IN THE CORONERS COURT
OF VICTORIA
AT MELBOURNE

COR 2018 001812

FINDING INTO DEATH WITHOUT INQUEST

Form 38 Rule 63(2)

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

Findings of:	AUDREY JAMIESON, Coroner
Deceased:	Pippa May Griffiths
Date of birth:	18 April 2018
Date of death:	18 April 2018
Cause of death:	1(a) Neonatal death in the setting of meconium aspiration
Place of death:	Albury Wodonga Health, 53-81 Vermont Street, Wodonga, Victoria, 3689

INTRODUCTION

1. Baby Pippa May Griffiths was a 41 week gestation infant who died on 18 April 2018, three hours after her mother went into spontaneous labour at Wodonga Hospital.

2. Baby Pippa was the third child of Courtney and Kallen Griffiths and was Mrs Giffiths' fifth pregnancy after two early miscarriages in 2015 and 2016.

3. Mrs Griffiths was 35 years of age when she was pregnant with Baby Pippa. The agreed estimated delivery date was set on 10 April 2018.

4. Mrs Griffiths had history of post-partum haemorrhage. Her overall pregnancy was considered low risk and normal. A morphology ultrasound[1] at 20 weeks performed on 21 December 2017 was normal.

THE CORONIAL INVESTIGATION

5. Baby Pippa'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.

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

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

8. As part of the coronial investigation, advice was sought from Coroners Prevention Unit (**CPU**) concerning Mrs Griffiths' labour management at Wodonga Hospital. The CPU assist the coroner with research in matters related to public health and safety in relation to the formulation of prevention recommendations, as well as assisting in monitoring and evaluating the

[1] A second trimester ultrasound performed between 18-20 weeks gestation to detect foetal structural and growth abnormalities and placental location.

effectiveness of the recommendations. The CPU is staffed by healthcare professionals, including practising physicians and nurses, who are not associated with the health professionals under consideration and are therefore able to give independent advice to the coroners.

9. This finding draws on the totality of the coronial investigation into the death of Pippa May Griffiths including evidence contained in the coronial brief. 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.[2]

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

Circumstances in which the death occurred

10. On 17 April 2018, Mrs Griffiths attended her general practitioner (**GP**), Dr Jennifer Giddens where she reported contractions and decreased foetal movement (**DFM**)[3]. Mrs Griffiths was then referred to Wodonga Hospital for cardiotocographic (**CTG**) monitoring[4] as her delivery was also post-dated.

11. A CTG and monitoring and vaginal examination was performed, however, it is unknown whether an Amniotic Fluid Index[5] (**AFI**) level was measured. Mrs Griffiths was advised that foetal movement was normal and was discharged home with a plan for labour induction on 20 April 2018.

12. On 18 April 2018, at 7.15pm, Mrs Griffiths presented to Wodonga Hospital in spontaneous labour. The birth suite at that time was not busy and was appropriately staffed.[6] Upon admission, a midwife, Emma Sargent attended Mrs Griffiths. Ms Sargent completed her initial

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[2] 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.

[3] Decreased foetal movement (DFM) will be used and referred to interchangeably with reduced foetal movement in this finding.

[4] A CTG, is electronic foetal monitoring of the heartbeat. CTGs are a widely used technique for assessing foetal wellbeing. A normal CTG has baseline foetal heart rate (FHR) between 110 and 160 beats per minute (bpm), baseline variability of 6-25 bpm and no decelerations.

[5] Post term pregnancy surveillance aims to identify the fetus at risk of compromise. When a woman reports reduced foetal movements a CTG is performed, and some maternity services would arrange an USS for AFI measurement. Thereafter, twice weekly CTG and AFI are offered from about 41 gestation.

[6] Statement by Julie Wright (Operational Director of Women's and Children's Services of Albury Wodonga Health) dated 25 October 2019 [5].

assessment including two auscultations for foetal heart rate recorded as 120 and 140 beats per minute (**bpm**), but CTG monitoring was not performed.

13. At 7.30pm, Ms Sargent examined Mrs Griffiths and noted the cervix was seven centimetres dilated and the membranes intact. An intravenous cannula was inserted for blood collection given Mrs Griffith's history of post-partum haemorrhage. One dose of benzyl penicillin was administered to Mrs Griffiths, as a vaginal swab was positive for Group B Streptococcus (**GBS**)[7].

14. According to medical record, Mrs Griffiths later requested an epidural for analgesia. Ms Sargent then called for an anaesthetist on call to attend the insertion of an epidural. Before an epidural could be arranged, Mrs Griffiths' labour progressed quickly. The foetal head was on view at 8.04pm when Mrs Griffiths commenced involuntarily pushing and a small amount of old meconium[8] liquor was observed at 8.40pm.[9]

15. Following the observation of meconium, Ms Sargent activated an internal maternity emergency alarm and a second midwife, Kerri Crawford arrived just prior to the birth to render assistance.

16. Baby Pippa was birthed by Ms Sargent and Ms Crawford at 8.45pm, weighing 3400 grams. She was observed as being pale with no tone, heart rate, covered in thick and old meconium. A Medical Emergency Team[10] (**MET**) call was immediately called.

17. GP obstetrician on duty, Dr Russell Richardson arrived at 8.46pm and paediatric registrar, Dr Elise Coker arrived at approximately 8.48pm. Dr Richardson immediately commenced a neonatal cardiopulmonary resuscitation (**CPR**) at one and a half minutes as per the standard neonatal resuscitation guidelines (**NRG**). Apgar score[11] were recorded as 0 at 1 minute and 0

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[7] Group B streptococcus (GBS) is a gram positive bacteria that colonises the gastrointestinal and genital tracts of 15 to 40 percent of pregnant women and is usually asymptomatic. GBS can cause infection in neonates and young infants.

[8] Meconium is normally stored in the neonate's (newborn) bowl until after birth, but sometimes it is expelled into the amniotic fluid, or liquor, prior to or during labour and delivery. The stained amniotic fluid is a recognised signed of foetal distress, and puts the neonate at risk of meconium aspiration where meconium is inhaled and causes chemical pneumonitis, or inflammation within the neonate's lungs.

[9] Albury Wodonga Health medical record, progress notes by Emma Sargent.

[10] The Medical Emergency Team (MET) call is a hospital based system, designed for a nurse to alert and call other staff for help when a patients vital signs have fallen outside a set criteria.

[11] The Apgar score allows clinicians to quickly evaluate a newborn's physical condition. Five factors are each scored on a scale of 0 to 2 (2 being the best score) and are used to evaluate the baby's condition. Appearance (skin colour), Pulse (heart rate), Grimace response (reflexes), Activity (muscle tone), Respiration (breathing rate and effort). The Apgar test is usually administered at one- and five- minutes after birth. Ten is the highest possible score, but this is rarely obtained.

at 5 minutes. An intermittent positive pressure ventilation (**IPPV**) was also administered using a Neopuff[12].

18. At 8.49pm, Dr Coker performed an oropharyngeal suctioning using a yanker sucker and suction catheter, followed by suctioning of the cords under direct vision in attempt to clear the thick meconium.[13]

19. At 8.56pm, Dr Coker intubated Baby Pippa using an endotracheal tube (**ETT**).[14]

20. At 9.01pm, consultant paediatrician, Dr Mark Norden attended and observed poor airway entry bilaterally. Dr Norden checked the position of the ETT and extubated Baby Pippa. He then performed further suctioning that produced copious meconium from below her vocal cords and continued intubation shortly after.

21. At 9.03pm, a meconium aspirator was introduced, and Baby Pippa was extubated and intubated at 9.06pm.

22. At 9.22pm, thirty-seven minutes after birth, treating clinicians detected the first heart and pulse. Baby Pippa's heart and pulse were maintained with inotrope support.

23. At 9.24pm, Baby Pippa was transferred to Special Care Nursery. Baby Pippa was adequately ventilated and her blood was collected for a full blood examination and coagulation testing.

24. Three doses of adrenaline[15] were subsequently given and followed by an adrenaline and dopamine infusion. Fluid boluses were also administered according to the NRG. Baby Pippa's heart rate remained abnormally low at 80 bpm and her blood pressure was unrecordable.

25. Resuscitation efforts were continued until the pathology results were received at 9.36pm. The first blood gas recorded earlier indicated severe acidosis[16] with pH value of 6.514[17], carbon monoxide level at 116.1 and low oxygen saturation of 43 millimetres.

26. At 9.43pm, Baby Pippa's pupils were observed of being fixed and dilated.

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[12] A resuscitator which delivers breaths manually with accurate peak inspiratory and peak end expiratory pressure.
[13] Statement by Julie Wright [23].
[14] Ibid [24].
[15] Adrenaline is an adrenoreceptor agonist used in the resuscitation setting to stimulate heart contraction.
[16] A low pH value with raised carbon dioxide and lactate indicates hypoxia.
[17] A normal blood pH value must be maintained within pH 7.35 – 7.45, to ensure the proper functioning of proper metabolic processes. Carbon dioxide 35-45. A low pH with raised carbon dioxide and lactate indicates hypoxia

27. At 10.00pm, the hospital contacted the Paediatric Infant Perinatal Emergency Retrieval (**PIPER**) service[18] and discussed Baby Pippa's condition. The service agreed with the hospital that her prognosis was very poor. Dr Norden explained the events to Mr and Mrs Griffiths, noting an inability to ventilate Baby Pippa until forty minutes past her birth. A decision was then made to withdraw life support. Baby Pippa was declared deceased at 11.44pm on 18 April 2018.

Identity of the deceased

28. On 18 April 2018, Pippa May Griffiths, born 18 April 2018, was visually identified by her mother, Courtney Griffiths. Identity is not in dispute and requires no further investigation.

Medical cause of death

29. Registrar Dr Melissa Vasquez from Austin Hospital conducted an autopsy on 23 April 2018.

30. A brain magnetic resonance imaging (**MRI**) and a placenta examination were carried out and reported by Dr Gregory Fitt and Associate Professor (**A/Prof**) David Williams respectively at Austin Hospital.

31. A radiographic skeletal survey and whole body computed tomography scan (**CT**) examination was performed by the Victorian Institute of Forensic Medicine (**VFIM**) and was reviewed by Dr Timothy Cain from the Melbourne Royal Children's Hospital.

32. Dr Vasquez provided a post-mortem examination report incorporating findings from Dr Fitt, A/Prof Williams and Dr Cain's examinations.

33. The post-mortem examination revealed meconium within the oral cavity, bilateral nares, external ears, and oesophagus, consistent with meconium ingestion and aspiration in utero prior to birth. There was evidence of distending in the stomach, plugging distal trachea, main bronchus and segmental bronchi.

[18] PIPER is a state-wide service which provides accessible and timely expert advice to health care providers for paediatrics and high risk obstetric care.

34. The placenta was normal on examination. There was no evidence of funisitis[19] or chorioamnionitis[20] and no accumulation of meconium laden macrophages is seen within the membranes. There was also no evidence of foetal or maternal vasculopathy.

35. Microbiology investigation found no evidence of *Eschericia coli* (E.coli). in the liver and placenta and with evidence of light growth in the lungs.

36. The CT scans and MRI of the brain did not reveal any abnormalities. Dr Cain noted, however, the lungs showed very poor aeration, consistent with the history of absent spontaneous breathing at birth.

37. Forensic Pathology Registrar Dr Melanie Archer from the VFIM, reviewed the post-mortem examination report compiled by Dr Vasquez from Austin Hospital, medical records and medical disposition from Wodonga Hospital, preliminary examination report, post-mortem CT examination and VFIM contact log. Dr Archer provided a written report of her findings dated 5 March 2019.

38. Dr Archer ascribed the cause of death to 1 (a) neonatal death in the setting of meconium aspiration.

REVIEW OF CARE

CPU Review

39. The CPU was requested to review the obstetric care and labour management of Mrs Griffiths and newborn services at Wodonga Hospital. As part of its review, the CPU reviewed the court files, maternal and neonatal medical records from Wodonga Hospital and post-mortem examination report from Austin Hospital, statements of senior managing staffs from Albury Wodonga Health.

40. After the initial review, the CPU suggested that Albury Wodonga Health provide details of the hospital protocols specifically on post term foetal surveillance, intrapartum foetal heart rate monitoring and the attendance of a paediatrician at birth. The CPU generated an extensive list of questions directed to Albury Wodonga Hospital.

[19] Funisitis is inflammation of the connective tissue of the umbilical cord that occurs with chrioamnionitis.
[20] Chrioamnionitis is a condition that can affect pregnant women. In this condition, bacteria infect the chorion and amnion (the membrane surround the foetus) and the amniotic fluid.

41. Statements were obtained from Julie Wright, Operational Director of Women's and Children's Services, Dr Simon Craig, Director of Obstetrics and Gynaecology, Dr Ken Cheng, Director of Medical Governance at Albury Wodonga Health. Although not directly involved in the clinical care of Mrs Griffiths and Baby Pippa, Ms Wright, Dr Craig, and Dr Cheng compiled their statements based on medical record documentation and the sentinel event root cause analysis[21] (**RCA**).

Antenatal and obstetric care and management

42. On 17 April 2018, Mrs Griffiths presented to Wodonga Hospital and a CTG was performed. However, a serial ultrasound (**USS**) was not performed making the AFI data unavailable. If a USS had been performed it may have provided a more comprehensive assessment of Mrs Griffiths' risk factors.

43. Upon admission on 18 April 2018, the midwife admission assessment of Mrs Griffiths did not identify any history of reduced foetal movement and risk factors that were known to negatively impact on labour or a birth. The two auscultations for foetal heart during labour at 8.30pm indicating a normal heart rate was appropriate.

44. Dr Craig advised the Wodonga Hospital's guidelines regarding intrapartum foetal monitoring provide that intermittent auscultation is appropriate when a patient has no history of reduced foetal heart rate and no other identifiable antenatal or intrapartum risk factors.

45. It was further confirmed that Ms Sargent was unaware of Mrs Griffiths' presentation at the hospital on 17 April 2018 concerning reduced foetal movements, and therefore did not warrant a CTG at that time.

46. Dr Craig explained, *'had Ms Griffiths history of reduced foetal movements been communicated to and appreciated by the midwife on admission on 18 April 2018, the hospital's guidelines would have required that Ms Griffiths undergo continuous electronic foetal monitoring during labour'*.[22]

47. Consistent with the Royal Australian and New Zealand College of Obstetricians and Gynaecologist (**RANZCOG**) Intrapartum Guideline, a patient such as Mrs Griffiths who

[21] A sentinel event root cause analysis is the standard method used by hospitals to review Incident Severity Rating 1 catastrophic adverse clinical events.
[22] Statement of Dr Simon Craig, dated 25 October 2019 [33].

presented in labour with a recent history of reduced foetal movements should warrant intrapartum CTG monitoring.

48. Concerning obstetric management of high-risk deliveries in Wodonga Hospital, Dr Craig advised that the hospital's CTG procedure mandates CTG monitoring with outlining several high-risk factors. Additionally, the hospital clinical practice is also in accordance with Safer Care Victoria's maternity electronic handbook, which provides several guidelines on management of high-risk deliveries.

49. The handbook includes the induction of labour guidelines which outline risk factors warranting an induction of labour. The reduced foetal movement guidelines contained in the handbook outlined risk factors warranting CTG assessments, ultrasound investigation, feto-maternal haemorrhage investigation and obstetric review.

Paediatric attendance at birth

50. According to the Albury Wodonga Health policy, a paediatrician or a paediatric registrar to attend a birth when there is concern regarding foetal wellbeing, including meconium-stained liquor. The Wodonga Hospital Paediatric Attendance at Birth Policy also encompasses the requirement the attendance or either paediatrician or a paediatric registrar under various circumstances, not just limiting to meconium liquor.[23]

51. Ms Sargent activated a delivery assist button when she observed small amount of old meconium at five minutes prior Baby Pippa's birth. Although the MET call was not correctly activated, Dr Richardson, Dr Coker and Dr Norden were quick in attendance and neonatal resuscitation efforts were appropriate.

Subsequent actions by Albury Wodonga Health

52. Baby Pippa's tragic death was reported to the Consultative Council on Obstetric and Paediatric Mortality and Morbidity (**CCOPMM**) and to Safer Care Victoria (**SCV**). The report to SCV subsequently triggered a sentinel event root cause analysis review.

53. Baby Pippa's death was also independently reviewed by the Regional Maternal and Perinatal Mortality and Morbidity Committee (**RMPMMC**).

[23] Statement of Dr Simon Craig [38].

54. The RMPMMC identified opportunities for organisational improvement. It was found that knowledge at admission of the episode of DFM would necessitate induction of labour and Continuous Electronic Foetal Monitoring (**CEFM**). Alternatively, all women undergoing intermittent auscultation in low-risk labours should be observed to have adequate clear liquor.

55. Albury Wodonga Health also sought advice from and requested involvement of the Royal Women's Hospital.

56. The sentinel event review identified issues as discussed above and improvements were implemented at Wodonga Hospital.

57. The improvements implemented at the Wodonga Hospital include:

    a) The developed and revised Wodonga Hospital clinical practice guidelines on foetal surveillance and reduced foetal movements in accordance with the current SCV and RANZCOG guidelines;

    b) An admission CTG monitoring is to be performed on all women who present in labour[24];

    c) Prompts to highlight a history of reduced foetal movements with the pregnancy progress notes now located at the front of the medical record and the maternity admission checklist where it includes a dedicated question on reduced foetal movement history[25];

    d) Ongoing multidisciplinary simulation-based education training[26] on appropriate assessment and management of reduced foetal movements;

    e) Annual staff competency assessment on foetal surveillance, consistent with the RANZCOG guidelines; and

    f) Multi-disciplinary education and training on neonatal resuscitation, including training around the escalation of care and when to initiate a MET call.

[24] This recommendation came into effect on 4 October 2019.
[25] Dr Simon Craig further explained that notes regarding a patient's prior presentations to the hospital are currently showed on top the of the patient records for immediate attention and stickers attached to the patient record have been introduced to indicate whether patients are presented with reduced foetal movements.
[26] Wodonga Hospital conduct Practical Obstetric Multi-Professional Training (**PROMPT**) on rotating modules every 6-8 weeks covering different topics on each occasion.

COMMENTS

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

58. The course and emphasis of the coronial investigation into the death of Baby Pippa was significantly surrounding the knowledge of DFM prior to labour and upon admission to Wodonga Hospital. If this knowledge was better communicated and appreciated during admission and the management of Mrs Griffiths' labour, the admission midwife would have been alerted about the increase risks and consequently the care and management of Mrs Griffiths would have been fundamentally different.

59. I note Albury Wodonga Health has taken restorative and prevention action in the wake of this tragedy. I commend Albury Wodonga Health for implementing the improvements as discussed above. It is to be hoped that in overcoming the deficiencies of antenatal and obstetric care and management to this matter will assist maternity services staffs to better communicate and manage the perinatal risks.

60. DFM is a common cause for maternal concern, as identified by the Perinatal Society of Australia and New Zealand (**PSANZ**) in their Clinical Practice Guideline for the care of Women with DFM. 40 percent of pregnant women overall expressed concern about one or more times during pregnancy and only 4 to 16 percent of women contacted their health care provider because of concern during the third trimester.[27] It is important that both women notice and report a reduction in foetal movements and health care professionals listen to expecting mothers and respond appropriately. A 2017 coronial investigation identified the concern of DFM and Coroner Jacqui Hawkins subsequently directed the relevant Finding[28] towards SCV.

61. In response to the concern raised, SCV partnered with the Stillbirth Centre for Research Excellence to launch a public health campaign called 'Movements Matter' in October 2018. The Movements Matter campaign includes a public awareness campaign, an online learning package and clinical practice resources for health care staff. I also commend SCV's effort for raising awareness of DFM with maternity services and improved national clinical guidelines on the care for women with DFM.

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[27] *Clinical Practice Guideline for the Care of Women with Decreased Foetal Movements*, Perinatal Society of Australia and New Zealand, 10 August 2017, page 8.

[28] Finding into Death without Inquest of Charli Ann Linford, dated 28 November 2018.

FINDINGS AND CONCLUSION

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

a) the identity of the deceased was Pippa May Griffiths, born 18 April 2018;

b) the death occurred on 18 April 2018 at Albury Wodonga Health, 53-81 Vermont Street, Wodonga, Victoria, 3689; and

c) I accept and adopt the medical cause of death as ascribed by Dr Melanie Archer and find that Baby Pippa Griffiths tragically died from meconium aspiration.

63. Having considered all of the evidence, I am satisfied that no further investigation is required, and it is appropriate to finalise my investigation without going to an Inquest.

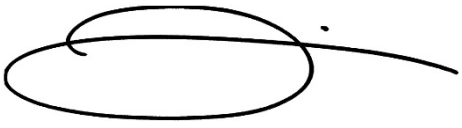
Having regard to the potential educative value of this Finding for the wider community, pursuant to section 73(1A) of the Act, I order that this finding be published on the internet in accordance with the rules.

I convey my sincere condolences to Baby Pippa's family for their loss. I acknowledge the grief and devastation that you have endured as a result of your loss.

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

The Family of Baby Pippa
Albury Wodonga Health
Consultative Council on Obstetric and Paediatric Mortality and Morbidity
Safer Care Victoria

Signature:



AUDREY JAMIESON
CORONER
Date: 18 November 2021

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.