d) Inadequate dosing of adrenaline;

(e) Placement of the umbilical clamp and umbilical venous catheter blockage prevented the timely administration of adrenaline; and

(f) Potential misplacement or dislodgement of the endotracheal tube in the oesophagus.

110. An incidental finding was also made that staff were unfamiliar with coronial process, therefore breathing tube removed after Baby M passed away and tube placement could not be verified. However, this was not considered relevant to the outcome.

111. The review panel made the following recommendations:

(a) Develop and implement a mandatory interprofessional neonatal resuscitation education training program that is completed by all neonatal and maternity staff on commencement and annually thereafter. Training program to include basic (first response) and advanced components.

(b) Develop and conduct advanced neonatal simulation training with senior clinicians.

(c) Include in the neonatal resuscitation training program education elements on:

(i) Peak Inspiratory Pressures;

(ii) Use of laryngeal airway mask;

(iii) Adrenaline dosing;

(iv) Securement of emergency umbilical venous catheters.

(d) Align the neonatal resuscitation training with the neonatal resuscitation procedure.

(e) Incorporate unexpected neonatal death scenario into neonatal resuscitation simulation training to:

(i) Ensure appropriate coronial processes are followed; and

(ii) Include communication with the parents both during resuscitation and communication with parents following an unsuccessful resuscitation.

(f) Provide education to staff on coronial processes.

112. The interprofessional resuscitation training program neoResus has been implemented and an unexpected neonatal death simulation case has been incorporated in The Royal Women's Hospital simulation training program and will be repeated on a regular basis.

113. The review also acknowledged the difficulty of providing in-person training during the COVID pandemic, which resulted in a knowledge gap in best practice neonatal resuscitation.

Expert evaluation of recommendations

114. Professor Kumar agreed with the review and recommendations, describing them as "*comprehensive, transparent and thorough".*

115. Dr Watkins agreed that the review identified most of the deviations from guidelines or accepted practice. However, he stated that:

> *The deviations identified are all minor or arguable, at least in the context of real world practice in the small hours and it is unlikely that any of them, beyond the inability to secure an effective intubation, made any defining difference.*

116. He stated that the review did not address or comment on the risks associated with the current hospital procedure in relation to the on-call neonatal consultant being offsite and up to 30 minutes away:

> *... without an examination of whether the 30 minute rule is appropriate in a tertiary hospital, nor an examination of what criteria should trigger an immediate call for consultant assistance ...*

This is particularly important in a hospital without on-site consultant cover (the majority of hospitals) - criteria for recall need to be conservative, clear and adapted to the possibility that help may be up to 30 minutes away.

…

Should existing staffing arrangements continue criteria for consultant recall should be clearly stated, conservative and able to be applied by other clinical staff present. At very least this should mean that any baby born apnoeic, floppy and pulseless or with a very low pulse rate should trigger such a call. This will result in some "false alarms" but this may be a price worth paying.

117. Dr Watkins believed that the resuscitation training planned at The Royal Women's Hospital was appropriate. In relation to simulation training, he stated that this:

… may be of lesser value in addressing one core issue in this unfortunate situation – the likely failure to achieve intubation early, if at all. Intubation of even the best dummies is not a realistic simulation of the subtleties of blade pressure and placement in the real world.

118. Dr Watkins recommended the use of video laryngoscopy[28] to assist with difficult intubations.

Coroners Prevention Unit review

119. Having reviewed the clinician statements and expert reports, the CPU provided the following advice which I accept.

Obstetric care

120. The CPU considered that management of the labour and delivery was appropriate and consistent with national and international guidelines. Baby M was unexpectedly and severely compromised at birth. The exact mechanism leading to her severe compromise at birth has not been determined on autopsy, however, Dr Watkins believed this was caused by cord compression. Regardless, no foetal compromise was detected during the antenatal period or during labour, and hence, there were no opportunities for prevention prior to birth.

[28] A video laryngoscope is a medical instrument with a camera lens and small video screen used to visualise the larynx when inserting the endotracheal tube during intubation.

121. The CPU concluded that Baby M's poor condition at birth could not have been predicted and hence could not have been prevented.

Neonatal care

122. The CPU agreed that there were multiple areas in the neonatal resuscitation that could have been improved. These issues have been identified and addressed by the Sentinel Event review. The core issues were the difficulty with intubation and inability to establish effective ventilation.

123. The CPU acknowledged that neonatal intubation can be a technically difficult procedure and as Dr Watkins stated, "e*ven the most experienced of operators can have difficulty at times, especially under pressure such as this."*

124. The CPU noted that Dr Bills and Dr Rogerson had appropriate experience, the intubation attempts occurred over a reasonable time frame, and when Baby M did not respond appropriate troubleshooting occurred. Had Baby M been born in a non-tertiary hospital (lower acuity hospital without neonatologists on-call), it is likely that there would have been an even more significant delay in intubation and consultant attendance.

125. Given the ETT was removed prior to autopsy, the question of whether the ETT was misplaced or dislodged will never be known. In addition, the autopsy did not identify other causes of why Baby M was difficult to ventilate, for example, the airways and lungs were structurally normal.

126. The CPU considered it was possible that Baby M could have survived if she was intubated immediately after birth and received adrenaline and fluids earlier. However, it is also very possible that, given Baby M's severely compromised state at birth and persistent difficulties with ventilation, that she would still have had a very low chance of survival despite resuscitation.

127. Dr Watkins believed that the difficulty ventilating was due to the likely low cardiac output state before birth and that there was an overall low chance of survival despite resuscitation. He stated that, even if Dr Rogerson's intubation at 15 minutes of life was successful, *"it is unlikely that she could have been successfully resuscitated."*

128. Dr Watkins believed that the overall resuscitation was in keeping with international/national guidelines. Apart from the issue of failure of intubation and ventilation, many of the other

deficiencies in neonatal resuscitation were unlikely to have significantly altered the outcome. For example, calling the neonatal consultant earlier, increasing the ventilation pressure earlier, use of LMA, and delay in adrenaline administration were areas for improvement, rather than major factors that would have prevented Baby M's death.

129. In view of this, the CPU agreed with Dr Watkins' overall assessment that the neonatal resuscitation was in keeping with current standards and guidelines. The resuscitation was managed by staff with appropriate skills and experience. Despite this, there were difficulties with intubation and ventilation which could not be overcome. In addition, the autopsy did not definitely reveal the cause for these difficulties.

130. The difficulties with intubation and ventilation were unexpected and hence would have been difficult to prevent. Overall, given the unexpected circumstances, Baby M's death was unlikely to be preventable.

FINDINGS AND CONCLUSION

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

(a) the identity of the deceased was Baby M, born 10 November 2022;

(b) the death occurred on 10 November 2022 at The Royal Women's Hospital, 20 Flemington Road, Parkville, Victoria, from perinatal asphyxia; and

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

132. I convey my sincere condolences to Baby M's family for their loss and acknowledge the profound grief caused by the passing of a newborn baby.

COMMENTS

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

134. The Royal Women's Hospital was notified of my proposed recommendations in accordance with the principles of procedural fairness. Dr Risha Bhatia, Director (Medical) Neonatal Services, provided a statement dated 26 August 2025 setting out current procedures and practice at the Royal Women's Hospital which have been set out below. Given Dr Bhatia's

responses, I am satisfied the Royal Women's Hospital have addressed these issues and recommendations are no longer warranted.

Umbilical cord clamps

135. Dr Bhatia advised that there is a considerable risk of accidental dislocation of the umbilical venous catheter during resuscitation and there is therefore a need for an effective securement method.

136. Dr Bhatia noted that the hospital undertook an unpublished study investigating the use of umbilical cord clamps to secure umbilical venous catheters in 2018. The study compared use of an umbilical cord clamp to a suture in securing the catheter by determining the risk of occlusion, time taken to apply each method, and efficacy in preventing dislodgement.

137. Dr Bhatia explained that the study found one in 10 catheters secured with a cord clamp did not permit a 5 ml aspiration of fluid. Obstruction occurred in 1 in 5 cases when a 30 ml bolus given.

138. The time taken to secure with a suture was significantly higher at 48.6 seconds, as compared to a cord clamp at 6.4 seconds. However, umbilical venous catheter secured with a suture allowed free aspiration and delivery of fluid boluses.

139. The study therefore concluded that the cord clamp was effective in preventing catheter dislodgement and was quicker to apply, but there was a risk of occlusion, particularly when attempting to infuse larger volumes. In light of the risk of catheter dislodgement and occlusion, Dr Bhatia noted that cord clamps and cutters are available on neonatal resuscitation trolleys and their use is incorporated into simulation training.

Neonatal resuscitation training

140. This case has highlighted the importance of comprehensive and frequent neonatal resuscitation training for all medical and nursing staff involved in births, with scenario and/or simulation-based team practice provided by individual health services.

141. The Royal Women's Hospital Sentinel Event review recommendations to implement mandatory interprofessional neonatal resuscitation training and simulation training are appropriate and reasonable. These recommendations appear to have already been implemented.

142. However, I note that Safer Care Victoria does not compel health services to require staff who attend deliveries to undertake neonatal resuscitation training.

143. Dr Bhatia advised that the hospital's Gandel Simulation Service operates a NeoResus Program,[29] which mandates that all staff who care for babies attend neonatal resuscitation training.

144. Further, the hospital's neonatal education program includes neonatal resuscitation training for new members of staff at orientation, recredentialling for senior medical staff, fortnightly procedural high-fidelity simulation training, and, more recently the review of real-life videoed resuscitations with a focus on human factors and teamwork.

145. Dr Bhatia also noted that the hospital's high-fidelity multidisciplinary simulation training includes the replication of clinical scenarios conducted in in-situ clinical environments. It includes pre-briefing and briefing of participants, procedural simulation using manikins and physiological equipment whereby participants interact with the environment and respond to the clinical scenario, and debriefing following the simulation. Dr Bhatia added, *"The additional review of videoed resuscitations maximises realism and allows learners to hone non-technical skills, such as communication, leadership, teamwork, decision-making, and situational awareness."*

On-call consultant attendance

146. I agree with Dr Watkins' recommendations that the neonatal on-call consultant be either called routinely or at least notified via pager of all Neonatal Code Blues, especially given that at the Royal Women's Hospital, the consultant may be up to 30 minutes away.

147. However, I acknowledge that this would have unlikely to have altered the outcome in this case, given the consultant attended within minutes of being called.

148. Dr Bhatia advised that Neonatal Code Blues are called via the overhead speaker system at the hospital 24 hours-a-day. During standard working hours, the overhead call is accompanied by a telephone call, via Switchboard, to the on-duty neonatal consultant. Out-of-hours, the switchboard contacts the on-call neonatal consultant immediately, if asked to do so.

[29] NeoResus is a specialised training program designed to standardise the way in which neonatal resuscitation is taught in Victoria and comprises two skills based and teamwork focused training programs – 'First Response' and 'Advanced Resuscitation'.

149. The *Escalation to the Neonatal Consultant Procedure* outlines multiple indications for notification of thes on-duty or on-call neonatal consultant. This includes, but is not limited to, any unexpected or unplanned deterioration or any adverse event that may have a clinical impact on the patient.

150. The *Escalation to the Neonatal Consultant Procedure* was reviewed in September 2024. As an additional back-up, the Procedure now also states that when neonatal consultant attendance is urgently required (e.g., advanced resuscitation is in progress and either the on-call neonatal consultant is off-site and unable to attend quickly, or the on-call neonatal consultant is on-site and needs further assistance), that the Director (Medical) Neonatal Services is telephoned and requested to attend as soon as possible.

Sentinel Event review

151. The Royal Women's Hospital completed their sentinel event review process using the AcciMap approach, which a recognised and recommended methodology. This is a systems-based technique for accident analysis, specifically for analysing the causes of incidents that occur in complex sociotechnical systems, such as in healthcare. This approach was appropriate and provided a higher level of analysis, as opposed to a traditional Root Cause Analysis.

152. I agree with Professor Kumar that the review was comprehensive and thorough and made appropriate recommendations.

RECOMMENDATIONS

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

    (a) That **Safer Care Victoria** consider requiring Victorian health services to ensure that staff who attend deliveries undertake neonatal resuscitation training and that this training include high-fidelity simulation training.

PUBLICATION

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

DISTRIBUTION

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

TN and AL, senior next of kin (copy to Maurice Blackburn)

The Royal Women's Hospital

Safer Care Victoria

Consultative Council on Obstetric and Paediatric Mortality and Morbidity

First Constable Corbin Lysaght, Victoria Police, reporting member

Signature:

Coroner Sarah Gebert

Date: 29 September 2025

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.