



CORONERS COURT OF QUEENSLAND

FINDINGS OF INQUEST

CITATION: Inquest into the death of Wren Marion Preo

TITLE OF COURT: Coroners Court

JURISDICTION: CAIRNS

FILE NO(s): 2024/2663

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17 February 2025, 24 February 2025, 22 October 2025

Inquest
17 – 18 December 2025

Written submissions following inquest
4 March 2026 – 1 April 2026

FINDINGS OF: Stephanie Gallagher, Deputy State Coroner

CATCHWORDS: Coroners: coronial investigation, potential health care related death, low risk pregnancy, precipitous labour, severe meconium aspiration in utero, neonatal

resuscitation, appropriate perinatal care, not
a preventable death, natural causes death

REPRESENTATION:

Counsel Assisting: DJ Schneidewin

Cairns & Hinterland Hospital and K McMillan KC & S Lane
Health Service:

RM O'Rourke S Robb KC

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Introduction

- [1] An Inquest into the death of Wren Marion Preo (**Baby Wren**) was held in Atherton, Queensland on 17 and 18 December 2025.
- [2] Baby Wren was born at 2031 hours on 31 May 2024 at the Atherton Hospital (**Hospital**).
- [3] Baby Wren's mother, Hannah Preo (**Hannah**), was born on 15 October 1993. Baby Wren was her second child. Hannah's pregnancy with Baby Wren had been deemed "low risk" by the maternity care staff at the Hospital.
- [4] Hannah had a slightly elevated Body Mass Index (**BMI**) of 30.5 at term, but was otherwise healthy. She suffered from asthma in the past, but was not having problems with this during the pregnancy. She did not drink alcohol or smoke any substances. Her antenatal screening tests were normal. One of her scans showed a low-lying placenta, but this had migrated by the time of Baby Wren's birth.
- [5] The only issue of note in Hannah's history was that she was known to be GBS positive (a pathogen that can contaminate the female genital tract without symptoms to the mother, but can render a newborn very unwell).
- [6] When Baby Wren was born, after a precipitate labour, she was in poor condition, with Apgar scores assigned as 4 at one minute, 6 at 5 minutes, and 6 at 10 minutes.
- [7] Hannah's membranes had ruptured at birth, revealing copious meconium-stained liquor.
- [8] At birth, when it was recognised that Baby Wren was pale and floppy and not responding to tactile stimulation, she was immediately resuscitated, according to established protocols.
- [9] Emergency retrieval services from Townsville University Hospital (**TUH**) were contacted as Baby Wren was not improving, and attended on site at the Hospital where, following their assessments, Baby Wren was transferred to palliative care. She was extubated at 0351 hours and she died on 1 June 2024 at 0450 hours at the age of about 8 hours.
- [10] Dr D G Taylor of TUH certified Baby Wren's cause of death as follows:¹
 - "1(a) Hypoxic ischaemic encephalopathy*
 - 1(b) Respiratory failure from severe meconium aspiration*
 - 2 Precipitous (sic) labour."*

¹ Exhibit A.4 BOE

Coronial jurisdiction

- [11] Baby Wren's death was a health care related death as defined by the Coroner's Act 2003 (**the Act**). His death was thereby a reportable death under s.8(3)(d) of the Act.
- [12] Baby Wren's family raised various concerns about the management of Hannah's pregnancy, labour and the birth of Baby Wren,² which I considered in determining that, pursuant to s.28(1) of the Act, it was in the public interest to hold an inquest into Baby Wren's death.
- [13] An inquest is intended to provide the public with transparency regarding the circumstances of the death, and to answer any questions which may have been raised following the death.
- [14] The role of the Coroner is to independently investigate reportable deaths to establish, if possible, the identity of the deceased, the medical cause of death, and the circumstances surrounding the death, i.e. how the person died. Those circumstances are limited to events which are sufficiently connected to the death. The purpose of a coronial investigation is to establish the facts, not to cast blame or determine criminal or civil liability. Those are matters for other courts.
- [15] The relevant standard of proof is that of the balance of probabilities, with reference to the *Briginshaw*³ standard. Accordingly, the more significant the issue for determination, the clearer and more persuasive the evidence must be for the Coroner to be sufficiently satisfied on the balance of probabilities that the issue has been proven:

But reasonable satisfaction is not a state of mind that is attained or established independently of the nature and consequence of the fact or facts to be proved. The seriousness of an allegation made, the inherent unlikelihood of an occurrence of a given description, or the gravity of the consequences flowing from a particular finding are considerations which must affect the answer...In such matters 'reasonable satisfaction' should not be produced by inexact proofs, indefinite testimony, or indirect inferences.⁴

- [16] In adjudicating the significance of the evidence, the impact of hindsight bias and affected bias must also be considered.⁵ As outlined in 'The Australasian Coroners Manual':

Hindsight bias is the tendency after the event to assume that events are more predictable or foreseeable than they really were. What is clear in hindsight is rarely as clear before the fact...It is

² Exhibits E.1, E1.1, E.2 and E.3 BOE

³ *Briginshaw v Briginshaw* (138) 60 CLR 336

⁴ *Briginshaw v Briginshaw* (138) 60 CLR 336, 362 – 363 (Dixon J)

⁵ Findings of the inquest into the death of Pasquale Roasario Giorgio, [140] – [142]

*an obvious point, but one that nonetheless bears repeating, particularly when coroners are considering assigning blame or making adverse comments that may damage a person's reputation. ... Coroners should attempt first to understand the circumstances as they appeared at the relevant time to the people who were there. ... Hindsight, of course, is a very useful tool for learning lessons from an unfortunate event. It is not useful for understanding how the involved people comprehended the situation as it developed. This distinction needs to be understood and rigorously applied.*⁶

Issues for Inquest and Witnesses called

[17] Having considered it was in the public interest to hold an Inquest, I determined that the Issues for the Inquest would be:

1. The appropriateness of the perinatal care and intrapartum care afforded to the mother of the deceased at Atherton Hospital (refer as necessary to policies, procedures, and protocols in place in respect of the labour as of 31 May 2024) including:

- a) The mother contacted Atherton Hospital about 60 minutes after starting labour. Should she have been advised to come into the hospital at that point (given she was Group B Streptococcal (GBS) positive)?
- b) Were antibiotics administered to the mother in accordance with the relevant guidelines for GBS?
- c) If not, was the failure to administer antibiotics in accordance with the guidelines a factor in the death of the deceased?

2. Did any aspect of the care afforded to the mother of the deceased at Atherton Hospital cause or hasten the death of the deceased?

3. Did any aspect of the care afforded to the deceased at Atherton Hospital cause or hasten the death of the deceased?

4. Did any failure to provide care to the deceased or her mother at Atherton Hospital cause or hasten the death?

[18] David Schneidewin was appointed as Counsel Assisting. At the start of the Inquest Mr Schneidewin tendered the Brief of Evidence (**BOE**) and, having regard to the Issues for Inquest and the expert opinion of Professor Edward Weaver (**Prof. Weaver**), he called the following witnesses at the Inquest:

⁶ Hugh Dillon and Marie Hadley, *The Australasian Coroner's Manual* (The Federation Press, 2015) 10

- a) Kirsty Coker, Registered Midwife;
- b) Dr Casey Baxter;
- c) Emma Peeters, Registered Midwife;
- d) Josephine O'Rourke, Registered Midwife;
- e) Prof. Weaver

Factual Findings

Hannah's pregnancy and antenatal care

- [16] Hannah was a 30 year old woman at the time of Baby Wren's birth. This was her second pregnancy. Her first child, a son, had been born by normal vaginal delivery in 2020 in good condition, weighing about 3,450 grams. Her estimated date of delivery in this pregnancy was 1 June 2024.
- [17] Hannah's relevant medical history comprised asthma (well controlled), anxiety, insomnia and Raynaud's phenomenon. She was a non-smoker who did not consume alcohol during the pregnancy, and her pre-pregnancy Body Mass Index was 25.1.
- [18] Hannah was booked into the Midwifery Group Practice (MGP) program at the Hospital and received her antenatal care through that program, attending 13 or more antenatal encounters commencing with her booking-in visit on 30 October 2023. Her pregnancy was assessed as low risk. Her routine antenatal screening was undertaken as scheduled and was unremarkable, save for the matters set out below. Her blood group was O-positive and she was rubella non-immune, receiving a Boostrix vaccination in March 2024. The main difficulties during the pregnancy were persistent nausea and vomiting (for which she was prescribed doxylamine and metoclopramide) and heartburn, together with an episode of thrush later in the pregnancy.
- [19] A morphology scan performed on 17 January 2024 identified a low-lying placenta, with a plan to rescan at 34 weeks. A repeat scan on 22 April 2024 (at 34 weeks and one day) showed that the placenta was clear of the os, with normal fetal growth on about the 50th percentile, and normal liquor and umbilical artery Doppler studies. The placenta had, in other words, migrated as occurs in the substantial majority of such cases.
- [20] The one issue of note in Hannah's history concerned Group B Streptococcus (**GBS**). In January 2024, a lower vaginal swab taken for suspected thrush returned a result of '*strep (Group B) isolated*'. A case conference on 8 May 2024 recorded the GBS-positive result from early pregnancy, with a plan to confirm the position by repeat swab and to provide antibiotics. A repeat lower vaginal swab collected on 10 May 2024 returned no GBS isolated. Notwithstanding that later negative result, and consistent with the guidelines, Hannah was counselled about the risks of

GBS infection in her baby and agreed antenatally to receive intravenous antibiotic prophylaxis during labour. At a review on 17 May 2024 the MGP recorded that labour, and when to call, had been discussed with her. Her last antenatal visit was on 31 May 2024.

The onset of labour and Hannah's presentation to the Hospital

- [21] Hannah began having contractions on the afternoon of 31 May 2024. The clinical records place the onset of contractions at about 1630 hours. At 1743 hours she telephoned her MGP midwife to report that she was having contractions about every 10 minutes, that her membranes were intact, and that she was content to remain at home at that stage. The midwife advised that it was safe for her to remain at home and 'safety netted' her by advising her to come in if she wished to, if her contractions increased, if her membranes ruptured, if she began bleeding, or if she noticed reduced fetal movements.
- [22] At 1836 hours Hannah telephoned the midwife again, reporting that her contractions were increasing and that she wished to come in. Because her primary midwife had already worked a full day and was obliged to hand over her care, Hannah was received and cared for at the Hospital by another midwife from the MGP team.

Hannah's labour and intrapartum management

- [23] Hannah was admitted to the Birth Suite and commenced on a partogram at about 1915 hours, at 39 weeks and 6 days gestation. A vaginal examination at 1915 hours found her cervix to be thin, soft and 3 to 4 centimetres dilated, with the fetal head in a right occipito-posterior position at station -2 and the membranes intact. The fetal heart rate was recorded at 139 beats per minute and the maternal pulse at 85 beats per minute. Her maternal observations were within normal limits (blood pressure 133/83, temperature afebrile, respiratory rate 17 to 20, oxygen saturations above 96%), yielding a Q-MEWT score of 1 by reason only of the slightly elevated systolic blood pressure. As the antenatal Safer Baby Bundle assessment had not identified any risk factor for stillbirth or fetal growth restriction, and as the membranes were intact and the fetal heart rate was normal on presentation, there was no indication to apply continuous electronic fetal monitoring, and intermittent auscultation was the appropriate means of monitoring fetal wellbeing.
- [24] At 1930 hours an intravenous cannula was inserted, a 3 gram loading dose of benzylpenicillin was administered to Hannah as GBS prophylaxis, and routine bloods were collected. At 1945 hours the fetal heart rate was recorded within the range of 130 to 139 beats per minute, the maternal heart rate at 80 to 89, and contractions at four in ten minutes lasting 50 to 60 seconds. Hannah used inhaled nitrous oxide with limited effect and, when heat packs ceased to assist, moved into the shower at about 2025 hours. At about that time she developed an urge to push. She laboured on her knees in the shower with her left leg raised.

- [25] The clinical records do not document a fetal heart rate reading between 1945 hours and the birth at 2031 hours. The evidence before me, however, is that at about 2015 hours the registered midwife Kristy Croker auscultated the fetal and maternal heart rates using a hand-held Doppler while Hannah was in the shower, and that the reading was in keeping with the earlier recordings with no sign of fetal distress, but that she was unable to leave Hannah to record the reading on the partogram at that time (although the time of 2015 hours had been pre-filled on the observation chart). I return to this matter, and to the expert evidence about the adequacy of intrapartum monitoring, later in these findings.

Baby Wren's birth and condition at birth

- [26] Hannah's labour was precipitate. The first stage lasted about 3 hours and 57 minutes and the second stage about 3 minutes. Her membranes remained intact until the fetal head was delivered, at which point copious thick meconium-stained liquor was revealed. Baby Wren, a female infant weighing 3,370 grams, was born at 2031 hours on 31 May 2024. The placenta was delivered at about 2049 hours and appeared complete, with complete membranes.
- [27] Baby Wren was in poor condition at birth. She was assigned Apgar scores of 4 at one minute, 6 at five minutes and 6 at ten minutes. The birthing midwife noted a small cry at birth with little respiratory effort, no tone and poor colour. Thick meconium was seen sticking to the baby's face. The cord was clamped and cut and Baby Wren was immediately taken by the second midwife to the resuscitaire, where no sign of respiratory effort was observed. Baby Wren was pale, floppy and not responding to tactile stimulation.

Baby Wren's resuscitation and management at the Hospital

- [28] Resuscitation commenced immediately and was escalated without delay. A MET (medical emergency team) call bell was activated at 2032 hours. Intermittent positive pressure ventilation was commenced by reason of the poor respiratory effort, achieving good chest rise and fall. Medical ward staff arrived at about 2035 hours, followed by emergency department nurses. Two senior medical officers in obstetrics, who had just completed an emergency caesarean section, attended on hearing the MET call and led the resuscitation from about 2036 hours. Repeated attempts at oxygen saturation monitoring were initially unsuccessful, thought to reflect a peripheral perfusion problem.
- [29] The paired umbilical cord blood gases were grossly abnormal and indicated that Baby Wren had sustained a significant intrauterine insult before birth. The venous sample (2049 hours) showed a pH of 7.22, a base excess of -13 and a lactate of 10.1. The arterial sample (2054 hours) showed a pH of 7.11, a base excess of -15 and a lactate of 12.21. An umbilical venous catheter was sited, with difficulty, at about 2050 hours. A venous blood gas at 2117 hours showed marked deterioration, with a pH of 6.73 and a base excess of -24.

- [30] A chest X-ray taken at about 2117 hours was reported as showing a right pneumothorax and high-grade hyaline membrane disease with diffuse coarse ground-glass opacification in both lungs. As the CHHHS analysis subsequently concluded, and as Prof. Weaver confirmed, the images in fact demonstrated the extensive distribution of meconium in both lungs, which had been mistakenly reported as hyaline membrane disease, being a condition ordinarily seen in significantly preterm infants rather than a term baby, such as Baby Wren.
- [31] Over the ensuing hours Baby Wren's condition continued to deteriorate despite sustained resuscitation. An orogastric tube inserted at about 2136 hours returned a quantity of old-looking blood, the cause of which could not be identified but which raised a suspicion of an underlying coagulopathy. Intubation was undertaken by the senior medical officer in anaesthetics between about 2308 and 2311 hours; the vocal cords were noted to be coated black and the larynx heavily soiled, with the endotracheal tube being covered in thick meconium when later removed. Baby Wren was switched to a neonatal ventilator at about 2322 hours, with only slow improvement in saturations and no change in colour, and it became progressively harder to sustain oxygenation, requiring ever higher ventilation pressures. Serial blood gases showed persisting profound metabolic acidosis (for example, a pH of 6.74 with a base excess of -24 at 2212 hours, and a pH of 6.82 with a base excess of -25 and a lactate of 18.2 at 0006 hours).

The involvement of Townsville University Hospital and the retrieval

- [32] The Hospital sought tertiary assistance in a timely way. The neonatal consultant at TUH was consulted, and from about 2124 hours the Retrieval Services Queensland (RSQ) team, the Townsville neonatal team and the Atherton resuscitation team conferred by telephone to plan care and retrieval, including the plan for intubation. The Townsville neonatology team provided ongoing advice, including via video call, and dispatched a retrieval team to Atherton.
- [33] The retrieval team arrived at about 0025 hours on 1 June 2024. It continued attempts to stabilise Baby Wren, suctioning a significant volume of blood from the endotracheal tube, and a right chest drain was inserted at about 0043 hours. Notwithstanding these measures, Baby Wren did not improve. On assessment, the retrieval team diagnosed severe meconium aspiration, hypoxic ischaemic encephalopathy and likely persistent pulmonary hypertension, and advised that the prognosis was very poor. The options presented to the family were to attempt to stabilise and transfer Baby Wren to Townsville, or to transition her to palliative care so that her parents might have more time with her.

Baby Wren's death

- [34] At about 0130 hours the NICU team and senior medical officer had a lengthy discussion with Hannah and Baby Wren's father about the poor prognosis. As Baby Wren's condition deteriorated further, her parents

were called in at about 0140 hours and, in a shared decision-making process, the decision was made to withdraw active treatment and provide palliative care. Baby Wren was extubated and given to her parents to hold at about 0351 hours. She died at 0450 hours on 1 June 2024, at the age of about 8 hours and 20 minutes.

Evidence of the factual witnesses at the Inquest

Ms Kirsty Coker, Registered Midwife

- [35] Ms Coker is a registered midwife who works as part of the MGP team at the Hospital. She explained the MGP model of care, under which each woman is allocated a caseload midwife who provides her antenatal, intrapartum and postnatal care where available. Ms Coker was not Hannah's primary midwife (that being Ms Peeters), but she had seen Hannah for an antenatal appointment at about 10 am on 31 May 2024, when Ms Peeters was occupied with another labouring woman. At that review, at 39 weeks and 6 days gestation, Ms Coker had no concerns, and the plan was for Hannah to be reviewed the following week.
- [36] Ms Coker gave evidence that she became involved in Hannah's intrapartum care later that day when Ms Peeters, who was approaching her permitted hours, asked her to attend. Ms Coker was aware from Hannah's pregnancy health record that Hannah required intravenous antibiotics in labour by reason of her GBS status, and that Hannah had consented to that course. She described the GBS prophylaxis protocol as being to administer intravenous antibiotics to a woman in labour, ideally four hours (and with some benefit at two hours) before birth, with further doses every four hours while labour continued. She accepted that, because the length of labour cannot be predicted, it is not always possible to achieve the optimal four-hour window, and that the appropriate response is to commence the process as soon as labour is identified, which is what was done in Hannah's case.
- [37] Ms Coker described her assessment of Hannah on presentation to the Birth Suite. Her observations, recorded in accordance with the Q-MEWT tool and partogram, were normal and consistent with the start of active labour. The membranes were intact, contractions were four in ten minutes lasting about 45 seconds, and the cervix was 3 to 4 centimetres dilated. She gave evidence that she made two unsuccessful attempts to insert an intravenous cannula (her usual practice being to make no more than two attempts before seeking assistance so as not to prolong the process), spending only some five to ten minutes doing so, before Dr Baxter successfully inserted the cannula. The benzylpenicillin, prepared and checked by two staff members under a standing order, commenced at about 1930 hours, with the loading dose administered over approximately half an hour.
- [38] As to fetal monitoring, Ms Coker gave evidence that, for a low-risk pregnancy, intermittent auscultation using a hand-held Doppler every 15 to 30 minutes during the first stage of labour was appropriate and in

accordance with the guidelines, and that she monitored accordingly, distinguishing the maternal heart rate from the fetal heart rate. The fetal heart rate at 1945 hours (130 to 139 beats per minute) was within normal limits. She explained that, although no further fetal heart rate was recorded on the partogram after 1945 hours, she did in fact auscultate at about 2015 hours and the reading was normal and reassuring, but she was in the shower supporting Hannah (whose labour had become intense) and did not take the notes in the shower, and so did not record the reading contemporaneously. She gave evidence that there was no indication, and it was probably contraindicated given the GBS status, to rupture the membranes, there being no fetal distress and labour progressing normally.

- [39] Ms Coker described the birth, which followed rapidly after Hannah expressed an urge to push at about 2025 hours, with Baby Wren born within about six minutes. The membranes ruptured as the head emerged, revealing copious thick meconium which she described as old, yellowish-brown, thick and sticky, likening it to toothpaste. Baby Wren was initially placed skin-to-skin with good tone, grimaced and opened her mouth as if to cry, but did not cry or breathe, and quickly became floppy and pale. The cord was cut, Baby Wren was taken to the resuscitaire, and the emergency buzzer was activated. Ms Coker thereafter remained with Hannah as her primary carer.

Dr Casey Baxter, Senior Medical Officer

- [40] Dr Baxter is a Senior Medical Officer at the Hospital and a Fellow of the Australian College of Rural and Remote Medicine holds an advanced diploma in obstetrics and gynaecology. He was the on-call obstetrics doctor on the evening of 31 May 2024 and had attended the Hospital primarily in connection with another labouring woman, for whom an emergency caesarean section had been arranged.
- [41] Dr Baxter gave evidence that, while awaiting theatre for that other patient, he was asked by the midwife caring for Hannah to assist with cannulation, which he did without difficulty, before leaving for the caesarean section. He understood the intravenous access to be for the administration of prophylactic antibiotics on account of Hannah being GBS positive. He had no concern about any delay associated with the cannulation, his recollection being that the period involved was not long.
- [42] Dr Baxter also gave evidence, from his experience in obstetrics, about the contemporary approach to a baby exposed to meconium. He explained that current resuscitation guidelines do not recommend routine suctioning, which carries increased risks to the baby, including unnecessary stimulation causing reflexes such as a vagal response, and potential damage to the structures of the baby's mouth, and that such reflexes may cause spasm of the vocal cords and a drop in the baby's heart rate. He said that ongoing neonatal resuscitation training is available at the Hospital, and that he had undertaken an advanced neonatal resuscitation

course and a neonatal stabilisation course, facilitated by colleagues from the special care nursery at Cairns Hospital, since Baby Wren's death.

Ms Emma Peeters, Registered Nurse and Midwife

- [43] Ms Peeters is a registered nurse and midwife who qualified as a midwife in 2018 and worked in the MGP at the Hospital. She was Hannah's primary midwife from March 2024. She gave evidence that Hannah's pregnancy was low risk, that Hannah had experienced hyperemesis managed with medication, and that Hannah was GBS positive on an early swab. She explained that although a later swab was negative, Hannah nonetheless required intrapartum antibiotics on account of the earlier positive result, and that Hannah was aware of and had consented to that course. She described the rationale for prophylaxis as being to prevent GBS sepsis in the neonate, and her understanding of the protocol as being to commence antibiotics as soon as possible once a GBS-positive woman presents in active labour, with further doses four-hourly until birth, the ideal being administration four hours, and at a minimum two hours, before birth.
- [44] Ms Peeters gave evidence about her dealings with Hannah on 31 May 2024. She was at the Hospital caring for another labouring woman. She took a first telephone call from Hannah at 1743 hours, when Hannah reported contractions since about 1630 hours, irregular at about one in ten minutes, and that she was comfortable and wished to organise her son before coming in. Ms Peeters assessed Hannah as being in early rather than active labour, considered it appropriate for her to remain at home, and advised her to call back if her waters broke, if her labour progressed, or if her contractions became more regular. Hannah telephoned again at 1826 hours, reporting more regular and painful contractions and a wish to come in. Ms Peeters considered that Hannah then sounded to be in active labour. As Ms Peeters was approaching her 12-hour work time limit, she arranged for Ms Coker to attend and care for Hannah, Ms Coker having already met Hannah that morning and being aware of her requirement for antibiotics.
- [45] Ms Peeters gave evidence that she next became involved when the staff-assist button was pressed in the Birth Suite, signalling that birth was imminent, and that she arrived before delivery to find Hannah actively pushing in the shower with her membranes still intact. She described Baby Wren being born quickly, with thick, dark green meconium falling to the floor and coating the baby, the membranes having broken as the baby was born. Baby Wren looked very pale and floppy with no adequate respiratory effort. Ms Peeters took her to the resuscitaire, commenced the Neopuff, and directed that the MET call be activated. She described the meconium as thick and sticky, of a mixture of dark green and yellow staining, such that it had to be wiped off in order to attach monitoring. She remained involved in the resuscitation for about two hours. Otherwise, she gave evidence that she undertakes her mandatory neonatal resuscitation and stabilisation training, required every two years, annually, and at her own election.

Ms Josephine O'Rourke, Registered Nurse and Midwife

- [46] Ms O'Rourke is a registered nurse and midwife who works as a core (shift) midwife at the Hospital, as distinct from a caseload MGP midwife. She had first had contact with Hannah earlier in the pregnancy, when Hannah presented antenatally with hyperemesis. On 31 May 2024 she welcomed Hannah into the Birth Suite on her arrival, understanding from Ms Peeters that Hannah was on her way in, and that Ms Coker would shortly attend as the primary midwife for the birth.
- [47] Ms O'Rourke gave evidence that she checked the antibiotic with Ms Coker, understanding from Hannah's care plan, and from Ms Peeters, that antibiotics were to be given in labour as GBS prophylaxis. She later responded to the buzzer from the Birth Suite, collecting a warm towel. She did not enter the bathroom and did not see the delivery, but heard that meconium was present. She passed a warm towel and briefly glanced at Baby Wren without making any particular observation at that stage.
- [48] Ms O'Rourke gave evidence that, when Ms Peeters brought Baby Wren out to the resuscitaire and called an emergency, she assisted with the resuscitation as the second person present. She provided tactile stimulation by rubbing the baby down while Ms Peeters bagged the baby, and attempted to attach the oximeter to the baby's right hand, which did not pick up initially (which she said was not unusual). She confirmed that the baby's heartbeat was present and above 100. She went to listen to the baby's lungs but the resuscitation team arrived and took over. She then stepped back into her core role, left to attend to the baby's admission, and later returned to scribe for the remainder of the resuscitation. She gave evidence that she undertakes compulsory neonatal resuscitation training every second year, together with additional self-directed study.

Expert opinion

Prof. Weaver's Report dated 22 October 2025⁷

- [96] The Court obtained an independent expert report from Prof. Weaver, dated 22 October 2025, to inform the investigation. Prof. Weaver is an obstetrician and gynaecologist with over 35 years' experience in the discipline. He is a Senior Medical Officer in the Department of Obstetrics and Gynaecology at the Sunshine Coast University Hospital, a Professor within the Department of Obstetrics and Gynaecology at Griffith University and an Associate Professor at the University of Queensland, a Past President of RANZCOG, and Co-Chairman of the Queensland Maternal and Perinatal Quality Council.
- [97] For the purpose of his report, Prof. Weaver reviewed the coronial material, the Atherton Hospital records for both Hannah and Baby Wren, the records of the Malanda Medical Centre, the Cairns and Hinterland Hospital and Health Service documents (including the chronology, the

⁷ Exhibit F.1 BOE

Riskman report and the clinical protocols supplied), the statements of the medical and midwifery staff involved, and the documents detailing the family's concerns. He addressed each of the specific questions posed by the Court.

[98] As to the antenatal and intrapartum care, Prof. Weaver considered that Hannah's antenatal care was provided to a good standard and that her pregnancy was appropriately assessed as low risk.

[99] In relation to Issue 1(a), he opined that it was reasonable to advise Hannah initially to remain at home, as it was not then clear that she was in active labour, and that the advice to come in when her contractions increased in strength and frequency was appropriate notwithstanding her GBS status.

[100] In relation to Issue 1(b), he opined that the antibiotics were administered appropriately and in a timely way in accordance with the established guidelines, a 3g loading dose of benzylpenicillin having been administered at 1930 hours, with no delay in the provision of appropriate care.

[101] It followed, in respect of Issue 1(c), that he considered it doubtful that sepsis secondary to GBS played any role in Baby Wren's death.

[102] In relation to Issues 2, 3 and 4, Prof. Weaver expressed the opinion that no aspect of the care afforded to Hannah caused or hastened Baby Wren's death, that maternity care was delivered in a contemporary, woman-centred way with appropriate monitoring, and that there was no significant omission in the care of either Hannah or Baby Wren (report, pp.7–8). He observed that labour is a stress test for the baby, that there was nothing in Hannah's antenatal history to suggest that labour might be problematic, and that meconium-stained liquor occurs in about 10% of labours. He emphasised the importance of processes enabling staff to escalate care quickly where a baby is born through meconium-stained liquor and is compromised at birth.

[103] More specifically, Prof. Weaver opined:

When the baby was born, she weighed in about 3.3 kg, a weight well within normal limits and on about the 35th percentile. Meconium-stained liquor occurs in about 10% of labours and it is important to have processes whereby staff caring for women in labour can escalate care quickly if a baby is born through meconium stained liquor and is compromised at birth. When it was obvious the baby was born in a compromised condition, appropriate resuscitation measures were undertaken. I am not a neonatologist, but have had over 35 years experience in working in Birth Suite and have been involved in the resuscitation of hundreds of infants. From my knowledge and the current resuscitation guidelines, neonatal resuscitation was performed in a correct sequence. Meconium aspiration has a recognised mortality

rate, and certainly I have had the experience of caring for women who have lost babies in these tragic circumstances. When it was obvious the baby was not improving, help was sought in a timely way for tertiary hospital advice and retrieval. I doubt there were any significant omissions in care that caused the baby's death.

[104] Prof. Weaver also addressed the fact that the chest X-rays of Baby Wren were reported as showing hyaline membrane disease, whereas the CHHS narrative chronology concluded that the images in fact demonstrated extensive meconium in both lungs which had been mistakenly reported as hyaline membrane disease. In his opinion this would have made no difference to the resuscitation, as the root cause remained the same, namely that the baby could not be adequately oxygenated because of the thickness of the alveolar membranes in the lung.

[105] Overall, Prof. Weaver concluded that the care provided was of an acceptable standard, that no major deficiencies in care were apparent from the records and the documents provided, and that care was contemporary and reasonable with no significant omissions. He observed that, whilst Australia is a safe place in which to give birth, occasional tragedies of this kind do occur, and he recalled similar occurrences of the loss of babies from meconium aspiration at his own, much larger, hospital.

Prof. Weaver's evidence at the Inquest

[106] According to Prof. Weaver the likely cause for Baby Wren's condition at birth was meconium aspiration.⁸

[107] Prof. Weaver explained the nature of meconium, the various causes of meconium-stained liquor, and the mechanism of aspiration of meconium *in utero* as follows:⁹

So meconium is essentially – the fetal – the stuff that's in the fetal colon when the baby's in utero and pathogen meconium during labour is erratic. But around about 10 per cent of babies born at term will have meconium-stained liquor. So there – and there's been various studies done over the years trying to grade the meconium, whether it's – it's just thin and watery and the fluid's a bit brown to a bit more than that to – it's been described as pea soup and, you know, brown, green, black, very – and thick, tacky, whatever. But it – in – in all of those studies, none of them have – have correlated particularly well with neonatal outcome. Now, what we can't know is when the baby passed meconium. So meconium back in, you know, when I started doing obstetrics about 45 years ago, it was often associated – that the meconium was there and ipso facto meant that the baby was distressed in some way. And I

⁸ T2-8, LL1-2

⁹ Starting at T1-8, L38

think we now know that's not the case, that it seems to be a maturational thing that as babies get towards term, they will sometimes evacuate their bowels in utero. The most common cause, incidentally, of meconium-stained fluid is maternal cathartic use. So mothers using aperients to help their bowels open during pregnancy can have an effect on the baby to make the baby's bowels open, and that's a – a really common cause of meconium-stained liquor. So whatever the reason, we don't quite know when the baby might have opened its bowels. Now, if the baby has been sitting in meconium-stained liquor for a – for a day or two, as an example, the – that fluid, because of how the amniotic fluid works, you've got to think that the baby in utero has non-functioning lungs. And so the baby's respiration is accomplished via – um – gas perfusion through the placenta and the umbilical cord. So – um – the amniotic fluid that the baby's in will flow into the baby's mouth. The baby is – um – doing what we call breathing movements in utero, which is the same movements that our – um – thorax would make as we take a breath in and out. So the baby is having fluid move in and out of its lungs all the time that it's in utero. Now, if that fluid contains meconium, it – what will happen is that that meconium will go down into the baby's lungs and so there will be some sequestration of meconium in the fetal lung. And meconium is quite irritant to fetal membranes. So if it gets in the mouth or if it gets in the lung, it's quite irritant and it will cause the little linings of the lung to swell. And when they swell, the – it's hard for gas exchange to occur across those thickened membranes. So the baby gets what's called a pneumonitis or an inflammation of the substance of the lung from the meconium. So if a baby is born with meconium and the, you know, it's – the – the term meconium aspiration can be a little bit confusing in the sense that people think the meconium only gets down into the lung when the baby takes its first breath. So when it's born, separated from the umbilical cord, the baby has then got to switch from receiving its oxygen across the umbilical cord to getting oxygen through its lung. And so there's a whole lot of switching around of various functions in the baby at birth to accommodate that switch from – um – umbilical cord respiration to pulmonary or lung respiration. So there's quite a complex cascade of events that happen. Now, if the baby has already had meconium in and out of its lungs for a day or two prior to its birth, there will inevitably be some meconium already down in the baby's lungs that is well below the baby's larynx and out of the trachea into the bronchi – the main bronchi and bronchioles of the baby and that meconium will irritate the baby's lung. Now, depending on how much meconium gets down there, you – you can't get it out of there, and the treatment for the baby is supportive until the baby's natural, you know, immune systems will clear that meconium.

I'll come back to that?---So - - -

Sorry, you go?---No – so, as I say, I – I think that it – that – um – it's – what is likely to have happened in this case is – is that there's been meconium down there that has interfered with and inflamed the lung, and it meant that the baby's – um – lung function progressively worsened, sufficient such that it would – that it – that it caused her to – um – that was the reason for her death, unfortunately

[108]An issue that arose was that, if Baby Wren had aspirated meconium *in utero* by the mechanism explained by Prof. Waever, how could that be reconciled with the fetal heart rate being noted as normal about 15 minutes prior to delivery. Prof. Weaver explained:¹⁰

At or about 8.15, so about 15 minutes prior to birth, the evidence indicates that the fetal heart rate was measured by use of a Doppler and it was within the normal range. Is that able to be reconciled – is that reconcilable with what you've just described in terms of the likelihood that Wren – Baby Wren may have already had meconium down deep in her lungs at that point in time? And if so, what is the explanation for that reconciliation?

---So it – the – but the baby won't be affected by the meconium in the lung at any time in utero because the baby isn't using its lung to respire. The baby is respiring or breathing, getting oxygen in and carbon dioxide out across the placenta via the umbilical cord. So while that cord function is happening and the baby is not requiring to access oxygen through her lung, she'll be okay. And so it would be normal during labour that the fetal heart rate would be normal. And – and then once the baby's born and all these changes that have to happen at birth, the pulmonary function starting off, the various changes in the baby, like the umbilical cord vessels, shrinking right up the patent – the ductus arteriosus, which is a link between – in the heart to shunt blood such that the lungs are avoided, that – that's – closes down. You get a greatly increased blood flow to the lung. As I say all these changes that occur at birth will happen and then as the baby is switching over from umbilical cord respiration to lung respiration that's when the baby's going to get into trouble because the baby will be unable to access sufficient oxygen from the atmosphere to be able to meet oxygen requirements.

All right. So, quite possibly - - -?

---So the baby's heart rate through labour will be normal, but as soon as the baby is born, that's when the baby is going to get into trouble

[109]As to the management of Baby Wren's meconium aspiration, it was suggested by Baby Wren's family that the recommended management

¹⁰ Starting at T2-10, L1

should include suctioning; i.e. to suction the meconium out of her lungs. To that proposition, Prof. Weaver responded:¹¹

That used to be what we did. Um – so, as I said before, when I was doing obstetrics as a trainee about 45 years ago, that’s what we used to do. So we spent a lot of time suctioning babies. When the head was born, we’d suction their nose and suction their pharynx on the perineum, and then that used to be what was recommended. So older practitioners would all be familiar with that. Then I can’t remember exactly when it – it changed, but certainly in the last 10, 15 years, there’s been a complete about face about that. So we do not routinely suction anybody because the evidence would suggest that it’s of no benefit and may in fact cause harm. And, similarly, if – if – um – we used to always try when babies had meconium to put in a endotracheal tube and try to provide tracheal suction – um – to try to empty out any potential meconium that might be below the vocal cords – um – if a baby had meconium-stained liquor. Again, that has been discredited as a – as a – um – practice – um – so that the Australian resuscitation guidelines, which include neonatal resuscitation which is the evidence-based guideline on which we teach neonatal resuscitation in hospitals across Australia, that guideline clearly says that we should not be trying to suction either on the perineum or routinely afterwards. What we should do is look at the baby, provide airway support to the baby – um – you know, clear out, you know, such secretions as might be inhibiting the baby from breathing initially, but not try to – um – routinely intubate. That means put a tube down into the trachea babies that are struggling because the evidence says it doesn’t help and might make things worse because if you repeatedly try to intubate a baby, what you can do is cause what’s called laryngospasm which means that the vocal cords will shut tightly and you won’t be able to get anything going in and out of the trachea, principally, air which contains oxygen. So the correct method to resuscitate the baby is to recognise that the baby needs resuscitation, which was done because the baby had a low Apgar score at one minute. And the principal reason for doing an Apgar score at one minute is to recognize those babies that need resuscitation. That is, the baby should be making a good response to extra uterine life by grimacing, crying, becoming pink, breathing and so on. If the baby isn’t doing those things by one minute, the baby needs resuscitation. So then the baby would usually be moved to a resuscitation area with a practitioner who’s been trained in neonatal resuscitation. And I think every hospital in Queensland who provides maternity care has practitioners who are skilled in current guidelines in neonatal resuscitation. So the correct management is – is – airway; ensuring the baby’s airway is patent and providing breathing support for the baby without resorting to old practices that have been – um – that the evidence would say do not help.

¹¹ Starting at T20-11, L8

[110] An alternative to suctioning identified by Baby Wren's family to clear the meconium from her lungs was a technique described as "lung lavage". In response to that suggestion, Prof. Weaver stated:¹²

All right. Just before we leave the issue of management, there's just one other proposition I'll put to you. As an alternative to suctioning, it's been suggested that lung lavage could have been considered to expel the lung meconium. Do you have any comments about that?---Again, there's no evidence that such a practice works and it's not practiced in any – certainly it's not practiced in my hospital, the Tertiary Referral Centre – um – and I'm not familiar with – um – I don't think I've ever seen that done in my career, to be honest.

[111] Otherwise, Prof. Weaver had no criticism about the management of Baby Wren's meconium aspiration, or the resuscitation attempts that were undertaken by the attending practitioners.

[112] Prof. Weaver was also taken to some of the observations/ readings recorded in the first 30 minutes of Baby Wren's life for his comment about what those observations/ readings likely meant in terms of her prognosis regardless of the care and treatment she was afforded to manage the meconium aspiration. First, as to her oxygen saturations post birth, he stated:¹³

I just want to draw your attention to some of the observations that were taken at 2048 hours, which is about 18 or perhaps 17 minutes after birth, and you'll see there the temperature, the blood, I think, the BGL 7.2, heart rate, respiratory rate, specifically the SpO2 of nine on 30 per cent oxygen. Just in terms of - - -

DEPUTY STATE CORONER: Sorry, with positive airways pressure I think is the part that was submitted.

MR SCHNEIDEWIN: Yes, and positive pressure was being provided at that point?---Yes.

In terms of the – in particular, the oxygen saturation level of nine, what does that, if anything, indicate in terms of Baby Wren's prognosis at that point in time, 18 minutes post birth?---Um – well, the oxygen saturation is quite low and the baby has got a – um – a slow heartbeat and a – um – quite a fast respiratory rate. So – um – I'm not a neonatologist so – um – and I would think that that is indicative that the baby's what we call hypoxic or short on oxygen – um – and if that continues, then that's going to be a – um – a significant problem for the baby. So certainly by 18 minutes of life, you would like to see oxygen saturation well above that, well into

¹² Starting at T2-11, L46

¹³ Starting at T2-12, L23

the, you know, sort of in the 80s and 90s, very high. That's very low and concerning low.

[emphasis added]

[113] Further, as to Baby Wren's blood gasses at about 20 minutes of age, Prof. Weaver opined:¹⁴

Now you'll see there, there's a heading approximately 20 minutes since birth that the umbilical vein catheter was inserted. And I can tell you, if you can assume this, that that blood gas taken at that time revealed a pH of 6.7. Can you offer any commentary around that finding at that point in time in terms of prognosis?---Well, the normal pH should be around about 7.3, so 6.7 is significantly low and that is very concerning that the baby is likely to have what we call a metabolic acidosis. So we've got to think of the human – the human body as a – as a biochemical machine and all of those – those biochemical reactions that run our metabolism require a pretty constant steady state of – for – for them to work optimally. Now, if the baby is accumulating acid in its body and the reason for accumulating the acid is usually twofold. One is, it can – um – the baby can retain carbon dioxide which dissolves in blood plasma causing carbonic acid. Um – and also there's a breakdown product of if the baby is short on oxygen, then it switches over to what's called anaerobic metabolism, which is metabolism that happens in the absence of oxygen. And the baby gets an accumulation of this substance called lactate, which causes a lactic acidosis. And the – if the baby becomes progressively acidotic, meaning it's accumulating lactate and carbon dioxide, then that – the effect of the acidosis is to slow the baby's metabolism down still further and the other thing that will happen is that the baby will start to develop injuries to, you know, critical organs such as brain, kidneys, heart and so on from the – um – from the continuing acidosis. So it's a – unless that's – that is – um – um – treated urgently, then that – then it will be a downward spiral to further deterioration and, ultimately, death. Um – so it – that's a very – having a low pH like that is a very concerning finding.

So having a low pH like that so soon after birth is concerning for prognosis; is that - - -?---Yes. Yes.

And if – and does it have anything to do with the effectiveness of the respiration at that point?---Well, the – you would think that the respiration is – has – is ineffective because the baby is not responding to it. So that if the – if the respiration was effective, there would be sufficient oxygen for the baby to metabolize properly. And if the baby was metabolizing properly, it would be not accumulating acid in the way that the baby seems to be here. There would not

¹⁴ Starting at T2-13, L3

be a need for anaerobic respiration and the acidosis would start to correct itself. So – um – yeah, so I think it's just an indicator that the baby's respiration is not effective.

And I just want to be clear, when I say that the respiration is not effective, I'm not suggesting that the mechanism or the resuscitation that was being applied was not being applied in an effective way. It's just that what I'm suggesting to you is that, albeit the resuscitation being undertaken in accordance with the protocols, it was just not being effective in the case of - - -

DEPUTY STATE CORONER: It just wasn't working

MR SCHNEIDEWIN: It wasn't working?---It wasn't, yeah, and – and, as I said before, I think the reason that it wasn't working is because the fetal lung membranes have been affected by the meconium such that it doesn't allow adequate gas exchange across them because they're thickened and inflamed.

And just to be clear as to progress from that point, very early on after delivery, the record seems to indicate that by 2117 hours, so about 40 minutes of life - - -

DEPUTY STATE CORONER: Can you scroll down, please.

MR SCHNEIDEWIN: - - - the pH was 6.73, so persisting?---Yes, and you can see that it – that it's – it persists and then – um – it – um – the – they can't – the lactate, they can't measure that, but the baby has got a – um – what we call a base excess of minus 24, which is a very serious thing because again that indicates the baby has got a profound metabolic acidosis and that is – if that is persisting, as I say, it's just – it's just part of the spiral downwards.

Yes?---Um – so you can see that in those lactate levels that have that were done earlier the lactate is rising and the reason that the lactate is rising is because the baby isn't getting sufficient oxygen. It has had to switch over to – trying to provide energy for the various organ systems by anaerobic that is breaking down glucose without any oxygen, and you'll get this accumulation of lactate. So again, it's just further showing that the baby is respiring anaerobically, which is not compatible with long life – um – and aggressively deteriorating. And, as I say, I think that's directly due to poor lung function because of the meconium that's irritated them

[emphasis added]

[114] Additionally, in response to my observations, Prof. Weaver commented as follows:¹⁵

¹⁵ Starting at T2-14, L27

DEPUTY STATE CORONER: Professor Weaver, looking at these timeframes in this document that's in front of you at the moment, if we which I think is 20 minutes postpartum..... If you look – if you start there, Professor, where it says approximately 20 minutes since birth, and you look at those markers that you've been provided within this document, is it possible to say at what point in time that Wren's death was inevitable when you look through the biomarkers you've got? Scroll down please, Mr Edwards?---I think – I wouldn't say that death was in – was absolutely inevitable, but – but certainly the prospect of Wren having a normal life with having – you know, growing up as a normal child with normal developmental milestones would be very in question then. Because it's very likely that if the baby has this persisting and worsening acidosis, that that will cause profound damage to the brain, principally, because that's the most important organ and the most oxygen hungry organ and – and so on. And I think that was borne out when she was – um – went through a post-mortem examination that there had been profound injury to her brain. So I think that – that – that as it happened here, they recognised that given the very – these high numbers, when the retrieval team came down from Townsville and recognised this, then I think that the correct course was to recognise that if she didn't die very soon – um – she – her chances of having a normal life would be, I would say, zero. Um – so I think that's an inevitable outcome of this sort of precipitous decline. Exactly when? Well – um – as I say, that's a bit hard to say, but – but we know what happened in this case, which is dreadful. Unfortunate

[115]Prof. Weaver also explained the effect of the meconium aspiration on Baby Wren's prognosis as follows:¹⁶

DEPUTY STATE CORONER: Professor, is this too simplistic; the meconium presumably evidenced in Wren's lungs, provided a physical barrier to the gas exchange when they were trying to resuscitate her as one part of the problem; is that right?---Yes, it's a physical barrier and it also – because as I said, it's inflammatory, it will cause - - -

And that's the second part?--- - - - it causes the membranes to become quite thickened. It was noteworthy when the baby had a chest X-ray, they thought that the baby had highline membrane disease, which is a condition that preterm babies get where the fetal lungs – um – the membranes in the fetal lung become quite thickened and gas can't perfuse across them very well in a similar way meconium will – will cause that. It would be most unlikely that Baby Wren would have had highline membrane disease per se because that's a disease that usually affects babies born before 34-35 weeks gestation. But certainly, the meconium will cause a

¹⁶ Starting at T2-15, L 32

similar lesion to the lung, and it will cause the fetal membranes to grossly thicken via this inflammatory process that happens.

[116] In cross examination by Ms Lane, Junior Counsel for the Hospital, Prof. Weaver opined:¹⁷

This is a rare, tragic, awful outcome and I feel very sorry for the – for the poor parents to whom this has happened. But it's – it's not something that we can reasonably foresee and it's important, I think, that we have – try and have trained staff on the ground such that they can perform resuscitative measures as may be required for the baby quickly, promptly, accurately and efficaciously. But even doing all of that, as this case demonstrates, you don't always have a successful outcome, much as I might wish otherwise, and I'm sure we all do. But it's – it's one of the risks, I guess, of having a baby. It's a rare outcome, but it's, in my view, well, it's not always preventable. We know that.

And just going on from your answer there, in your report, you've identified nothing from the point of Baby Wren's birth when she – when her distress became apparent. You've identified nothing in your report that would indicate that anything that occurred post-delivery would have brought about a different result for Wren?---

I – I don't think so. I – I can't think of anything that they could reasonably have done at that time, that the care seemed to be timely, contemporary, in accordance with the resuscitation guidelines. And I think, as I say, I can – I'm with – I can't comment on the individual practitioner's ability or how they – what they did, what the – you know, how they did what they did, but according to the notes, which has to be my source of truth, they – it seemed to have been done in the correct sequence, at the correct time, doing the correct things. So I didn't see any – any great omissions in care or anything that should've been – that wasn't done that should have been done, put it that way.

[emphasis added]

Preliminary findings

[117] At the conclusion of evidence at the Inquest, I made the following findings of fact and rulings:¹⁸

DEPUTY STATE CORONER: Yes. So the process is obviously for you to put on submissions, Mr Schneidewin, and then for the parties thereafter to have some period of time to put on submissions. We'll calculate the time due for submissions from

¹⁷ Starting at T2-17, L4

¹⁸ Starting at T2-18, L18

the date the transcript's provided to everybody because I don't know how long that will be. Please take a seat. I propose to deal with what submissions are sought in this way. The issues as listed for the inquest are (1) to (4), inclusive. The first of the issues is a question as to the "appropriateness of the perinatal care and intrapartum care afforded Hannah at Atherton, particularly in respect of her contact with the hospital about 60 minutes after starting labour. Should she have been advised to come into the hospital at that point?" The evidence before me is that the answer to that question is no. It was appropriate that she stay at home for the period that she indeed did stay at home, and that is notwithstanding she was group B strep positive.

In respect of the issue of (1)(b), "Were antibiotics administered to the mother in accordance with the relevant guidelines for GBS"; the answer is yes. The evidence before me is unfailingly that that was an appropriate course of action to which Hannah had previously consented. In respect of (c), it says, "If not, was the failure to admit her antibiotics a factor in the death?" That matter is no longer relevant given my finding in respect of (1)(b). Issue (2): "Did any aspect of the care afforded to the mother of the deceased at Atherton Hospital cause or hasten the death of Wren?" The answer, based on the evidence before me presently, can only be no. The care afforded Hannah at Atherton Hospital did not cause or hasten the death of Wren.

In respect of issue (3), "Did any aspect of the care afforded Wren at the hospital cause or hasten the death of the deceased?" I will take submissions. In respect of issue (4), "Did any failure to provide care to the deceased or her mother at Atherton Hospital cause or hasten the death?" I will take submissions only on whether or not any failure to provide a care to Wren caused or hastened her death. I find that there was no failure to provide appropriate care to Hannah at the Atherton Hospital. There is no other finding available on the evidence before me. Does any party wish to take any instructions in respect of my proposed course?

MR SCHNEIDEWIN: No, thank you, your Honour.

MS ROBB: No.

DEPUTY STATE CORONER: Thank you. So I will take submissions in respect of issue (3) and issue (4) insofar as it touches and concerns Wren only. Submissions are limited to 10 pages. We're adjourned to findings.

Submissions

[118] The Court has received written submissions from Counsel Assisting, Ms McMillan KC and Ms Lane on behalf of the Cairns & Hinterland Hospital and Health Service, and Ms Robb KC on behalf of RM O'Rourke.

[119] By his written submissions, in addressing Issue 3 and Issue 4, Counsel Assisting addressed two broad issues:

- a) Baby Wren's meconium aspiration including the mechanism of meconium aspiration and the management of that complication in Baby Wren's case;
- b) The likely prognosis of Baby Wren even if management might have been different or more optimal than was the case (if in fact that was the case).

[120] I will adopt a similar approach in making these findings, with the addition of also making findings about the adequacy of staff training in neonatal resuscitation.

Baby Wren's meconium aspiration

[121] I accept, and find, that the cause of Baby Wren's death was hypoxic ischaemic encephalopathy as a consequence of respiratory failure following severe meconium aspiration suffered *in utero*, in the setting of a precipitate labour. That is consistent with the certified cause of death, with the diagnosis reached by the retrieval team, with the post-mortem findings of profound brain injury, and with the opinion of Prof. Weaver.

[122] As to the nature and extent of the meconium aspiration, I accept Prof. Weaver's evidence as to the mechanism by which it occurred. Meconium is the material present in the fetal colon *in utero*. Its passage is not, of itself, evidence of fetal distress. Rather, as babies approach term they will sometimes open their bowels *in utero*. Meconium-stained liquor is present in about 10% of labours. A fetus does not use its lungs to breathe *in utero*, respiration being accomplished by gas exchange across the placenta and umbilical cord, but the fetus makes breathing movements which draw amniotic fluid into and out of the lungs. Where that fluid contains meconium, meconium may be drawn down into the lung and become sequestered there, well below the larynx and within the bronchi and bronchioles. Meconium is irritant to the fetal lung and causes inflammation and thickening of the lung membranes, impairing gas exchange.

[123] I find that, on the balance of probabilities, Baby Wren had passed meconium and had meconium sequestered within her lungs for some time before her birth. That finding is supported by the copious, thick and 'old' appearance of the meconium described by the attending midwives, by the meconium-staining of Baby Wren's skin and nails, by the extensive distribution of meconium throughout both lungs demonstrated on the

chest X-ray (initially mistakenly reported as hyaline membrane disease), and by the black-coated vocal cords and heavily soiled larynx observed on intubation. Prof. Weaver was unable to say precisely how long before birth the meconium had been passed, save that it was likely to have been within the few days before birth. I make no more precise finding as to timing, the evidence not permitting one.

[124] As to whether the presence of the meconium could have been detected before delivery, I find that it could not. There is no antenatal screening test that can detect meconium aspiration or predict which babies will develop it. Nothing in Hannah's antenatal care, her scans, or the fetal monitoring during labour indicated that meconium aspiration had occurred or was occurring. Hannah's membranes remained intact until about a minute before the birth, such that there was no meconium-stained liquor visible to the staff, and the fetal heart rate remained normal throughout labour, including on auscultation at about 2015 hours, some 15 minutes before birth. I accept Prof. Weaver's evidence that a normal fetal heart rate during labour is not inconsistent with meconium already being present in the lungs, because while the umbilical cord continues to supply oxygen the baby is unaffected by the meconium in the lung, the difficulty arises only after birth, when the baby must switch to breathing through lungs whose function is compromised. The normal intrapartum fetal heart rate therefore neither revealed, nor was inconsistent with, the meconium aspiration that had occurred.

[125] As to whether it was appropriate to leave the membranes intact prior to delivery, I find that it was. I accept the evidence that there was no clinical indication to perform an artificial rupture of the membranes. There was no fetal distress and labour was progressing normally, and in the context of Hannah's GBS status early rupture of the membranes was, if anything, contraindicated, since intact membranes reduce the opportunity for vertical transmission of GBS. Prof. Weaver confirmed that it was a reasonable decision to leave the membranes intact at the earlier vaginal examination. In any event, given the precipitate progress of the labour, and Prof. Weaver's evidence that the baby could not have been born any earlier than she was, I am satisfied that leaving the membranes intact neither caused nor contributed to Baby Wren's death.

[126] As to the adequacy and appropriateness of the management and treatment of the meconium aspiration, I find that Baby Wren's condition was recognised promptly and that resuscitation was commenced immediately and escalated without delay, in accordance with contemporary, evidence-based guidelines. I accept Prof. Weaver's evidence, supported by that of Dr Baxter, that the contemporary management of a baby exposed to meconium does not include routine suctioning of the nose, pharynx or trachea. That practice, once routine, has been discredited. The evidence indicates that it is of no benefit and may cause harm, including by unnecessary stimulation provoking a vagal response and a fall in heart rate, and by repeated attempts at intubation causing laryngospasm. The correct approach, which was followed here,

is to secure the airway and provide breathing support. I also accept Prof. Weaver's evidence that 'lung lavage' is not an established or evidence-based treatment and forms no part of accepted practice, including at his own tertiary referral centre. The suggestions advanced on behalf of Baby Wren's family that suctioning or lung lavage should have been undertaken are, accordingly, not made out, and I make no criticism of the staff for not undertaking them.

[127] I find that the reason the resuscitation did not succeed was not any deficiency in the care provided, but the extent of the underlying lung injury. As Prof. Weaver explained, the sequestered meconium presented both a physical barrier to gas exchange and, through inflammation, a grossly thickened alveolar membrane across which oxygen could not adequately pass. Once Baby Wren was required to breathe through her own lungs, they were unable to meet her oxygen requirements, and the ensuing profound and persisting acidosis could not be reversed notwithstanding sustained and escalating resuscitative efforts and the involvement of the Townsville neonatology team and retrieval service. I accept Prof. Weaver's conclusion that there were no significant omissions in the care that caused or contributed to Baby Wren's death, and that the resuscitation was performed in the correct sequence, at the correct time, and to a good standard.

Neonatal resuscitation training at the Hospital

[128] A discrete matter raised at the Inquest was the adequacy of the training of the Hospital's staff in neonatal resuscitation. I heard evidence on this issue from each of the midwifery witnesses and from Dr Baxter, and I received the evidence of Prof. Weaver as to the standard required more broadly.

[129] As to the applicable standard, I accept Prof. Weaver's evidence that it is a requirement for continuing registration that practitioners working in intrapartum services undergo mandatory training in neonatal resuscitation, and in cardiotocograph interpretation, on a recurring basis, the mandatory interval being every second year. Practitioners are expected to be proficient in basic paediatric life support, such that they can make an initial assessment of a newborn and commence resuscitation. Prof. Weaver also described the value, particularly in smaller hospitals, of practitioners with advanced paediatric life support skills (such as neonatal nurse practitioners) who can provide a level of support bridging that of a midwife trained in basic life support and that of a neonatologist, pending the arrival of a retrieval team. He expressed the view, which I accept, that every hospital in Queensland providing maternity care has practitioners skilled in the current neonatal resuscitation guidelines.

[130] As to the position at the Hospital, the evidence of the midwifery staff was to the effect that they attend mandatory neonatal resuscitation and neonatal stabilisation training. Ms Peeters gave evidence that, although the mandatory requirement is every two years, she undertakes that

training annually and at her own election. Ms O'Rourke gave evidence that she undertakes compulsory neonatal resuscitation training every second year, together with additional self-directed study. Dr Baxter gave evidence that ongoing neonatal resuscitation training is available at the Hospital, and that since Baby Wren's death he had himself undertaken both an advanced neonatal resuscitation course and a neonatal stabilisation course, facilitated by colleagues from the special care nursery at Cairns Hospital.

[131] Prof. Weaver confirmed that mandatory training every second year accords with his understanding of the position statewide, and that he would expect a hospital such as Atherton Hospital to have practitioners with advanced skills of the kind he described.

[132] There was no evidence before me that the staff at the Hospital had failed to comply with the applicable minimum training requirements at the time of Baby Wren's death. On the contrary, the weight of the evidence was that the staff had at least met those requirements and that a number of them had voluntarily undertaken training beyond the mandatory minimum, both before and after Baby Wren's death.

[133] I find that the staff involved in Baby Wren's care were appropriately trained in neonatal resuscitation and met the standard required of them, and that the training of staff at the Hospital in neonatal resuscitation was, and is, adequate. This finding is consistent with, and reinforced by, my acceptance of the expert evidence that the resuscitation of Baby Wren was in fact conducted competently and in accordance with contemporary guidelines.

The likely prognosis of Baby Wren

[134] I turn to Baby Wren's likely prognosis, and in particular whether the outcome would, or might, have been different had her condition been managed or treated differently.

[135] Baby Wren's condition following birth was grave and rapidly deteriorating. Notwithstanding immediate and sustained resuscitation, she could not be adequately oxygenated. By about 18 minutes of age her oxygen saturation was recorded at 9% on 30% oxygen with positive pressure ventilation, a level Prof. Weaver described as very low and concerning low, indicative of profound hypoxia. A venous blood gas at about 20 minutes of age showed a pH of 6.73 against a normal value of about 7.3, indicating a profound metabolic acidosis, and by about 40 minutes of age the acidosis was persisting, with a base excess of -24. Serial blood gases over the ensuing hours showed the acidosis continuing and worsening despite escalating ventilatory support. I accept Prof. Weaver's evidence that these markers demonstrated that Baby Wren's respiration was not effective, not by reason of any deficiency in the resuscitation, which was being conducted in accordance with the protocols, but because her lungs, compromised by the sequestered meconium, could not achieve adequate

gas exchange. This represented a downward spiral toward further deterioration and, ultimately, death.

[136] Prof. Weaver was asked whether it was possible to identify a point at which Baby Wren's death became inevitable. He was not prepared to say that death was, in a strict sense, absolutely inevitable from any identifiable moment. He was, however, clear that, given the persisting and worsening acidosis and its likely effect on the brain (borne out by the profound brain injury identified at post-mortem), the prospect of Baby Wren surviving with a normal life and normal developmental milestones was, on the high readings recorded, effectively zero. I accept that evidence.

[137] Critically, Prof. Weaver identified nothing, from the point at which Baby Wren's distress became apparent, that could reasonably have been done differently and that would have brought about a different result. He could think of nothing that the staff could reasonably have done that was not done. The care was timely, contemporary and in accordance with the resuscitation guidelines, and was carried out in the correct sequence, at the correct time, doing the correct things. He observed that meconium aspiration carries a recognised mortality, that this was a rare, tragic outcome that could not reasonably have been foreseen or, on the evidence, prevented, and that even where staff perform resuscitation promptly, accurately and efficaciously, a successful outcome does not always follow.

[138] On the whole of the evidence, I find that Baby Wren's prognosis was, tragically, extremely poor from birth, and that her death was the result of the severe meconium aspiration she had suffered *in utero*.

[139] I find that no different or additional treatment or management reasonably available to the staff at the Hospital, or to the retrieval team, would have altered that outcome. Her death was not, on the evidence, preventable.

Conclusion Issue 3 & Issue 4

[140] It follows from the findings I have made above that I am able to in respect of Issue 3 and Issue 4 as follows

[141] As to Issue 3 - whether any aspect of the care afforded to Baby Wren at the Hospital caused or hastened her death. For the reasons set out above, in particular my findings that her condition was recognised promptly; that resuscitation was commenced immediately and escalated without delay; that it was conducted competently and in accordance with contemporary, evidence-based guidelines; that the practices said by the family to have been omitted (suctioning and lung lavage) were not indicated and would not have assisted; and that the resuscitation was ineffective only by reason of the underlying lung injury caused by the meconium aspiration and not by reason of any deficiency in care, I find that no aspect of the care afforded to Baby Wren at Atherton Hospital caused or hastened her death.

[142] As to Issue 4 - whether any failure to provide care to Baby Wren at the Hospital caused or hastened her death. For the reasons set out above, in particular my acceptance of the expert evidence that there were no significant omissions in her care; that nothing which occurred post-delivery would have brought about a different result; and that her death was not, on the evidence, preventable, I find that there was no failure to provide appropriate care to Baby Wren at Atherton Hospital that caused or hastened her death.

[143] I record that these findings are consistent with the opinion of Prof. Weaver, with the submissions of Counsel Assisting, and with the position of the interested parties, none of whom contended for any contrary finding.

Recommendations

[144] Section 46 of the Act provides that a coroner may comment on anything connected with a death that relates to public health or safety, the administration of justice, or ways to prevent deaths from happening in similar circumstances in the future. I have considered whether any such comment or recommendation is warranted, particularly in relation to the training of staff in neonatal resuscitation.

[145] I adopt, in this respect, the submission of Counsel Assisting. The evidence at the Inquest was that the midwifery staff undertake mandatory training in neonatal resuscitation every second year, which accords with the standard required statewide as described by Prof. Weaver, and that a number of the staff have taken it upon themselves to undertake training more frequently, and additional training beyond the mandatory minimum. There was no evidence that the staff at the Hospital had failed to comply with the minimum training requirements at the time of Baby Wren's death, and the weight of the evidence was that, since her death, the staff had at least maintained compliance with those requirements and that many had done more than was required.

[146] In those circumstances, and given my finding that the care afforded to Baby Wren, including her resuscitation, was competent and in accordance with contemporary guidelines, I am satisfied that there is no recommendation I could meaningfully make, in respect of training or otherwise, that would go beyond what is already being undertaken at the Hospital and that would serve to avoid or minimise the risk of a similar event occurring in the future.

[147] I therefore make no recommendation pursuant to s.46 of the Act.

Findings pursuant to s.45 Coroners Act 2003

[97] I make the following findings pursuant to s.45 of the Act:

- a) The deceased person is Wren Marion Preo, born on 31 May 2024;

- b) The deceased died following a precipitate labour of her mother due to the deceased developing hypoxic ischaemic encephalopathy caused by respiratory failure following severe meconium aspiration suffered *in utero*.
- c) The deceased died on 1 June 2024 at 0450 hours;
- d) The deceased died at the Atherton Hospital, Queensland;
- e) The deceased's death was a natural causes death; specifically it was caused by hypoxic ischaemic encephalopathy as a consequence of respiratory failure following severe meconium aspiration suffered *in utero*.

I close the inquest.

Stephanie Gallagher
Deputy State Coroner
CAIRNS