IN THE CORONERS COURT
OF VICTORIA
AT MELBOURNE

Court Reference: 2008/595

FINDING INTO DEATH WITH INQUEST

Form 37 Rule 60(1)
Section 67 of the Coroners Act 2008

Inquest into the Death of:	**Baby Jacob Hill**
Delivered On:	24 February 2014
Delivered At:	Melbourne
Hearing Dates:	7-11 May 2012
Findings of:	CORONER JACQUI HAWKINS
Representation:	Dr P. Halley appeared on behalf of the Hill family. Mr C. Winneke appeared on behalf of Dr Dennerstein. Mr S. Moloney appeared on behalf of Western Health. Mr S. Cash appeared on behalf of Dr Metz.
Police Coronial Support Unit	Sergeant D. Dimsey was present to assist the Coroner.

I, JACQUI HAWKINS, Coroner having reviewed the investigation into the death of Baby JACOB HILL

AND the Inquest[1] held by Coroner Hendtlass in relation to this death on 7-11 May 2012

at Melbourne

find that the identity of the deceased was JACOB HILL[2]

born on 10 February 2008

and the death occurred on 10 February 2008

at Sunshine Hospital, St Albans, Victoria

from:

1 (a) COMPLICATIONS OF INTRAUTERINE HYPOXIA

in the following circumstances:

1. Baby Jacob died on 10 February 2008 following a failed trial of forceps delivery for an obstructed labour and a subsequent emergency caesarean section. Baby Jacob was 39 weeks and 2 days gestation and was the first child of Daniella and Simon Hill of Caroline Springs.

Summary of Circumstances

2. On 6 February 2008 Mrs Hill commenced spontaneous labour. She attended Sunshine Hospital and was assessed,[3] sent home and told to return when the contractions were less than five minutes apart or the pain was unbearable.[4]

3. Mrs Hill reattended at Sunshine Hospital just before midnight on 8 February 2008. At 00.45 hours on 9 February 2008, Ms Judith Patterson, Associate Nurse Unit Manager admitted Mrs Hill to the birthing suite.[5]

4. At 06.15 hours on 9 February 2008, Mrs Hill was administered intramuscular pethidine and her amniotic sac was manually ruptured. Mrs Hill's labour then progressed slowly.

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1 This finding does not purport to refer to all aspects of the evidence obtained in the course of the investigation. The material relied upon included statements and documents tendered in evidence together with the transcript of proceedings and submissions of legal counsel. The absence of reference to any particular aspect of the evidence, either obtained through a witness or tendered in evidence, does not infer that it has not been considered.

2 For consistency, I have referred to Jacob Hill throughout this finding as Baby Jacob.

3 Exhibit 25 – Copies of medical records, Partogram dated 6 February 2008.

4 Exhibit 1 – Statement of Simon Hill faxed on 5 June 2008.

5 Exhibit 3 – Undated Statement of Mrs Judith Patterson, page 1.

5. At 11.15 hours, Dr Jean Woo, the Obstetric and Gynaecology Registrar on duty, was advised of the results of this examination; that it showed no change since her previous examination at 06.15 hours.[6]

6. Mrs Hill indicated that she wished to continue with the original delivery plan and an epidural was arranged. The anaesthetist attended at 12.10 hours and attempted to insert the epidural however the first attempt was unsuccessful. A second attempt occurred at 12.50 hours; it was successful and resulted in good pain control.[7]

7. Foetal heart rate monitoring was commenced, showing a baseline heart rate of 135 beats per minute (BPM) with good variability and accelerations.[8]

8. When Dr Woo returned to the ward at 13.00 hours she assessed Mrs Hill and formed the opinion that Mrs Hill had an obstructed labour. She determined that an emergency caesarean should be performed. She explained her findings and reasoning to Mr and Mrs Hill including the risks involved. She noted that Mr and Mrs Hill were disappointed however accepted the course of action.[9]

9. Dr Woo discussed the situation by telephone with the Consultant on duty, Dr Dennerstein, who directed that Mrs Hill be prepared for surgery at 14.30 hours and for the theatre to be booked accordingly.[10] Dr Woo subsequently obtained Mrs Hill's consent for the procedure and made the other necessary arrangements for the caesarean section to occur.

10. Dr Dennerstein met Mrs Hill on the way to theatre and conducted a vaginal examination in her room. The examination showed that the baby was in a right occipito-posterior position,[11] there was cervical dilation of 4-5 centimetres, some caput, and the head was engaged.[12] Dr Dennerstein determined that it was preferable to allow a trial of labour.

11. Dr Dennerstein stated that he discussed both options (trial of labour and caeasarean) with Mr and Mrs Hill and advised them there was a 50 per cent chance the baby could be delivered

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6 Exhibit 6 – Statement of Dr Jean Woo dated 14 January 2010, p1.

7 Exhibit 4 – Statement of Janet Tully dated 18 January 2010, p1.

8 Exhibit 4 – Statement of Janet Tully dated 18 January 2010, p1.

9 Exhibit 6 – Statement of Dr Jean Woo dated 14 January 2010, p1.

10 Exhibit 6 – Statement of Dr Jean Woo dated 14 January 2010, p2.

11 This meant that he was head first, facing the same direction as the mother when lying down and to the right. The occipito-posterior position is inappropriate for vaginal delivery until the baby turns.

12 Exhibit 6 – Statement of Dr Jean Woo dated 14 January 2010, p2.

vaginally. Mr and Mrs Hill were happy there was a chance of avoiding a caesarean section and with the decision to continue labouring.[13]

12. At 15.45 hours, Mrs Hill was commenced on a low dose of Syntocinon and by 16.15 hours she was contracting strongly. Dr Dennerstein's labour management plan required a review of Mrs Hill after four hours.

13. At 17.00 hours the cardiotocography (CTG) showed occasional early and small variable decelerations of foetal heart rate that recovered baseline quickly. Mrs Hill was experiencing lower abdominal pain that was not controlled by the epidural. The anaesthetist on duty was called and came at 17.30 hours to administer a bolus of anaesthetic.

14. At 20.20 hours Susan Budge, Registered Midwife performed a vaginal examination which indicated that the baby had a cephalic presentation[14] however the position possibly remained right occipital. The caput was ++[15] and the cervix was 8-9cm dilated. Ms Budge stated that she reported this assessment to Dr Woo and Dr Maha Jaber, who was the Obstetrics and Gynaecology Registrar on night shift.[16]

15. Ms Gabrielle Van't Wout, Registered Midwife, was responsible for managing Mrs Hill's continuing labour from about 21.00 hours. At 22.30 hours she noted that there was foetal tachycardia and requested a review by the night registrar.[17]

16. At 23.20 hours Dr Jaber examined Mrs Hill for the first time and considered that the baby's head was too high. Dr Jaber asked Mrs Hill to wait one hour to allow the head to descend before commencing to push.[18]

17. At approximately 00.35 hours, Mrs Hill was instructed to push with the next three contractions by Ms Van't Wout and Mrs Patterson as per Dr Jaber's earlier instructions. However this did not progress the position of the baby any further and variable/late

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13 Exhibit 6 – Statement of Dr Jean Woo dated 14 January 2010, p2 and Transcript of evidence, pp28-29.

14 Cephalic presentation is defined as "a classification of foetal position in which the head of the foetus is at the uterine cervix. Cephalic presentation is usually qualified by an indication of the part of the head presenting, such as the occiput, brow or chin." *Mosby's Medical, Nursing and Allied Health Dictionary*, Elsevier Science, 9th edn, 2013;

15 '++" is medical shorthand indicating moderate severity.

16 Exhibit 8 – Statement of Susan Patricia Budge dated 15 January 2011, p2.

17 Exhibit 3 – Statement of Judith Patterson (undated), p1.

18 Exhibit 5 – Statement of Dr Maha Jaber dated 9 October 2008, p2.

decelerations of the foetal heart rate were noted with each push. Accordingly Mrs Hill was asked to stop pushing and the Syntocinon was ceased.[19]

18. At approximately 00.40am[20] Dr Jaber reassessed Mrs Hill and found the CTG showed foetal tachycardia with good variability and accelerations. Mrs Hill was contracting at 4 in 10 minutes. The vaginal examination showed the head was at '-2 station' with caput and moulding but there was no meconium and the cervix was fully dilated.[21]

19. Dr Jaber formed the opinion that an immediate caesarean section was necessary because the baby was in the transverse position in the uterus. Dr Jaber discussed this with Mr and Mrs Hill who gave their consent. Dr Jaber stated that she discussed the potential risks associated with this procedure. [22]

20. Dr Jaber indicated that she would speak with Dr Dennerstein but in the interim Mrs Hill was to be prepared for the caesarean.[23] Dr Jaber told Dr Dennerstein by phone of her findings of the examination however, she indicated that it was difficult to assess the position of the baby because of the caput, moulding and high station of the head.[24]

21. Dr Dennerstein disagreed with the decision to conduct a caesarean and instead asked for Mrs Hill to be prepared for a trial of forceps with the option of a caesarean if it was unsuccessful.[25] Accordingly, at 01.20 hours, Mrs Hill was transferred to the operating theatre. Dr David Metz, Paediatric Registrar, was present in theatre with Drs Dennestein and Jaber.[26]

22. Dr Dennerstein examined Mrs Hill and found the baby to be in the deep transverse arrest position. He believed the baby could be rotated to facilitate delivery and so he used Kielland's Forceps to rotate the head.

23. Dr Jaber then applied the Neville Barnes forceps under direction from Dr Dennerstein.[27] When this was unsuccessful Dr Dennerstein took over. Although there was some initial

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19 Exhibit 3 –Statement of Ms Patterson (undated), p1.

20 Dr Jaber indicated in his statement at p2 that it was about 00.30 hours. However, Ms Patterson indicated at p1 of her statement that this occurred at approximately 00.40 hours.

21 Exhibit 5 – Statement of Dr Maha Jaber dated 9 October 2008, p2.

22 Transcript of evidence, p38.

23 Exhibit 3 –Statement of Ms Patterson (undated), p1.

24 Exhibit 5 – Statement of Dr Maha Jaber dated 9 October 2008, p2.

25 Exhibit 5 – Statement of Dr Maha Jaber dated 9 October 2008, p2.

26 Exhibit 3 – Statement of Mrs Judith Patterson (undated), p1 and Exhibit 5 – Statement of Dr Maha Jaber dated 9 October 2008, p3.

27 Exhibit 20 – Statement of Dr Dennerstein dated 23 October 2012, p2.

traction, the forceps attempt was ultimately abandoned when it became apparent that the pelvis was contracted and the baby was not moving.[28]

24. At approximately 02.05 hours, Dr Jaber commenced a caesarean section under the direction of Dr Dennerstein. The caesarean section needed to be stopped on one occasion because Mrs Hill was experiencing pain and a general anaesthetic was administered.[29]

25. From this point, the caesarean section progressed without complication and Baby Jacob was easily extracted despite the long caput. No meconium was present and the cord was wrapped loosely once around the baby. The cord appeared to be collapsed and the baby was floppy. His heart rate was noted as 120 bpm.[30] Baby Jacob attempted one or two cries after delivery. His Apgar Score[31] was '2' at one minute and '0' at five minutes.[32]

26. Dr Jaber finalised the caesarean section while Dr Metz commenced urgent resuscitation of Baby Jacob. Baby Jacob did not respond to further resuscitation attempts and at 03.17 hours Baby Jacob was pronounced deceased.

JURISDICTION

27. The Coroners Court of Victoria is an inquisitorial court.[33] The role of a coroner in this State involves the independent investigation of deaths to determine the cause of death, to contribute to the reduction of the number of preventable deaths and for the promotion of public health and safety and the administration of justice.

28. Baby Jacob's death was a reportable death pursuant to section 4 of the *Coroners Act 2008* as the death occurred in Victoria during a medical procedure.

29. Section 67 of the Act provides that a coroner must find, if possible, the identity of the deceased, the cause of death and, in some cases, the circumstances in which the death occurred.

30. A coroner may comment on any matter connected with the death and may also report to the Attorney-General and may make recommendations to any Minister, public statutory

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28 Exhibit 20 – Statement of Dr Dennerstein dated 23 October 2012, p2.

29 Exhibit 5 – Statement of Dr Maha Jaber dated 9 October 2008, p3.

30 Exhibit 5 – Statement of Dr Maha Jaber dated 9 October 2008, p3.

31 An Apgar score is an evaluation of a newborn's physical condition, usually performed 1 minute and again 5minutes after birth based on a rating of five factors that reflect the infant's ability to adjust to extrauterine life. *Mosby's Medical, Nursing and Allied Health Dictionary*, Elsevier Science, 9th edn, 2013

32 Medical records for Jacob Hill – Discharge Summary p 2.

33 Section 89(4) Coroners Act.

authority or entity, on any matter connected with the death, including recommendations relating to public health and safety or the administration of justice.[34]

ASSIGNMENT OF INQUEST FINDINGS

31. Coroner Jane Hendtlass retired on 31 December 2013 without completing the inquest findings in this investigation. The State Coroner of Victoria, His Honour Judge Ian Gray, assigned the completion of this Finding into Death With Inquest (Finding) to me pursuant to section 96 of the Act.

32. In writing this Finding, I have conducted a thorough forensic examination of the evidence including reading all the witness statements contained within the inquest brief, supplementary statements, exhibits and transcripts of both directions hearings and the inquest. I have also listened to the audio of the inquest proceedings to assist me in assessing the credit of some witnesses.

CORONIAL INVESTIGATION AND INQUEST

33. Coroner Jane Hendtlass conducted an investigation and held an inquest into the death of Baby Jacob on 7-11 May 2012.

Viva Voce evidence at inquest

34. The following witnesses were called to give *viva voce* evidence at the inquest:

    a) Simon Hill, father of Baby Jacob

    b) Judith Patterson, Registered Midwife, Western Health

    c) Janet Tully, Registered Midwife, Western Health

    d) Dr Maha Jaber, Obstetric and Gynaecological Registrar, Western Health

    e) Dr Jean Woo, Obstetric and Gynaecological Registrar, Western Health

    f) Susan Budge, Registered Midwife, Western Health

    g) Dr David Metz, Paediatric Registrar, Western Health

    h) Gabrielle Van't Wout, Registered Midwife, Western Health

    i) Dr Anthony Krins, Consultant Obstetrician & Gynaecologist[35]

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[34] Section 72(1) and (2) Coroners Act.

[35] Prior to the commencement of the inquest the court obtained an expert statement from Dr Anthony Krins, Consultant Obstetrician and Gynaecologist as part of the investigation.

j) Dr Arlene Wake, Executive Director of Medical Services, Western Health

k) Dr Graeme Dennerstein, Consultant Obstetrician & Gynaecologist, Western Health

Submissions

35. Interested parties were invited to provide written legal submissions at the conclusion of the Counsel representing the Hill family, Western Health and Dr Dennerstein provided final submissions, which I have also considered for the purpose of this Finding.

Further investigation

36. As part of my examination of the evidence, I noted that there had been some issues raised by Dr Krins and at the inquest around the Registrar Anaesthetist who was in the operating theatre on 10 February 2008 during the birth of Baby Jacob.

37. I noted that Dr Slava Poel was the Registrar Anaesthetist and that a statement had never been obtained from him. Enquiries were made as to whether Dr Poel had ever made a statement to Western Health and if so whether we could obtain that statement.

38. On 18 February 2014 I received a statement from Dr Slava Poel dated 2 April 2008 and the statement was distributed to the interested parties.

39. Consequently interested parties were invited to make further submissions. The legal representatives for the Hill family and Western Health both provided supplementary submissions which I have considered as part of this Finding.

Issues investigated at inquest

40. Section 67 of the Coroners Act requires me to find:

a) the identity of the deceased

b) the cause of death and

c) the circumstances in which the death occurred.

IDENTITY OF THE DECEASED

41. The identity of Baby Jacob Hill was without dispute and required no additional investigation.

CAUSE OF DEATH

42. Dr Matthew Lynch, Senior Forensic Pathologist at the Victorian Institute of Forensic Medicine, conducted an autopsy on 11 February 2008.[36] Dr Lynch formulated the cause of death as 1a) COMPLICATIONS OF INTRAUTERINE HYPOXIA.

43. Dr Lynch noted:

> At autopsy there was evidence of changes in the lungs in keeping with intrauterine/partum hypoxia. There is no evidence of any significant intracranial pathology and no evidence of any congenital malformation. The fine subdural haemorrhage is probably related to intrapartum pressure and is not uncommonly seen in perinatal deaths.[37]

44. Dr Virginia Billson, Perinatal Pathologist, conducted an examination of the placenta at the Royal Children's Hospital on 12 March 2008 which revealed "mature third trimester placenta with stage II acute choriomnionitis.[38] Dr Billson's evidence appears to be uncontroversial and she was not called to give evidence. The significance of this post mortem diagnosis is that it demonstrates that there was an infection in the placenta. Unfortunately this condition was not clinically known prior to or at the time Baby Jacob was born.

45. Mr Hill raised concerns in relation to a statement made by Mrs Patterson where she commented that blood was found in Baby Jacob's left ear after his delivery. Coroner Hendtlass sought further information from Dr Lynch and he provided a Supplementary Report which asserted:

> In my view these injuries represent a plausible explanation for the blood observed on Jacob's ear around the time of delivery and are *consistent with* the application of forceps used to assist the delivery.[39]

46. In Dr Krins expert opinion the fact there was no physical damage to the baby's skull, brain or brain supports, in his opinion meant "that excessive force was not applied to the baby" through the attempted forceps delivery.[40]

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36 Simon and Daniella Hill consented to an autopsy being conducting upon the body of Baby Jacob.

37 Exhibit 23 – Balance of the Brief, Autopsy Report, p12.

38 Exhibit 23 – Balance of the Brief, Autopsy Report, p12. Choriomnionitis means inflammation of the choriam and amnion. Chorian means the cellular, outermost extraembryonic membrane, composed of trophoblast lined with mesoderm; it develops chorionic villi about 2 weeks after fertilisation, is vascularised by allantoic vessels a week later, gives rise to foetal part of the placenta. *Dorland's Illustrated Medical Dictionary 32nd Ed.* Elsevier Saunders, 2012.

39 Supplementary Report of Dr Lynch dated 7 March 2012, p1.

40 Exhibit 16, Expert Opinion of Dr Tony Krins, p1

47. I accept the opinion of Dr Lynch and find that Baby Jacob died from complications of intrauterine hypoxia.

48. I find that the post mortem diagnosis of stage II acute choriomnionitis of the placenta is significant given it indicated an infection in the placenta at the time of birth.

49. I further find that Baby Jacob did not suffer any significant physical damage to his head or body from the use of forceps, nor did this contribute to his death.

CIRCUMSTANCES SURROUNDING THE DEATH

50. I do not propose to recount or summarise all of the evidence but rather refer to the parts that are necessary and touch upon the relevant circumstances investigated as part of the inquest. In so far as this Finding relates to the circumstances of Baby Jacob's death, I have considered the key clinical decisions and issues as they relate to:

    a) the management of Mrs Hill's labour

    b) the circumstances surrounding the trial of forceps

    c) the emergency caesarean section

    d) resuscitation of Baby Jacob

    e) monitoring of the foetal heart rate

    f) informed consent in relation to the trial of forceps and the second decision to proceed to caesarean

    g) communication between clinicians and the Hill family

    h) changes at Western Health since Baby Jacob's death

51. The expert evidence of Dr Anthony Krins, Consultant Obstetrician and Gynaecologist, assisted me with my understanding of the clinical management and circumstances surrounding Baby Jacob's death.

Management of Mrs Hill's Labour

Decision to continue with the trial of labour

Management by Dr Woo and decision to proceed to caesarean

52. At the time of this incident, Dr Jean Woo was an Obstetric and Gynaecology Registrar who had only recently started at Western Health.[41] Her rostered hours on 9 February 2008 were 08.00 to 20.00 hours.

53. Dr Woo examined Mrs Hill at 13.30 hours and noted:

> ...epidural attempts, two times, review patient, contracting two in ten strong. Patient now comfortable. Abdominal examination revealed a lax abdomen. Three-fifths of head palpable. On vaginal examination she's 4 centimetres dilated, cervical dilatation 4 centimetres, two plus caput, cephaly, .5 centimetres long cervix and stations negative two to negative three.[42]

54. Dr Woo commented that her assessment of Mrs Hill was that she had obstructed labour, that labour had been continuing for a considerable amount of time and an emergency caesarean section should be performed within one hour.[43]

55. Dr Woo discussed with the Hill family the reasons for her decision to perform the caesarean and the potential risks involved, which included infection, bleeding, damage to bladder, bowel and blood vessels in the urethra and blood clots in the legs, pneumonia and also hysterectomy.[44] Dr Woo then prepared the necessary consent forms and obtained Mrs Hill's signature.[45]

56. After discussing her findings and plan with Dr Dennerstein by phone, Dr Woo booked the operating theatre and the anaesthetist for 14.30 hours.[46] Dr Dennerstein arrived at the hospital at 14.05 hours when Mrs Hill was on the way to theatre.

Dr Dennerstein's management plan and decision to continue with a trial of labour

57. Dr Dennerstein performed an abdominal and a vaginal examination at 14.20 in the presence of Dr Woo.[47] Dr Dennerstein's handwritten notes from this examination read "cervix well taken up and applied four to five centimetre dilated. Membranes ruptured, first vertex right

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41 Exhibit 6 – Statement of Dr Jean Woo dated 14 February 2008, p1.

42 Transcript of evidence, p188.

43 Transcript of evidence, p188.

44 Transcript of evidence, p198 & Exhibit 7 – Consent Form.

45 Exhibit 7 - Consent Form.

46 Exhibit 6 – Statement of Dr Jean Woo dated 14 February 2008, pp1 & 2.

47 Exhibit 9 - Medical record of Daniella Hill dated 9 February 2008.

occipital posterior just engaged". Additionally, his notes included a diagram which demonstrated the anterior and posterior fontanelle of the baby with the posterior fontanelle located to the right of the midline.[48]

58. Dr Woo said that Dr Dennerstein gave Mr and Mrs Hill the option of proceeding with the caesarean section as discussed or continuing with labour. She said that Dr Dennerstein explained to Mrs Hill that there was a 50 per cent chance of a vaginal birth.[49] Mr Hill denied this had occurred when it was put to him in cross examination.[50] He stated that "it was never explained to us why a caesarean section was no longer necessary and the risks of proceeding with an attempted vaginal delivery were not put to us".[51] Ultimately, Mr and Mrs Hill consented to continue with the labour.[52]

59. Dr Dennerstein implemented a management plan for Mrs Hill which included a trial of labour. Dr Dennerstein stated that a trial of labour:

> ... is defined as dilatation and descent, and in the light of the strength of the contractions and if the patient is having a relatively slow labour, you ...might give it more than four hours – if they're having strong contractions, you'd want to see progress in a couple of hours. Hence, this is the reason for my variable answer, because you can't put an absolute figure on it, it depends on the nature of the labour.[53]

60. The management plan also required Mrs Hill to be reassessed in a couple of hours and if a trial of labour was unsuccessful, to attempt delivery of the baby.[54] Dr Dennerstein stated this meant to give her a maximum of four hours of labour until delivery and conduct a re-examination not later than 20.00 hours.[55] Dr Dennerstein reiterated in evidence that delaying the re-examination later than 20.00 hours would put the baby and mother at risk.[56]

61. Although Dr Dennerstein had a clear plan going forward, he did not write it up in the medical records.[57] Dr Dennerstein conceded that not documenting his plan made it difficult for other clinicians reviewing the patient to know what the plan was.[58]

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48 Transcript of evidence, p470.
49 Exhibit 6 – Statement of Dr Jean Woo dated 14 January 2010, p2.
50 Transcript of evidence, p25
51 Exhibit 1 – Statement of Simon Hill, p1
52 Exhibit 6 – Statement of Dr Jean Woo, p2
53 Transcript of evidence, p497.
54 Transcript of evidence, p478.
55 Transcript of evidence, pp478 & 482
56 Transcript of evidence, p476.
57 Transcript of evidence, p496.
58 Transcript of evidence, p497.

62. Dr Woo's understanding of the plan was to reassess Mrs Hill after four hours of good contractions.[59] If the patient was progressing well there would be no need to contact the consultant and indeed the child could be delivered normally by the midwives.[60] However, if at that time there was no progress in terms of dilatation and descent, she was to contact Dr Dennerstein and consider delivering the child by caesarean section.[61]

63. Dr Krins commented that ideally Dr Woo should have been aware of the management plan and should have documented it.[62] However, he did say that he had often observed that it is not done in the heat of the moment.[63] Further, Dr Krins commented that he often sees a written plan that is lacking and that "it's a failure of communication and that's often because in labour wards there's a lot going on and people defer putting things on paper".[64]

64. Dr Krins agreed that, given Dr Dennerstein's observations, the decision to continue labour and assess Mrs Hill in four hours was an appropriate course to take.[65] Further, Dr Krins agreed that the information provided to Mr and Mrs Hill by Dr Dennerstein was appropriate.[66]

Augmentation with Syntocinon and review after four hours

65. Dr Dennerstein and Dr Woo discussed augmenting the labour with Syntocinon. Dr Dennerstein was less inclined to use Syntocinon as Mrs Hill was receiving epidural pain relief. A compromise was reached and Mrs Hill received a lower dose than would usually be the case.[67] Syntocinon was commenced at 15.45 hours.[68]

66. Dr Krins was asked in evidence about the appropriateness of the use of Syntocinon. He said:

> ... if the contractions are infrequent or not strong or the cervix is not dilating, then it's reasonable to augment or help the labour with Syntocinon infusion and the amount that's given is based on the response.[69]

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59 Transcript of evidence, p197.
60 Transcript of evidence, p218
61 Transcript of evidence, p478 & p482.
62 Transcript of evidence, p368.
63 Transcript of evidence, p368.
64 Transcript of evidence, p372.
65 Transcript of evidence, p396.
66 Transcript of evidence pp 395-396.
67 Transcript of evidence, p216 & 508.
68 Exhibit 24 – Copies of medical records.
69 Transcript of evidence, p397.

67. There was some confusion about when the four hour period was to commence. Dr Dennerstein maintains that the review was to occur four hours after their discussion. However, some of the other staff appear to have thought he meant four hours after the Syntocinon was introduced and having an effect.

68. The submission of Counsel for Dr Dennerstein is that there is no suggestion on the evidence of Dr Woo or Ms Budge that the instruction was conditional upon the commencement and response to the introduction of Syntocinon. The submission is that this would be unlikely given Dr Dennerstein's attitude to its use.[70]

69. Counsel for Dr Dennerstein pointed out that "existing hospital practice protocol required registrar examination after augmentation of labour, although the timing of that examination is not specified".[71]

Communication between clinicians at handover

70. Dr Woo stated that, at handover, the management of Mrs Hill became the responsibility of Dr Maha Jaber, Obstetric and Gynaecology Registrar,[72] which would include follow up on the examination.[73]

71. Dr Woo frankly conceded that the registrar is responsible for ensuring that the consultant's orders are complied with and the plan is communicated at handover to the next registrar.[74] Dr Woo was unsure if she had discussed the plan with Dr Jaber at handover. However she stated that if it was not mentioned at handover the registrar needed "to look at the history of all the patients…in labour and come up with a plan herself and the plan will be to reassess her after four hours of good contractions on Syntocinon".[75]

Management by Dr Jaber and decision to proceed to caesarean

72. Dr Jaber had worked at Sunshine Hospital since December 2007 as an Obstetric and Gynaecology Registrar. She stated that at that time of her career she had been involved in over 3000 deliveries, often in a supervisory role. Of these she considered nearly 300 had been assisted delivery with the use of forceps and ventous.[76,77]

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70 Submissions of Dr Greame Dennerstein dated 3 October 2012.

71 Submissions of Dr Graeme Dennerstein

72 Transcript of evidence, p223.

73 Transcript of evidence, p223.

74 Transcript of evidence, p222.

75 Transcript of evidence, p223.

76 Ventouse is a vacuum device used to assist delivery.

73. On the night of 9 February 2008, Dr Jaber commenced her shift at 20.00 hours.

74. At 20.20 hours, Ms Budge performed a vaginal examination on Mrs Hill which indicated that the baby had a cephalic presentation[78] however the position possibly remained right occipital. Ms Budge reported this assessment to Dr Woo and Dr Jaber.[79]

75. At 23.20 hours Dr Jaber examined Mrs Hill and found:

> CTG did show variable decelerations, contractions was 4-5 per hour per 10 minutes, Syntocinon had been dropped from 80mls per hour to 40 mls per hour. At that stage abdominal examination showed that the head was 1/5 palpable, and vaginal examination showed -1 station, occiput anterior with caput and moulding (overlapping of the bones). She was fully dilated.[80]

76. Dr Jaber considered the head was still too high so she asked Mrs Hill to wait for one hour before commencing to push.

77. Dr Jaber reassessed Mrs Hill at 00.30 hours and found that the:

> ... CTG showed foetal tachycardia, with good variability and accelerations. She was contracting 4 in 10 minutes. Vaginal examination showed that the head was -2 station with caput and moulding, but no meconium, and the cervix was fully dilated.[81]

78. Dr Jaber formed the opinion that an immediate caesarean section was the safest option based on her level of experience and her assessment of Mrs Hill.[82] She stated "I told the couple first that, with my experience, I would like to do a [c]aesarean section, because I think that there is an obstruction [...]".[83]

79. Dr Jaber then called Dr Dennerstein at 00.40 hours[84] and informed him that she wanted to perform a caesarean section as the baby's head was quite high and she believed there was significant obstructed labour.[85] She informed Dr Dennerstein that it was difficult for her to assess the position of the baby's head because of the caput and moulding of the head.

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77 Exhibit 5 – Statement of Dr Maha Jaber, p2

78 Cephalic presentation is defined as "a classification of foetal position in which the head of the foetus is at the uterine cervix. Cephalic presentation is usually qualified by an indication of the part of the head presenting, such as the occiput, brow or chin." *Mosby's Medical, Nursing and Allied Health Dictionary*, Elsevier Science, 9th edn, 2013;

79 Exhibit 8 – Statement of Susan Patricia Budge dated 15 January 2011, p2.

80 Exhibit 5 – Statement of Dr Maha Jaber, p2.

81 Exhibit 5 – Statement of Dr Maha Jaber, p2

82 Transcript of evidence, p111 & p132

83 Transcript of evidence, p102.

84 Transcript of evidence, p128

85 Exhibit 5 – Statement of Dr Maha Jaber date 9 October 2008, p2.

80. However Dr Dennerstein disagreed with her decision to perform a caesarean section and requested that Mrs Hill be prepared for a trial of forceps in theatre with the option of a caesarean section if the trial was not feasible or successful.[86]

81. At the inquest, Dr Jaber clarified that the decision was based on her assessment of the situation coupled with her level of skill and expertise in dealing with what presented. She commented:

> ... there's a second pathway, which is the patient will go to theatre anyway and she can have another assessment by another more experienced person in theatre, and then we can make the decision. So Dr Dennerstein did not disagree with my decision to do a Caesar, but he - what .... he was saying [was] that he need[ed] to assess the patient in theatre and then we [could] make a decision".[87]

Conclusions as to the management of Mrs Hill's labour

82. I find that the decision of Dr Dennerstein at 14.20 hours to continue a trial of labour was appropriate in the circumstances, weighing all the evidence in favour of continuing the labour of a primigravida pregnancy against proceeding to a caesarean section and all the associated risks.

83. I find that Dr Dennerstein had a management plan for Mrs Hill's trial of labour however he did not write up the plan in the medical notes and assumed that other doctors treating Mrs Hill would know what his plan was and how to action it, namely to reassess and review Mrs Hill after the Syntocinon.

84. I find that Dr Woo did not review and reassess Mrs Hill as discussed with Dr Dennerstein after four hours. The evidence is unclear as to what information was passed on to Dr Jaber at handover. Given the fact that Dr Jaber did not examine Mrs Hill until 23.30 hours I find that Dr Woo did not adequately handover to Dr Jaber about the plan in relation to Mrs Hill, particularly that she needed to be assessed after four hours.

85. I find that Dr Jaber did not review or reassess Mrs Hill until almost eight hours after the commencement of the Syntocinon. I acknowledge that Ms Budge did do an examination at 20.20 hours and reported this assessment to Dr Woo and Dr Jaber during handover, however I consider that Dr Jaber should have attended to Mrs Hill sooner than she did.

86. Whilst I consider that the communication of the management plan and the review of Mrs Hill should have been conducted in a more timely manner, I do not consider that these

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86 Exhibit 5 – Statement of Dr Maha Jaber date 9 October 2008, p2.

87 Transcript of evidence, p110.

issues alone would have altered the outcome. Although it is possible that an earlier review and consultation with Dr Dennerstein may have resulted in Mrs Hill proceeding to a trial of forceps earlier, I cannot conclude that this would necessarily have occurred and any consideration of the outcome of doing so would be purely speculative.

The circumstances surrounding the trial of forceps

Appropriateness of the decision to trial forceps

87. Mrs Hill was transferred to the operating theatre at 01.20 hours.[88] Dr Dennerstein arrived at the hospital shortly after and performed a vaginal examination in the operating theatre to determine whether it was in fact appropriate to use forceps.

88. Dr Dennerstein formed the opinion that the baby's head was in deep transverse arrest.[89] Dr Krins stated that the deep transverse arrest position is notoriously difficult from a delivery perspective.[90] The best position for delivering a baby is when the head is facing the ceiling (the occipital anterior position). The position of the baby meant that the baby's head needed to be rotated in order to extract the baby from the vagina. Dr Dennerstein believed he could rotate the baby safely to facilitate delivery.[91] Accordingly, Dr Dennerstein concluded that a decision to conduct a trial of forceps was appropriate.

89. The trial of forceps commenced in the operating theatre at 01.34 hours.[92] Two types of forceps were used: the Kielland's forceps to rotate the baby into position and the Neville Barnes forceps to extract the baby from the vagina.

90. There is conflicting evidence as to who used the Kielland's forceps.

91. Dr Dennerstein's notes indicate that Dr Jaber attempted the Kielland's forceps rotation. Reading from his notes at inquest, he stated "[e]asy Kielland's rotation by Maha but no descent with traction. Neville Barnes applied, but I could not get further than head-on view even with episiotomy and diagnosed outlet obstruction".[93]

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88 Exhibit 5 – Statement of Dr Maha Jaber, p3.

89 In evidence, Dr Jaber described deep transverse arrest as where the face of the baby is to the side and cannot be delivered. Transcript of evidence, p116.

90 Exhibit 16 – Statement of Dr Tony Krins dated 23 April 2009, p2.

91 Exhibit 5 – Statement of Dr Maha Jaber, p3.

92 Exhibit 25 – Copies of Medical Records, Perioperative Count Sheet.

93 Transcript of evidence, p471.

92. Dr Jaber stated that she was trained to use Neville Barnes forceps, however she had no experience in the use of Kielland's forceps[94], therefore she believed that she did not attempt the rotation with the Kielland's forceps. She considered that Dr Dennnerstein performed the initial rotation[95] and then she applied the Neville Barnes forceps under his direction.[96]

93. Dr Jaber stated that after Dr Dennerstein attempted to pull with the Neville Barnes forceps and the head of the baby was not coming down, the procedure was abandoned and a decision was made to proceed to an emergency caesarean section.[97]

94. Given that Dr Jaber had earlier determined that an emergency caesarean was necessary, the appropriateness of Dr Dennerstein's decision to proceed to a trial of forceps was explored at inquest.

95. Dr Dennerstein's decision to trial forceps was predicated on a number of prerequisites having been met. First, that the baby's head was engaged[98] and secondly that the baby's head had reached the ischial spine.[99]

96. Dr Krins believed the approach taken by Dr Dennerstein was justified if the baby's head had reached the ischial spines. However, in his statement he commented that he could see no indication in the hospital records that this had occurred. In evidence, he modified his position and testified:

> … on further careful scrutiny of the records, I did find that the most expert obstetrician in this case did make an entry in the record saying that the baby's head had indeed reached the level that would make it safe to try rotation forceps delivery.[100]

97. Dr Krins commented that the more experienced the person is, the more accurately they can establish the station or how far down relative to the spines that the baby's skull or head actually is.[101] He further stated in evidence:

> … an experienced person would be very unlikely to make an error on that point, because there are ways and means of still identifying the position of the baby's head from the suture lines, by examining with the finger a little bit further up the baby's head, where there is less caput and even there it's possible to confidently identify the position, but less experienced people seem to get it wrong and certainly I've been

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94 Transcript of evidence, p105.

95 Transcript of evidence, p115.

96 Statement of Dr Maha Jaber dated 9 October 2008, p3.

97 Exhibit 5 – Statement of Dr Maha Jaber, p3.

98 Transcript of evidence, p353

99 Transcript of evidence, p360.

100 Transcript of evidence, p348.

101 Transcript of evidence p359.

> involved in the teaching of obstetrics and teaching that skill takes some time, but the very experienced people very, very rarely get that wrong, even when there's a great deal of caput.[102]

98. Ultimately Dr Krins concluded that just prior to the attempted forceps delivery the baby's head was in the correct position.[103] In evidence Dr Krins commented that it was appropriate to make a trial of forceps in these circumstances.[104]

<u>Appropriateness of the number of pulls</u>

99. There is a range of evidence as to the number of pulls made by Drs Jaber and Dennerstein with the forceps.

100. When asked how many pulls of the forceps he witnessed, Mr Hill stated that he believed he saw Dr Jaber and Dr Dennerstein do a total of between six and eight pulls.[105]

101. Dr Jaber stated that she made one attempt to pull the baby with the Neville Barnes forceps and there was an obstruction so she stopped.[106] Further, Dr Jaber considers that Dr Dennerstein had at least four or five attempts at pulling the baby down.[107]

102. Dr Dennerstein testified: "I can't remember how many – the number I did. All I remember is that there was progress, then there was evidence of obstruction, so I stopped".[108]

103. The evidence is not clear on how many pulls occurred, however I accept the evidence of Dr Dennerstein commented that "It's not the number of pulls, it's whether or not there's progress, and there appeared to be progress initially here".[109]

104. Dr Krins agreed and said the most important factor is not the number, but whether there is any traction:[110]

> [the] more important factor in that situation is not how many pulls, but what effect the first pull has. And if the first pull has no effect, then you might not be inclined to try for very long, whereas if the first pull results in a little bit of gain of station, you'd be inclined to keep trying.[111]

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102 Transcript of evidence, p357.
103 Transcript of evidence, p352.
104 Transcript of evidence, p412.
105 Transcript of evidence, p23.
106 Transcript of evidence, p116.
107 Transcript of evidence, p117.
108 Transcript of evidence, p489.
109 Transcript of evidence, p487.
110 Transcript of evidence , p407.
111 Transcript of evidence, p360-361

105. Dr Krins added that in his experience he could not remember having to pull more than three or four times for any forceps delivery.[112]

Appropriateness of the force used in the trial of forceps

106. Mr Hill indicated that he considered that the force used to pull with the forceps was excessive but conceded in evidence that he had never seen forceps used before. [113]

107. Dr Krins stated the fact that there was no physical damage to the baby's skull, brain or brain supports, in his opinion meant "that excessive force was not applied to the baby" through the attempted forceps delivery.[114]

Condition of cephalopelvic disproportion and the decision to abandon the trial of forceps

108. The decision to abandon the trial of forceps and conduct an emergency caesarean was made when Dr Dennerstein was unable to obtain traction with the Neville Barnes forceps.

109. Dr Krins stated:

> ... sometimes because of the shape of the pelvis or because of the position of the baby's head, when the head reaches ...that point, it descends no further and so then we – even though the uterus continues to contract and the mother may be pushing, the baby's head doesn't progress without assistance.[115]

110. Dr Krins noted that this is what occurred in this case.

111. Dr Dennerstein gave evidence that cephalopelvic disproportion is a very rare obstetric complication, or should be. He stated that he had only experienced three (including Baby Jacob) and remembered each very clearly.[116] Dr Dennerstein further stated that:

> The cause, in all cases, is outlet contraction, which is a rare form of pelvic contraction. [...] Normally if there is obstruction of labour due to cephalopelvic disproportion[117], the obstruction takes place at or above the mid-pelvis, usually at the pelvic inlet. [118]

112. Dr Jaber commented that "for a funnel shaped pelvis, they have a higher degree of cephalopelvic disproportion and that's why they have an increased rate of caesarean section".[119]

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112 Transcript of evidence, p364.

113 Transcript of evidence, p42.

114 Exhibit 16 – Statement of Dr Tony Krins dated 23 April 2009, p1.

115 Transcript of evidence, p350-351.

116 Transcript of evidence, p.472

117 Cephalopelvic disproportion is an obstetric condition in which a baby's head is too large or a mother's birth canal too small to permit normal labour or birth. *Mosby's Medical, Nursing and Allied Health Dictionary*, Elsevier Science, 9th edn, 2013; Transcript of evidence, p182

118 Transcript of evidence, p.473

119 Transcript of evidence, p183

113. In evidence Dr Krins stated that "[i]ts an obstetric phenomenon that if the baby is in the pelvis and fully dilated, that the longer that is the situation, the greater the risk that the baby will suffer a lack of oxygen".[120] When asked about the appropriate time to abandon the trial of forceps, Dr Krins commented:

> ... it's a matter of judgment at the time, but certainly when there's no descent with the pulling, what's going through the obstetrician's mind is that maybe this isn't going to work.[121]

114. As soon as it was determined that the baby could not be delivered safely, Dr Dennerstein abandoned the trial of forceps and proceeded to an emergency caesarean section.

<u>Conclusions as to circumstances surrounding the trial of forceps</u>

115. I find the decision by Dr Dennerstein to conduct a trial of forceps in the circumstances was appropriate, given that he believed he would be able to deliver the baby in a safe and timely manner using this method.

116. In relation to the evidence of who performed the Kielland's forceps rotation, I acknowledge that the evidence of Dr Jaber and Dr Dennerstein conflicted. However, I find on the balance of probabilities[122] that the Kielland's forceps rotation was made by Dr Dennerstein. I also find that Dr Jaber first attempted a pull with the Neville Barnes forceps and when that was unsuccessful, Dr Dennerstein took over and made attempts with the Neville Barnes forceps.

117. After assessing all of the available evidence, I am unable to determine the exact number of pulls used with the forceps. I accept the evidence of Dr Dennerstein and Dr Krins that it is not the number of pulls but rather whether or not the clinician considered there was progress with the attempts. According to Dr Dennerstein's evidence there appeared to be progress, at least initially.

118. In relation to whether there was excessive force used as referred to by Mr Hill, I note that he had never seen a trial of forceps performed prior to this delivery. Further, I note that a suitable amount of force is required to extract the baby using forceps and therefore I accept the evidence of Dr Dennerstein and find that excessive force was not used.

119. Once Dr Dennerstein had recognised that Mrs Hill had the condition of cephelopelvic disproportion, I find that the decision to abandon the trial of forceps was the only option

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[120] Transcript of evidence, p352.

[121] Transcript of evidence, p363

[122] The standard of proof for coronial findings of fact is the civil standard of proof: on the balance of probabilities, applying the principles outlined in Briginshaw v Briginshaw (1938) 60 C.L.R 336.

available to Dr Dennerstein and Dr Jaber and that decision was entirely appropriate in the circumstances.

The emergency caesarean section

Decision to conduct an emergency caesarean

120. Once the trial of forceps was abandoned Dr Jaber commenced the caesarean section.[123] Dr Jaber cannot remember what time the caesarean started, but gave evidence that it commenced 40 minutes after arriving in the operating theatre.[124] According to Ms Van't Wout's statement, she believed the caesarean section commenced at approximately 02.05-2.10 hours.

121. Dr Jaber's evidence was that the caesarean section was straight forward[125] apart from when Mrs Hill complained of pain at the commencement of the caesarean. In Dr Jaber's opinion the baby's head was not impacted in the pelvis[126] and could easily be extracted.[127]

Was there a delay in conducting the caesarean section due to inadequate analgesia?

122. The issue of delay with the anaesthetic procedure originally arose in the expert opinion of Dr Krins when he noted that:

> ... it is not clear from the hospital record why there was a delay from ending the 'Trial of Forceps' and delivering the baby by emergency Caesarean section. Apparently the delay was 28 minutes which is longer than is expected in 'Failed Trial of Forceps' in the operating theatre and was presumably due to unforseen problems with the anaesthetic.[128]

123. The issue arose again on the fourth day of the during the evidence of Dr Krins when he stated that there was some delay in completing the caesarean due to some anaesthetic problems.[129] Further he commented:

> ... I suspect that when the epidural was set up for the forceps delivery, ..it wasn't good enough for a Caesar and perhaps the forceps delivery should have ... been delayed until the epidural was good enough for a Caesar so that maybe the forceps would have been done ten or 15 minutes later, but...could have proceeded immediately to Caesarean section.[130]

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123 Transcript of evidence, p117.
124 Transcript of evidence, p117.
125 Transcript of evidence, p117.
126 Transcript of evidence, p118.
127 Exhibit 5 –Statement of Dr Maha Jaber, p3.
128 Exhibit 16 – Statement of Dr Tony Krins dated 23 April 2009, p1.
129 Transcript of evidence, p414.
130 Transcript of evidence, p415.

124. The evidence as to whether there was a delay in conducting the caesarean section due to inadequate pain analgesia was raised by some of the clinicians involved in the caesarean section and appears, from my understanding of Dr Slava Poel's statement, to be misunderstood.

125. Dr Jaber gave evidence that Mrs Hill complained of pain when she commenced opening the abdomen so the operation was stopped and a general anaesthetic was to be done.[131]

126. Ms Van't Wout also stated that:

> After commencement of the caesarean, which would have been about 0205hr-0210 the epidural top ups were found to provide insufficient pain cover for Daniella so surgery was halted until Daniella had a general anaesthetic.[132]

127. Dr Metz, gave further evidence that:

> ... the surgery commenced however the mother was complaining of pain and the anaesthetist requested that the surgery stop while he increased the epidural. Surgery recommenced however the mother continued to report pain and so the surgery stopped again and a general anaesthetic was administered.[133]

128. Dr Slava Poel was the Anaesthetic Registrar in the operating theatre that morning. The Court received a statement from Dr Poel, which has assisted me to understand the issues surrounding the anaesthesia from his perspective.

129. Dr Poel stated that prior to the attempt at forceps the epidural did provide an adequate dermatomal block (T4).[134] He commented that during the forceps delivery the patient was in no discomfort and tolerated the procedure well and after the attempts at forceps failed they proceeded to caesarean.

130. Dr Poel stated:

> The patient didn't at all respond to initial incision however, soon after access into abdominal cavity become (sic) distressed by [an uncomfortable sensation]. She denied having pain but was obviously unable to tolerate the described sensation.[135]

131. He said that the uterus at that stage was intact and he promptly administered a further 5ml epidural solution. He commented that "this had no effect on patient's sensation" and he then informed Mr and Mrs Hill that he would need to give her a general anaesthetic "as this was the fastest and most appropriate way of ensuring that she could tolerate the procedure".[136]

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131 Exhibit 5 –Statement of Dr Maha Jaber, p3.

132 Exhibit 12 – Statement of Gabrielle Vant Wout dated 7 February 2010, p3.

133 Exhibit 14 – Statements of Dr David Metz dated 10 February 2008 and 27 March 2008, p1.

134 Statement of Dr Slava Poel dated 2 April 2008, p1

135 Statement of Dr Slava Poel dated 2 April 2008, p1

136 Statement of Dr Slava Poel dated 2 April 2008, p1.

132. Dr Poel stated that the anaesthesia was induced with Thiopentone 500mg and Suxamethonium 100mg and that the airway was secured uneventfully with a cuffed endotrachael tube and the position was confirmed with capnography and bilateral chest auscultation. Further, he stated that "the obstetricians were allowed to proceed with the operation as soon as the endotrachael tube placement was confirmed".[137]

133. The actions as described by Dr Poel's statement help to explain some of the down time or delay as referred to in Dr Krins evidence.

<u>When did hypoxia occur?</u>

134. Dr Jaber confirmed that foetal monitoring occurred up until the commencement of the caesarean section and that the CTG was acceptable and therefore it is unlikely that the baby became hypoxic during this time.[138] However Dr Jaber was unable to say when the baby became hypoxic.[139] Further, in her opinion the suspicious foetal trace did not indicate the baby was hypoxic.[140]

135. Dr Krins noted that:

> ... tragically, Jacob Hill died as a result of lack of oxygen at the end of a long labour. The cause of the long labour and oxygen lack were being impacted in the pelvis in the notoriously difficult Deep Transverse Arrest position.[141]

136. Dr Krins commented that the delay of 28 minutes is probably when Baby Jacob, suffered the unexpected lack of oxygen.[142]

137. However, he stated there were "no strong indicators predicting that ... the baby would suffer hypoxic damage between the attempted forceps and the caesarean section".[143]

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137 Statement of Dr Slava Poel dated 2 April 2008, p2.
138 Transcript of evidence, p 174.
139 Transcript of evidence, p176.
140 Transcript of evidence, p177.
141 Exhibit 16 – Statement of Dr Krins dated 23 April 2009, p2.
142 Exhibit 16 – Statement of Dr Tony Krins dated 23 April 2009, p1.
143 Exhibit 16 – Statement of Dr Krins dated at 23 April 2009, p2.

Conclusions as to the circumstances surrounding the caesarean section

138. I find that after the trial of forceps was abandoned, the only course of action available to Dr Dennerstein and Dr Jaber was to deliver Baby Jacob by emergency caesarean. I find that the obstetric team acted promptly and appropriately once the decision was made to perform a caesarean section.

139. I find the delay of 28 minutes as referred to by Dr Krins can be explained by the fact that Mrs Hill experienced an uncomfortable sensation with the analgesia, which made it difficult for her to tolerate the caesarean section and subsequently required the epidural to be transferred to a general anaesthetic. I am satisfied that Dr Poel appropriately managed Mrs Hill in these circumstances and that there was no unreasonable delay.

140. I find that the monitoring of Baby Jacob's heart rate occurred during and up to the point of the commencement of the caesarean section and that there appeared to be no early signs that the baby was hypoxic. On the balance of all the available evidence, I am unable to make a determination as to the timing of the hypoxic injury.

Resuscitation of Baby Jacob

Availability of equipment

141. There is evidence that there was some resuscitation equipment missing or not available in the operating theatre at the time of Baby Jacob's resuscitation, including a laryngoscope straight blade 1 and an adequate pulse oximeter.

142. Dr Metz stated that he attempted to intubate the baby however, was unsuccessful. He stated that the only laryngoscope available in the operating theatre was a curve 1 blade, or a straight 0 blade.[144] Dr Metz confirmed in evidence that he had never used a curved blade before [145] and that his preference was to use a straight 1 blade.[146] Dr Metz commented that:

> … neo natal resuscitation are done with straight blades. Curved blades are used by anaesthetists … as a routine, but for newborn baby resuscitation generally straight blades are used, but curved blades have previously been used.[147]

143. Ms Van't Wout and Dr Metz gave evidence that initially there was no pulse oximeter on the Resusitaire[148] and that the oximetry equipment that was eventually provided was "an

144 Transcript of evidence, p326, Exhibit 14 - Statement of Dr Metz dated 27 March 2008, p2.

145 Transcript of evidence, p327.

146 Exhibit 14 - Statement of Dr Metz dated 27 March 2008, p2.

147 Transcript of evidence, p327.

inadequate type".[149] Dr Metz confirmed that the inadequate oximetry equipment caused him some confusion and gave him false assurance about Baby Jacob's condition for a short period of time.[150]

144. The Australian Resuscitation Council Guidelines 13.1 that applied on 10 February 2008 in relation to resuscitation of a newborn infant states: "a complete set of resuscitation equipment and drugs should always be available for all deliveries. This equipment should be regularly checked to ensure it is complete and operational".[151] The Guideline attaches a list of suggested resuscitation equipment and drugs that should be provided in an operating theatre for neonatal resuscitation.

145. After the inquest, Counsel for Western Health indicated by way of a letter date 21 September 2012 that the following formed part of the standard equipment in 2008:

   a) umbilical line insertion kit

   b) pulse oximetry device

   c) straight blade size 0 laryngoscope

   d) resuscitaire.

146. Western Health was unable to confirm whether a curved blade size 1 laryngoscope was present in 2008.

<u>Anaesthetic Registrar unable to assist with resuscitation</u>

147. Dr Metz gave evidence that he sought assistance from the anaesthetic registrar to help resuscitate Baby Jacob, however Dr Poel was unable to assist because he had no experience with neonatal resuscitation.[152]

148. Dr Dennerstein commented that you would definitely expect an anaesthetic registrar to be trained in neo natal resuscitation.[153]

149. Dr Krins also made the comment that the anaesthetist was not trained in neonatal resuscitation in this case and that an anaesthetist providing obstetric anaesthesia should be trained in resuscitation. [154]

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148 Transcript of evidence, pp290 & 327.

149 Transcript of evidence, p290

150 Transcript of evidence, p330

151 Australian Resuscitation Council - Guideline 13.1 Introduction to Resuscitation of the Newborn Infant, p2

152 Transcript of evidence, p331

153 Transcript of evidence, p492.

150. Dr Arlene Wake testified that it was her understanding the anaesthetic registrar's primary responsibility was to look after Mrs Hill, as she was still under a general anaesthetic at this stage.[155]

151. The evidence of Dr Poel in relation to this issue is that he "was unable to take part in the resuscitation due to having to look after [the] anaesthetised mother"[156]. However, he states that "he did briefly auscultate the baby's lungs to make sure there was adequate air entry after it became apparent that initial resuscitation attempts were unsuccessful".[157]

152. This evidence is not consistent with the evidence of Dr Metz, therefore it is unclear to me as to whether Dr Poel assisted in any way with the resuscitation.

153. The Australian Resuscitation Guidelines state that "all personnel who attend births should be trained in basic neonatal resuscitation skills which include airway support, ventilation via face mask and chest compressions".[158]

Conclusions as to the resuscitation of Baby Jacob

154. I make no criticism of the attempts to resuscitate Baby Jacob by Dr Metz. I find that the sustained attempts at resuscitation by Dr Metz and the midwives were appropriate in the circumstances.

155. Having considered all of the available evidence, I accept the evidence of Dr Metz and find that there was no laryngoscope with straight blade size 1 available in theatre on the morning of 10 February 2008 as was recommended in the Australian Resuscitation Guidelines which made it difficult for Dr Metz to attempt to resuscitate Baby Jacob. However, I find that even if the correct laryngoscope blade was available and the pulse oximeter was adequately working, it probably would not have made a difference to the survivability of Baby Jacob.

156. Based on the inconsistency in the evidence, I am unable to determine to what extent Dr Poel may or may not have assisted in the resuscitation, however I acknowledge that his main priority was to manage the health of Mrs Hill as she was under the effects of a general anaesthetic.

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154 Transcript of evidence, p415.

155 Transcript of evidence, p443- 444.

156 Statement of Dr Slava Poel dated 2 April 2008, p2.

157 Statement of Dr Slava Poel dated 2 April 2008, p2.

158 Australian Resuscitation Council - Guideline 13.1 Introduction to Resuscitation of the Newborn Infant, p2.

Monitoring of the foetal heart rate

157. The evidence is that foetal monitoring occurred during Mrs Hill's trial of labour. At approximately 22.30 hours there were signs of foetal tachycardia.[159] According to Ms Patterson, foetal tachycardia can be a sign of many things, for example maternal fever, the baby being pre-term and dehydration.[160] It was possible that Mrs Hill was dehydrated due to the long labour, however with other reassuring signs the clinicians did not seem concerned. It appears that the foetal tachycardia persisted from 22.30 hours to just prior to the caesarean section.

158. The position taken by Western Health was that the foetal monitoring did not indicate severe distress up to the time the forceps were applied and the response was appropriate because the tachycardia was mild.

159. Ms Van't Wout was responsible for monitoring the CTG during the trial of forceps which was recorded as ranging between 130-170.[161] Ms Van't Wout stated that when the obstetrician decided to proceed to caesarean section they had to cease monitoring the heart rate to prepare for the caesarean. Prior to this time the foetal heart rate was 160 as seen on the CTG.[162]

160. Dr Jaber confirmed that up until the time the caesarean section was commenced the CTG was acceptable and therefore it is unlikely that it was during this period that the child became hypoxic.[163] Dr Jaber stated that foetal tachycardia is a suspicious indicator but does not mean that the baby would need to be delivery immediately.[164] She further added that "..the normal heart rate is between 110 and 160, ... a heart rate of 170 could be suspicious but when you have good variability and decelerations that's possibly reassuring".[165]

161. Dr Dennerstein indicated that he did look at the CTG when they abandoned the trial of forceps and "it wasn't ideal, but it wasn't the sort of pattern that require[d] a crash caesarean section".[166]

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159 Transcript of evidence, p171

160 Evidence of Ms Patterson, Inquest Transcript 7 May 2012, page 63.

161 Exhibit 12 – Statement of Gabrielle Van't Wout, dated 7 February 2010, p3.

162 Exhibit 12 – Statement of Gabrielle Van't Wout, dated 7 February 2010, p3.

163 Transcript of evidence, p.174

164 Transcript of evidence, p165.

165 Transcript of evidence, p175

166 Transcript of evidence, p473.

162. Dr Krins testified that the "CTG is not as sharp an instrument as we would like it to be and all it does is give us,... an idea that there may be a problem".[167] Dr Krins stated that "there were no absolute indicators for earlier delivery although some obstetricians may have proceeded to caesarean section as a result of foetal tachycardia".[168] Further, he stated most obstetricians would have attempted a forceps delivery if they thought safe delivery was possible.[169]

Conclusions as to foetal monitoring

163. The evidence is that foetal monitoring occurred during the trial of labour and up to the commencement of the caesarean section.

164. I am satisfied on the balance of all the available evidence that at times during the labour there were signs of foetal tachycardia. I accept the evidence of the clinicians that they did not seem concerned due to the fact there was good variability and decelerations. I further accept that there were no early signs of foetal distress and there were no strong indicators for an immediate caesarean section up to the point at which time the caesarean was performed.

Informed consent in relation to the trial of forceps and the second decision to proceed to caesarean

165. In relation to the issue of informed consent, Dr Jaber stated that she explained to Mr and Mrs Hill the option of a trial of forceps with the option of a caesarean section[170] and they were happy to proceed with the plan. She stated that she discussed the risks of a trial of forceps including an episiotomy, damage to the genital area and the possibility of failure.[171] She also said that she discussed the risk with a caesarean section including infection, bleeding damage to the bowel/bladder and need for blood transfusion and the risks of anaesthesia. She stated that they appeared to understand her advice and agreed to the plan.[172]

166. At the time, Dr Jaber did not fill out a new consent form, instead she wrote on the original consent form[173] that Dr Woo had Mrs Hill signed earlier in the day on 9 February 2008.

167 Transcript of evidence, p421
168 Exhibit 16 – Statement of Dr Krins dated 23 April 2009, p2.
169 Exhibit 16 – Statement of Dr Krins dated 23 April 2009, p2.
170 Exhibit 5 – Statement of Maha Jaber, p2.
171 Exhibit 5 – Statement of Maha Jaber, p2.
172 Transcript of evidence, p230.
173 Exhibit 7 – Consent Form.

167. Dr Krins stated "its alarming to me to think that the document has been changed afterwards and that there haven't been further signatures. So I ... haven't seen any evidence of other consent".[174] Consequently, Dr Krins commented that consent documentation could have been improved.[175]

168. In evidence Dr Dennerstein stated that completing the consent form was the role of the registrar[176] and he agreed with the opinion of Dr Krins that failing to do another consent form was "irregular".[177]

Conclusions as to informed consent

169. It is vital that a patient has a clear understanding and appreciation of the facts, implications and future consequences of their healthcare. In order to give informed consent a patient must be in possession of all relevant facts. I find that Dr Jaber did obtain informed consent for the trial of forceps and the second decision to proceed to caesarean, however I do not consider using the preexisting consent form was best practice. I acknowledge that by the time Mrs Hill was being prepared for the operating theatre for the second time in 12 hours, that it was in an emergency setting and sometimes due to time constraints it is not always practical to rewrite a whole new consent form.

Communication between clinicians and with the Hill family

170. Dr Woo and Dr Jaber both made a decision that Mrs Hill should proceed to a caesarean section and spoke to the Hill family about their respective decisions without first consulting Dr Dennerstein. Both registrars were aware that they should consult with Dr Dennerstein about important decisions.

171. Dr Dennerstein was critical of Dr Woo and Dr Jaber for not speaking to him first and when asked how they would know this was required of them, Dr Dennerstein stated: "I just assumed it, and this is the way things generally go".[178] It is noteworthy that Dr Dennerstein had never met Dr Woo or Dr Jaber before this night.[179]

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[174] Transcript of evidence, p390.
[175] Transcript of evidence, p414
[176] Transcript of evidence, p485.
[177] Transcript of evidence, p484.
[178] Transcript of evidence, p507.
[179] Transcript of evidence, p504.

172. Dr Dennerstein testified that "I consider it irregular and discourteous for a registrar to decide on caesarean section without consulting the Consultant, plain and simple".[180]

173. In relation to the management of a patient and communication between clinicians, Dr Dennerstein commented that "the ideal for a patient under these types of circumstances is that if one person is not going to manage the entire labour, as happens in private practice usually, then there will be very close communication between the clinicians involved".[181]

174. Dr Krins commented that "my impression is that the communication with Ms Hill and her partner was not optimum either. They weren't kept in the loop as well as I would have liked to have seen".[182].

175. In addition, he noted that the communication difficulties did potentially undermine the confidence of the whole team and did suggest a failure of teamwork. He said:

> The clinicians, the midwives and the doctors, are very focused on a safe outcome and in being so focussed they're a bit blinkered and don't think about psychosocial issues as much in that heat of the moment and so they forget about communication, education and reassurance of, of the patient and, their partners.[183]
>
> Obstetricians have education and practice dealing with, for example a shocked patient, however "[...] we don't have anything similar for psychosocial interaction, so that, the trainees certainly don't get practice at communicating well and with empathy etc.[184]

Conclusions as to communication with between clinicians and the Hill family

176. I find that the communication between the clinicians on 9 and 10 February 2008 was less than optimal. Dr Dennerstein made an assumption that Dr Woo and Dr Jaber, who were relatively new registrars to Western Health, understood their requirements to contact him prior to making decisions about the management and informing their patient. I agree with Dr Krins that this can cause confusion to the patient and undermine the decisions of more junior clinicians.

177. It is not surprising that Mr Hill gave evidence that he was unaware of why certain decisions were made and felt like he had not been kept informed about particular issues.
I acknowledge that Mr and Mrs Hill would have been unsure about what was occurring given that decisions were made then changed. I further acknowledge that they would have

180 Transcript of evidence, p477.
181 Transcript of evidence, p898.
182 Transcript of evidence, p415
183 Transcript of evidence, p416.
184 Transcript of evidence, p417.

experienced an enormous amount of stress and uncertainty during Mrs Hill's labour. This is even more reason why medical clinicians need to effectively communicate, particularly in a stressful environment, and take the time to ensure that their patients comprehend the decisions being made about their healthcare.

178. These communication issues had the potential to undermine the team and made it difficult for clinicians looking after Mrs Hill to have a collective approach to her management.

Changes at Western Health since Baby Jacob's death

179. Dr Arlene Wake provided a statement in relation to changes in clinical practice at Western Health after this incident.[185] She stated that Western Health undertook an investigation into the death of Baby Jacob. The outcome of this investigation and recommendations were reported and reviewed by the Adverse Outcome Committee which reported to the Clinical Governance Committee of the health service.[186]

180. The recommendations that have led to changes to clinical practice include that:

a) obstetricians are to ensure obstetric registrars undertake vaginal examinations following labour augmentation to assess progress

b) obstetric registrars are to be advised at orientation they must contact the consultant obstetrician on all labouring women at handover times each day[187]

c) escalation in communication to consultant obstetrician is to be included in midwife orientation so it is clear they can call consultants directly

d) any anticipated delay in commencing augmentation of labour is to be communicated to the responsible consultant by the patients midwife

e) anaesthetic registrars are to have more formal neonatal resuscitation education

f) improvement in communication with the paediatric consultant is to be achieved using a mobile phone which is held by the paediatric registrar to bypass switchboard for direct contact for all emergency situations

g) improved neonatal resuscitation programs by having a neonatologist attend Western Health from a tertiary neonatal unit for registrar and midwife education.

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185 Exhibit 17 – Statement of Dr Arlene Wake dated 5 November 2008.

186 Exhibit 17 – Statement of Dr Arlene Wake dated 5 November 2008, p1.

187 Transcript of evidence, p460.

h) Western Health now has a dedicated simulation area in a new education and research building. Once a month there is more complex resuscitation scenarios run in that building involving multidisciplinary teams[188]

181. In addition, Dr Wake testified that all of the pulse oximeter machines were replaced after this incident.[189]

FINDINGS

182. I find that Baby Jacob Hill died on 10 February 2008 at Sunshine Hospital from complications of intrauterine hypoxia.

183. I find that the post mortem diagnosis of stage II acute choriomnionitis of the placenta is significant given it indicated an infection in the placenta at the time of birth.

184. Based on all the available evidence I am unable to make a determination as to the timing of when Baby Jacob became hypoxic.

185. I find that the individual decisions made by Dr Woo and Dr Jaber were appropriate and in accordance with their level of training and experience. However I find their communication with each other at handover and with the Hill family was lacking. I find that the inadequate communication caused unnecessary and conflicting information to be conveyed to Mr and Mrs Hill. These communication issues had the potential to undermine the team and made it difficult for the clinicians looking after Mrs Hill to have a collective approach to her management.

186. I find that Dr Dennerstein was the most senior and experienced consultant obstetrician and gynaecologist, with over 37 years experience working at Western Health, and that his clinical decisions were those of a reasonable and competent obstetrician. I find that at each decision making stage of Mrs Hill's labour he acted in accordance with his experience and ultimately made decisions that were based on ensuring that Baby Jacob was delivered safely.

187. I find that there was no one factor that caused Baby Jacob's death rather a cascade of circumstances which in combination resulted in his devastating loss. The evidence indicates that it was unlikely that the medical practitioners involved in the delivery could have foreseen the unfortunate elements that conspired against them.

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188 Transcript of evidence, p449.

189 Transcript of evidence, p451.

188. It is only apparent with the benefit of hindsight that the respective decisions of Dr Woo and Dr Jaber at the time to perform a caesarean section may have resulted in Baby Jacob's survival. However, Dr Dennerstein's decision to trial labour and forceps was appropriate in light of his experience and the facts as known at the time.

189. I acknowledge that Western Health conducted an investigation into the circumstances of Baby Jacob's death and implemented improvements to their systems due to this incident. In light of this remedial action, I do not propose to make any recommendations pursuant to section 72(2) of the Act.

COMMENTS

Pursuant to section 67(3) of the **Coroners Act 2008**, I make the following comments connected with the death:

190. I acknowledge the grief and loss that Mr and Mrs Hill have endured and will continue to suffer as a result of the devastating death of their Baby Jacob.

191. A woman going through the experience of childbirth for the first time very much relies on the advice and experience of those managing her health and wellbeing. The medical profession should not forget that the patient is the most important person in this situation and needs continuous explanation and reassurance as to decisions made that affect them. Managing patient expectations and effective communication between medical professionals is essential and can reduce communication errors between health professionals and ultimately lead to better patient care.

192. The circumstances surrounding Baby Jacob's death serve as a timely reminder to the medical and healthcare profession of the importance of documenting labour management plans in the medical records. Instructions should be explicit with no room for ambiguity. This is particularly important when there are a number of clinicians involved in a patients' care.

Pursuant to section 73(1) of the **Coroners Act 2008,** I order that the finding be published on the internet.

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

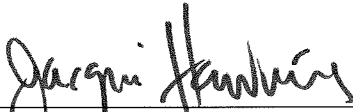
Mr and Mrs Hill

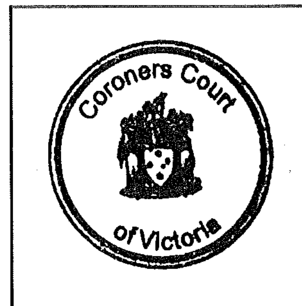
Western Health

Dr Dennerstein

Dr Metz

Signature:





JACQUI HAWKINS
CORONER
Date: 24 February 2014