OFFICE OF THE STATE CORONER

FINDINGS OF INQUEST

CITATION:	**Inquest into the death of Benjamin Glasgow**
TITLE OF COURT:	Coroners Court
JURISDICTION:	Brisbane
FILE NO:	COR00002914/06
DELIVERED ON:	20 March 2009
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HEARING DATE(s):	10 – 13 February 2009
FINDINGS OF:	Coroner John Lock
CATCHWORDS:	CORONERS: Inquest – Death of a child following child birth, brow presentation, head injuries

REPRESENTATION:

Counsel Assisting: Ms J Rosengren

Doctors Cheung, Lawrence, Stretton, Biggs: Mr G Diehm SC instructed by Avant

Mater Misericordiae Health Service: Mr R Ashton instructed by Minter Ellison Lawyers

CORONER'S FINDINGS AND DECISION

1. These are my findings in relation to the death of baby Benjamin Glasgow who died at the Mater Mother's Private Hospital soon after he was born on 19 October 2006. Benjamin was born in a poor condition at about 12:30 pm and subsequent resuscitation attempts were made but they were unsuccessful. His delivery was by way of an emergency caesarean section due to a brow presentation. During the caesarean section it was identified that Benjamin's head had became stuck in the pelvis and a procedure to disimpact his head was performed by the obstetrician and a midwife. At autopsy multiple skull fractures were found and severe brain injury was identified. According to the treating doctors, pathologists and independent specialist obstetricians, these injuries were very unusual, if not, unprecedented.

2. These findings seek to explain how the death occurred and consider whether any changes to policies or practices could reduce the likelihood of deaths occurring in similar circumstances in the future. Section 45 of the *Coroners Act 2003* ("the Act") provides that when an inquest is held into a death, the coroner's written findings must be given to the family of the person who died and to each of the persons or organisations granted leave to appear at the inquest. These findings will be distributed in accordance with the requirements of the Act and also placed on the website of the Office of the State Coroner.

The scope of the Coroner's inquiry and findings

3. A coroner has jurisdiction to inquire into the cause and the circumstances of a reportable death. If possible he/she is required to find:-

    a) whether a death in fact happened;
    b) the identity of the deceased;
    c) when, where and how the death occurred; and
    d) what caused the person to die.

4. There has been considerable litigation concerning the extent of a coroner's jurisdiction to inquire into the circumstances of a death. The authorities clearly establish that the scope of an inquest goes beyond merely establishing the medical cause of death.

5. An inquest is not a trial between opposing parties but an inquiry into the death. In a leading English case it was described in this way:- *"It is an inquisitorial process, a process of investigation quite unlike a criminal trial where the prosecutor accuses and the accused defends… The function of an inquest is to seek out and record as many of the facts concerning the death as the public interest requires."*[1]

[1] *R v South London Coroner; ex parte Thompson* (1982) 126 S.J. 625

6. The focus is on discovering what happened, not on ascribing guilt, attributing blame or apportioning liability. The purpose is to inform the family and the public of how the death occurred with a view to reducing the likelihood of similar deaths. As a result, the Act authorises a coroner to make preventive recommendations concerning public health or safety, the administration of justice or ways to prevent deaths from happening in similar circumstances in future.[2] However, a coroner must not include in the findings or in any comments or recommendations, any statement that a person is or maybe guilty of an offence or is or maybe civilly liable for something.[3]

The admissibility of evidence and the standard of proof

7. A coroner's court is not bound by the rules of evidence because the Act provides that the court "*may inform itself in any way it considers appropriate.*"[4] That does not mean that any and every piece of information, however unreliable, will be admitted into evidence and acted upon. However, it does give a coroner greater scope to receive information that may not be admissible in other proceedings and to have regard to its origin or source when determining what weight should be given to the information.

8. This flexibility has been explained as a consequence of an inquest being a fact-finding exercise rather than a means of apportioning guilt: an inquiry rather than a trial.[5]

9. A coroner should apply the civil standard of proof, namely the balance of probabilities but the approach referred to as the *Briginshaw* sliding scale is applicable.[6] This means that the more significant the issue to be determined; or the more serious an allegation; or the more inherently unlikely an occurrence; then in those cases the clearer and more persuasive the evidence should be in order for the trier of fact to be sufficiently satisfied that it has been proven to the civil standard.[7]

10. It is also clear that a coroner is obliged to comply with the rules of natural justice and to act judicially.[8] This means that no findings adverse to the interest of any party may be made without that party first being given a right to be heard in opposition to that finding. As *Annetts v McCann*[9] makes clear, that includes being given an opportunity to make submissions against findings that might be damaging to the reputation of any individual or organisation.

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[2] Section 46 of the Act
[3] Sections 45(5) and 46(3) of the Act
[4] Section 37 of the Act
[5] *R v South London Coroner; ex parte Thompson* per Lord Lane CJ, (1982) 126 S.J. 625
[6] *Anderson v Blashki* [1993] 2 VR 89 at 96 per Gobbo J
[7] *Briginshaw v Briginshaw* (1938) 60 CLR 336 at 361 per Sir Owen Dixon J
[8] *Harmsworth v State Coroner* [1989] VR 989 at 994 and see a useful discussion of the issue in Freckelton I., "Inquest Law" in *The inquest handbook*, Selby H., Federation Press, 1998 at 13
[9] (1990) 65 ALJR 167 at 168

11. If, from information obtained at an inquest or during the investigation, a coroner reasonably believes that the information may cause a disciplinary body for a person's profession or trade to inquire into or take steps in relation to the person's conduct, then the coroner may give that information to that body.[10]

The evidence

12. It is not necessary to repeat or summarise all of the information contained in the exhibits and from the oral evidence given, but I will refer to what I consider to be the more important parts of the evidence. In the course of the hearing reference was made to the descriptive use of the word "impacted". This is not one universally approved by the experts who gave evidence, and in particular Dr Weaver. If it is used during the course of this decision it will be for convenience, in the absence of an alternative, and its use should not be considered in a pejorative sense.

13. Mrs Celeste Glasgow is married to Mr Brett Glasgow. Mrs Glasgow had previously had one miscarriage at 10 weeks gestation. The loss of Benjamin under such extraordinary circumstances has been very distressing for both of them. They now have a healthy young daughter, but the loss of Benjamin is still keenly felt.

14. In a letter to the Coroner delivered after the inquest, Mrs Glasgow described the pain and loss she feels and how she will miss Benjamin every day for the rest of her life. She said she blames herself for not pushing harder to have an elective caesarean. She is clearly unhappy with her choice of obstetrician and the obstetrician who treated her during her labour.

15. These proceedings were very painful for Mr and Mrs Glasgow. They were given much assistance at the hearing by Mr Clements from the Coronial Counselling Service. I thank him for his assistance. I may not be able to provide all of the answers or come to a conclusion which absolutely satisfies Mr and Mrs Glasgow but I hope I can go some way towards bringing some closure to this part of their grieving.

Treatment during the pregnancy

16. The treating obstetrician for the pregnancy was Dr Brenda Biggs.[11] At a consultation on 13 September 2006, Dr Biggs was concerned that Benjamin was clinically small. However, subsequent ultrasounds showed satisfactory growth. There were no abnormalities seen in Benjamin, and his head circumference and diameter were both within

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[10] Section 48(4) of the Act

[11] Her statement is exhibit C2

the normal range. An ultrasound reported that the baby was coming head first in an occipital posterior position.

17. Mrs Glasgow recalls that she had a specific discussion with Dr Biggs as to a birth plan. She had concerns about a natural birth because of three issues:- firstly, that she was of small build; secondly, that her mother had had a difficult delivery with her sister; and thirdly, that her sister was born with autism and subsequently a paediatrician had suggested this could have occurred as a result of her difficult child birth. She left the consultation (having heard the pros and cons) on the basis that she understood that Dr Biggs preferred a natural birth but the labour would proceed as a caesarean section if the slightest concern occurred during labour.

18. Dr Biggs does not recall this conversation but her antenatal records note that a discussion on the "mode of delivery" was made on 18 August 2006 and she expects that a general discussion was had. I also note that the history on the antenatal record kept by Dr Biggs makes reference to the family history including her sister having Aspergers syndrome. As a result I can conclude that this discussion occurred in the manner as suggested by Mrs Glasgow.

19. Dr Biggs said she does not believe there were any features relative to Mrs Glasgow which contraindicated a natural birth. She would have said that there is more of a risk of bleeding and infection with a caesarean however an elective caesarean has less risks than an emergency caesarean. Dr Biggs does recall that the major aspect of the birth plan for Mrs Glasgow was that there would be an early induction if the baby's development was indicating a problem. This was not seen to be necessary as the baby's development was satisfactory as mentioned earlier.

20. During the inquest the court had the benefit of receiving reports and hearing evidence from three experienced obstetricians namely Doctors Child, Keeping, and Weaver. Dr Weaver is the current president of the Royal Australian and New Zealand College of Obstetricians and Gynaecologists ("the College"). Dr Child is a past president. They all agree that the plan to proceed with a natural birth with emergency caesarean as a backup was not contraindicated.

21. However I do consider it was somewhat surprising that the antenatal records were not more comprehensive particularly on the discussions about birthing plans and other issues.[12]

22. Mrs Glasgow's last antenatal visit with Dr Biggs was on 16 October 2006 when she was 37 weeks and 6 days gestation. She was well, and reported good foetal movements. The fundal height was consistent with 35 weeks gestation.

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[12] The record consists of 4 pages of information commencing at page 46 of exhibit D9

Admission to Hospital and the labour

23. The estimated date of delivery was on 31 October 2006 however Mrs Glasgow went into spontaneous labour on the afternoon of 18 October 2006. She was admitted to the Mater Mother's Private Hospital at approximately 11:00 pm that night.

24. Dr Biggs worked in a group practice with three other obstetricians, including Dr Glenda McLaren and Dr Josephine Cheung. As part of the practice each obstetrician provided cover for the other three obstetrician's patients one day per week and each obstetrician would work one weekend in four. When Mrs Glasgow presented at the hospital, Dr McLaren was the obstetrician on call at the time. Dr Josephine Cheung took over responsibility for Mrs Glasgow's care at 7:00 am on 19 October 2006.

25. There was no formal handover by Dr Biggs to either Dr McLaren or Dr Cheung. Dr Cheung had not been informed specifically about Mrs Glasgow's wish for a caesarean section at the slightest concern occurring in labour. Bearing in mind the relative paucity of the antenatal records, combined with the fact this does not seem to have been recorded as such or recalled by Dr Biggs, it is probable any handover would not have imparted that piece of information anyway.

26. The only handover information that was available to Dr Cheung was the antenatal history completed by Dr Biggs on 25 September 2006.[13] That contains some important information but nothing about the wishes of Mrs Glasgow to proceed to a caesarean at the first sign of a problem. For reasons which will be discussed in this decision, knowing this information probably would not have changed the outcome, because ultimately the experts agree that the emergency caesarean section took place in a timely manner.

27. However both Dr Child and Dr Weaver would have had a more formal verbal handover of Mrs Glasgow. Dr Child has a backup whereby the patient holds a handover record to give to the obstetrician upon presentation. Dr Child would have considered the antenatal history signed by Dr Biggs to be adequate only if there had been a verbal handover because not everything is written down in the notes and there may have been particular concerns.

28. Dr Child considers clinical handovers to be an important issue. Dr Child is a representative on the Safety and Quality in Health Care Commission for the Commonwealth Department of Health and the issue and importance of handovers generally in the medical field is currently being given a lot of attention by the commission and elsewhere. I note that shortly following the conclusion of oral evidence, Dr Child forwarded to my office details of a workshop being run by the

[13] See page 15 of exhibit D10

Safety and Quality in Health Care Commission at the end of March 2009 titled *"Using Tools to Make Clinical Handover Safe."* One of the sessions deals with the sharing of information between obstetricians and midwives. This usefully should remind clinicians of the importance of handovers and clearly more work needs to be done by the profession in this area of concern.

29. Certainly the group practice of Doctors Cheung and Biggs should be considering very strongly how they attend to the recording of and handover of patient information. It is obviously something that experienced obstetricians such as Dr Weaver and Dr Child think is important to get right and it also must give the patient some greater feeling of security. From experience many of the difficulties that arise in medical cases before this Court often occur in the context of a failure to have regard to all of the available information; or a failure of systems to make the information available; together with and often combined with communication failures with patients and family members by nursing and/or medical staff.

30. After Mrs Glasgow was admitted on the night of 18 October, Midwife Bronwyn Coleman[14] examined her and determined that she was in early but not established labour. The labour and birth record show that at this time Benjamin was still coming head first. Midwife Coleman spoke with Dr McLaren and the plan was for Mrs Glasgow to go up to the ward and try and sleep before going into established labour. She was taken up to the ward by Midwife Coleman shortly after midnight. She was also given some pain relief as ordered by Dr McLaren.

31. Dr Cheung went to see Mrs Glasgow at about 7:00 am at which time she was 4 – 5 cm dilated with intact membranes. She also had a raised temperature and because Dr Cheung was uncertain about the cause of this, she made the decision that Mrs Glasgow's labour be augmented. This required an artificial rupture of her membranes which could only be done in the labour ward.

32. Midwife Jane Bennett[15] took over Mrs Glasgow's nursing care at approximately 8:15 am on 19 October 2006. Mrs Glasgow was transferred back to one of the delivery suites in the labour ward at approximately 8:30 am and Midwife Bennett ruptured her membranes about 15 mins later.[16] Mrs Glasgow was at this time 6 – 7 cm dilated. About an hour later at 9:45 am, Mrs Glasgow requested an epidural for pain relief and this was inserted at approximately 10:00 am by Dr Susan Lawrence, an anaesthetist. Mrs Glasgow was found to be fully dilated by 10:45 am.

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[14] Statement is exhibit C5
[15] Statement is exhibit C1
[16] Midwife Bennett has recorded her observations in a management in Labour record which part of exhibit D9 and has been transcribed in exhibit D9A

33. The foetal heart beat was being monitored by cardiotocography ("CTG"). Midwife Bennett observed occasional decelerations and telephoned Dr Cheung at about 11:00 am to inform her of this and the fact that Mrs Glasgow was fully dilated with little progress of Benjamin's head at that point (his head was at station -1). Midwife Bennett was not overly concerned but there needed to be some discussion with Dr Cheung as to the next step/s.

34. Dr Cheung arrived a short time after. There was some contention as to the exact timing of all this. Midwife Bennett recalls making the call at around 11:00 am and that the response of Dr Cheung was within 5 to 8 minutes. She thinks that the recording in the Management in Labour document by Dr Cheung at 11:25 am was when Dr Cheung completed her notes and the examination had taken place before this. This is probably right but not a lot turns on this as the experts agree that whatever was the actual timing, the timeliness of the decisions were all reasonable whether Dr Cheung arrived after 11:05 am or at 11:25 am.

35. When Dr Cheung examined Mrs Glasgow she found that Benjamin's head was in a deflexed occipito-posterior position. Dr Cheung asked Mrs Glasgow to push, but it became apparent that she was unable to push effectively. Dr Cheung then placed a foetal scalp electrode on Benjamin's head for close monitoring and asked Mrs Glasgow to stop pushing. Midwife Bennett said that at this stage it was not alarming to her that pushing was not effective as this can occur with a first baby and when an epidural is used. She said that it was only when there was further lack of progress and it became apparent that the position of the head was further deflecting into a brow presentation and that Benjamin was showing signs of distress that it indicated a caesarean section was required.

36. There was some difference in evidence as to whether Dr Cheung performed two or three internal examinations and on this issue I prefer the evidence of Mr and Mrs Glasgow and Midwife Bennett that three internal examinations were performed, although it is not ultimately significant.

37. At about 11:45 am Dr Cheung performed an ultrasound to confirm the position of Benjamin's back which was on the right hand side of the maternal abdomen. This test is performed not for the purpose of checking whether there is a brow position but to provide information if there is to be an assisted vaginal birth. However by this time the CTG was indicating a suboptimal foetal condition, so Dr Cheung performed another internal examination to determine whether she was likely to be able to deliver Benjamin naturally. It was at this stage that it became apparent to Dr Cheung that there was a brow presentation.

38. The significance of a brow presentation is that a much larger diameter of the baby's head is presented to the pelvis and it is usual for the presenting part to become obstructed during labour. Brow

presentations are a rare event, something in the range of 1 in 800 according to Dr Weaver. Dr Cheung said she had experience of six or seven of these difficult presentations in the past.

39. Mr and Mrs Glasgow suggested through Counsel Assisting that the ultrasound could or should have been done earlier and the identification of the brow presentation also made earlier. Perhaps that is so but the experts Doctors Child, Keeping and Weaver agree that generally the steps that were taken by Dr Cheung were appropriate and timely and they were not critical of that aspect of the care. The medical witnesses (nurses and doctors) all gave evidence that how a baby's head presents does evolve during labour and even when the head is in a deflexed posterior position it is not inevitable that the head will further deflect in to a brow presentation. In many cases it will flex forward to a better position.

40. Dr Cheung explains in her statement and in evidence that once the brow presentation had been diagnosed she proceeded to an emergency caesarean section, which was in accordance with her training and experience. Dr Weaving agrees that this was the right decision when the diagnosis of the brow presentation was made and the CTG tracing indicated some slight deterioration. Up until then all of the experts agree the CTG tracing was not showing any concerning trends.

41. Dr Child, in his report, stated that many obstetricians would have proceeded to a vaginal birth with the use of forceps, which is a difficult procedure in itself. During his evidence Dr Child clarified his position stating that according to his training and experience he would have performed an assisted vaginal birth, however, in recent decades obstetricians have been trained in these types of situations to proceed with an emergency caesarean section. When presented with Dr Cheung's training, experience and her rationale for performing a caesarean section he agreed that the more appropriate decision was for Dr Cheung to proceed with an emergency caesarean section. In his report, Dr Weaver agreed that a vaginal delivery could have been attempted using Kielland's forceps but if the obstetrician did not feel competent to use these forceps then she rightly should not proceed down this path. Dr Keeping was more forceful on this point and said that although obstetricians of his or Dr Child's vintage would have used this technique in the past he has personally not done so for some 20 to 25 years. He thinks every obstetrician these days would or should proceed to a caesarean section when confronted with a brow presentation. The overwhelming consensus of opinion, which I accept, is that the decision to proceed to a caesarean section was the correct decision and was made in a timely fashion and in accordance with an acceptable standard of medical practice. There was a need to proceed soon but it was not a dire emergency and the consensus is that the arrangements for the operation and the timing of the operation were appropriate.

42. One of the concerns Mr and Mrs Glasgow have raised was the information exchange between themselves and Dr Cheung that took place in the period around 11:25 am to 11:50 am on 19 October 2006. Dr Cheung said she would not have raised the issue of a caesarean section earlier than when she did at 11:50 am because there were no indications of foetal compromise and she just needed to watch and monitor Benjamin's progress. Dr Cheung was unable to recall what her discussion was with Mr and Mrs Glasgow at 11:25 am however she stated that it was her usual practice to discuss her findings of a vaginal examination with the patient. It does not seem that Dr Cheung discussed the possibility of a caesarean section at 11:25 am. Dr Weaver would have raised the issue at 11:25 am and discussed with the Glasgow's that Benjamin was in an unfavourable position but that this could resolve and flex into a more favourable position so that a vaginal birth could continue, or could further deflex and therefore require a caesarean section. Dr Child also would have discussed the findings with Mrs Glasgow at 11:25 am and advised her that they might need to proceed with a caesarean section. Dr Keeping would not see the need to raise the issue of a possible caesarean section at that time.

43. It was also the evidence of the experts that the delay between 11:25 am and the decision to proceed to surgery at 11:50 am would not have made it more difficult to deliver Benjamin. They agreed that there would have been a number of contractions in that time period but the degree of pushing was such that any further impacting of the head further into the pelvis would not have been significant.

44. Generally the evidence of Dr Cheung was not as helpful as may have been expected. On many issues Dr Cheung said she did not recall specific events or details of events and relied on her usual practice. That would perhaps be understandable if this was a routine event, but it was not. This was a rare brow presentation. A very adverse outcome resulted. No-one who gave evidence had experienced such an event where a baby is delivered with multiple skull fractures. One expert said that some obstetricians would never get over an outcome of this nature. Dr Cheung provided a statement on 22 December 2006, just over 2 months later. I am not saying she was endeavouring to hide anything but I was surprised she did not have a better recall. There were a number of differences as to some details of events between her and Mr and Mrs Glasgow and others, such as Midwife Bennett. Those differences in details are not crucial to my final conclusions but to the extent there are differences I accept the version of Mr and Mrs Glasgow, who clearly have the events of this day very much imbedded in their memories.

45. As I have said previously, one of the common features of complaint in medical cases is the paucity of the information exchange between patients and clinicians. Here Dr Cheung had information available at 11:25 am that a caesarean may be necessary depending on

Benjamin's progress and other experienced obstetricians agree it would have been better to discuss with Mrs Glasgow the position then rather than waiting until 11:50 am when it was conveyed that an emergency caesarean was required. I acknowledge that this failure would not have contributed to the adverse outcome but it is a better approach to patient care and something that should be considered in the future by Dr Cheung.

The caesarean section procedure

46. Dr Weaver said that a caesarean section at full dilation is a difficult surgical procedure. According to the operation report, Mrs Glasgow was taken to the operating theatre at 12:22 pm. Dr Cheung commenced the operation at 12:24 pm. Her assistant was resident Dr Andrew St John and the anaesthetist was Dr Lawrence. Relevantly, also present in the operating theatre were midwifes Grace Bujan and Christine Cousner. Dr Mark Stretton, a paediatrician, and his team were in a small room (known as the resuscitation room) adjoining the operating theatre watching the delivery through a small hole. Dr St John assisted Dr Cheung in the operation which he noted took slightly longer because of the issue of the impacted head. In the end this was only extended by a minute of so. He recalls the nurse being requested to assist but he was not in a position to say what was done or the technique that was adopted by the midwife.

47. Dr Lawrence gave the anaesthetic. When Mrs Glasgow experienced pain, Dr Cheung stopped and she was given 50% of nitrous oxide by Dr Lawrence. Dr Lawrence was unable to see what the nurse and Dr Cheung were doing other than seeing the incision. She has a recollection of telling a midwife prior to the operation commencing that she may be asked to assist in the delivery because of the position of Benjamin's head and recalls a midwife being present with sterile gloves for that purpose. Dr Lawrence also recalled that when Dr Cheung indicated she needed assistance, the midwife came over to assist, moved the drapes and applied the pressure.

48. Dr Cheung says that once on the operating table Mrs Glasgow was prepared, gowned and draped. She was given an anaesthetic but Dr Cheung could hear she was uncomfortable as she started the incision and stopped until Dr Lawrence was satisfied they could proceed.

49. There was difficulty encountered in disengaging Benjamin's head out of the pelvis as the presenting part was moulded or impacted well into the pelvis. Dr Cheung's usual practice in such a situation would be to say to the midwife that she needed her to push from below. By this Dr Cheung indicated that Midwife Cousner was to insert her hand into the vagina and to push Benjamin's head from below in order to assist with disengagement of his head.

50. Both Dr Cheung and Midwife Cousner described how they performed their tasks. Dr Cheung had her right hand gently sliding between Benjamin's face and the uterine wall to the lower part of the head and with her hand behind the head to deflex it back and pull it up and out from the confines of the pelvis. She said she tried this once or maybe twice and then asked the midwife for help. She says that Midwife Cousner was pushing from below to stop the head from proceeding further down the birth canal and to lift Benjamin's head. Dr Cheung's hands then met with Midwife Cousner's hand and then Midwife Cousner withdrew. This will sometimes break the suction around the head and assist in bringing the head back. Dr Cheung does not recall more force being used than in any other brow presentation and there is no evidence from other witnesses which would indicate that the circumstances were such that more force than usual occurred. By that I mean the evidence is that the procedure took no longer than usual or no-one noticed or heard anything which suggested something was wrong.

51. Midwife Cousner was an experienced midwife of some 32 years as at October 2006. Midwife Cousner stated she had previously assisted with the delivery of babies using the method described above. She was asked by Dr Cheung to put on some sterile gloves to be ready to support her. She was then asked to help "push" the baby up. She went under the drapes. Her technique is to use three fingers being her forefinger, ring finger and thumb more as a support to stop the baby being pushed down further into the birth canal and to help break the suction. She described where she placed the fingers and that she was careful to avoid Benjamin's fontanelle. Her part did not take long, perhaps 45 seconds. Although they talked about "push" she says it is more of a support and no huge pressure is produced but there is some gentle pressure upwards. Dr Cheung's hand then met her forefinger and she withdrew. She does not recall Dr Cheung having any discussion with her about the assistance. She said that she does not move the baby's head laterally or push it in any way. She refined her evidence to include that her action was to provide some space for the obstetrician to get her hand in behind the baby's head so there is some lifting of the head and gentle support to prevent the head descending. Midwife Cousner does not recall Dr Cheung making any efforts to dislodge the head prior to seeking her assistance. Her recollection was that as soon as the incision was made and the position was seen she was asked to assist.

52. Dr Keeping had no concerns with the description given of the technique used by Midwife Cousner. Dr Weaver described the basis for the procedure is to deflex the head or to aid the flexion of the head and elevate. Dr Keeping thought there was no real science to what is done and anyone could do it. Dr Child said it was a tricky technique and difficult to manage and teach. He said it was a mixture of pressure and direction that were crucial to the technique.

53. It does seem to me that there may be some lessons learnt from this tragic outcome and an opportunity for the profession to look closely at the method adopted and see if there can be any improvement in technique. When considering the outcome of the technique the following questions need to be asked: is the midwife simply pushing upwards; is she simply supporting; is the reason she is there to help deflex the head; should she be using three fingers or the whole hand? This then has to be combined with the technique of the obstetrician and how the two work together. Dr Keeping did not think there was a complicated science to the technique but perhaps it can be refined. My impression was that in this case there is only a general understanding as to what each participant was trying to achieve. There was no real discussion between the two and the task of the midwife is not altogether clear. It makes sense that assisting in deflexing the head may be an important part of the process but it is not clear that is what Midwife Cousner understood. Dr Child helpfully suggested that the College could consider this case as part of its responsibilities for providing opportunities for clinical education and I will take up his suggestion and a copy of the findings will be sent to the College. I also note the opinions of Doctors Child and Weaver that a caesarean section at full dilation with the head way down in the pelvis is a tricky and complex surgical procedure and it was advisable for hospitals to consider a different way of managing these so that someone, such as an experienced obstetrician or midwife, is on hand to assist. This again may be an issue that can be considered by the College for recommendations or further clinical education.

54. It is convenient here to briefly discuss the possibility of other methods of delivery by caesarean section which came out of the articles attached to the report of Dr Payton, a paediatric pathologist who reviewed the autopsy findings. She noted that skull fractures are found in the medical literature from the use of forceps and vacuum extraction. Skull fractures have also been described in foetal head impaction. The two methods of bi-manual approach (where the obstetrician uses one hand to push the baby's head from the vagina and uses the other hand to dislodge the baby from the womb) and the pull or reverse breech method (where the baby is extracted from the womb feet first) were critiqued during evidence and all three expert obstetricians would not adopt such methods and certainly neither method would be considered standard practice in Australia. I do not intend to dwell on these issues further. The bi-manual method particularly has problems associated with contamination of the surgical field with significant associated risks. The only documented randomised study which recommended the pull method was based in Nigeria where there were higher mortality rates associated with long labours and the poorer health of mothers associated with that country. If there is any substance or merit in examining these methods I am sure the profession is best placed to carry this out. It is not something that this Court is qualified to comment on. The issue here is whether the method adopted by Dr Cheung was the recognised method in Australia and in the range of reasonable medical practice. Clearly it is.

55. After Benjamin was delivered he was immediately passed to Dr Stretton. He was unable to detect a heart beat or a pulse. He heard only a few gasping breaths during resuscitation. Benjamin was ventilated and intubated. Adrenaline was given. Various other efforts were made but after approximately 20 minutes it was considered that treatment should be discontinued. Dr Stretton noted that Benjamin's skull was markedly moulded, more that anything he had seen. It however surprised him that there were skull fractures. He also described the head as "boggy" from swelling in the skull. He considered that the degree of bogginess must have been progressive and did not occur in the few seconds between delivery and being handed to him. He said it was likely to have occurred over minutes but not hours. He surmised that the degree of swelling may have resulted from the head being jammed in the pelvis and the brain injury occurred in the same manner during labour. In this regard Doctors Child and Weaver disagreed with this view. They were clearly of the opinion that the injuries occurred during the delivery.

Issues arising from the autopsy and the underlying cause of death

56. Dr Nathan Milne performed an autopsy examination and undertook the usual wide range of investigations including paediatric radiology, histology, neuropathology, microbiology, metabolic screening, and cytogenetics. He took toxicology samples and reviewed the hospital medical file. No skull fractures were found on x-ray but he observed bruising underneath the scalp, several fractures of the skull and bleeding between the skull and brain. Neuropathology found extensive acute bruising of the brain which was considered to be unsurvivable. X-rays of the skull found no fractures. Dr Greer, a paediatric radiologist, reported that although she was unable to find fractures on the x-ray her opinion was that she would not necessarily expect to see them.

57. Dr Milne found seven fractures in all with some of them very irregular. The fractures were found as follows:
    I. Coronal fracture of the mid left frontal lobe (30 mm);
    II. Very irregular, and roughly sagittal fracture involving the full length of the mid left parietal bone (85 mm);
    III. Sagittal fracture of the posterolateral left parietal bone which extends to the lambdoid suture (45 mm);
    IV. Transverse fracture of the mid right parietal bone (25 mm);
    V. Near sagittal fracture of the posterior right parietal bone which extends to the lambdoid suture (25 mm);
    VI. Oblique fracture of the right occipital bone (25 mm);
    VII. Transverse fracture of the left anterior cranial fossa (10 mm) which has a small branch at the lateral end (3 mm).

58. The fractures were seen over a widespread area of the skull and were not focussed on one area. The neuropathology report concluded that there was an intrapartum head injury with extensive acute cerebral contusional damage which indicated minimal survival. The histology

showed that there was no underlying abnormality to predispose Benjamin to fracture. The haemorrhage in the dura between the brain and skull was recent. The lungs showed signs of foetal stress.

59. Dr Milne opined that the underlying cause of death was obstructed labour. He considered that the head injury appeared to have occurred in the efforts to disimpact Benjamin's head from his mother's pelvis. Although skull fractures are a rare complication of child birth they are usually minor and not associated with brain injury. He was unable to find a documented case in the medical literature of multiple skull fractures occurring in similar circumstances. Dr Milne was of the view that the fractures and the brain injury were caused in the same event.

60. Dr Payton is an experienced and well respected paediatric anatomical pathologist. She was asked to provide a report by the legal representatives of Dr Cheung. Importantly both Dr Milne and Dr Payton found nothing to suggest that the skull was abnormal or predisposed to fracture.

61. Dr Payton based her observations on photographs taken at autopsy and reviewed the histology slides. She has some concern that there was very little blood associated with the fractures as she would have expected to see more blood. Dr Milne explained that the blood had been cleaned away from the areas where he identified fractures, before they were photographed. Dr Payton was also concerned that she was unable to state with certainty that some of the fractures were not due to the opening of Benjamin's skull and reflection of the bone flaps to enable removal of his brain at autopsy. Dr Milne was adamant that this was not the case.

62. Dr Payton agreed that the brain showed evidence of extensive acute cortical contusional injury with extensive slit like haemorrhages in the cortical white matter. This indicated skull deformation resulting in brain compression and shear effect on the cerebral tissue to the brain. In her view, if the fractures were ante-mortem, then they would be due to the same event which caused the extensive contusions. Dr Payton considered that the substantive amount of the haemorrhage found histologically was caused by skull compression during delivery and not due to complications during labour.

63. Both Doctors Milne and Payton agreed that if the fractures were caused post-mortem then they would be as a result of the autopsy but the contusions to the brain were caused during the labour/delivery process and did not occur post-mortem.

64. Dr Payton was only able to identify 5 of the 7 fractures listed in Dr Milne's autopsy report. Adopting the numbering used by Dr Milne in his report these were identified as fractures 1, 2, 3, 5, and 6. After reviewing Dr Payton's report, Dr Milne indicated that he thought that fracture 2 could now possibly be developmental. He said that he was

confident that all of the remaining fractures were fractures. Fracture 7 was not evident on the photographs but he was confident it was present at the time of the autopsy. Dr Payton agreed that on the basis that Dr Milne was satisfied that the fractures had not occurred in the post-mortem process of removing the brain, then they would have occurred ante-mortem and at the delivery.

65. I am satisfied that it was not the post-mortem process that caused Benjamin's fractures. Dr Milne said he would have expected to see it as it occurred. Further there were six or seven fractures. With one fracture it may have been possible but with seven spread out over the skull it is highly unlikely that they all occurred inadvertently.

66. Dr Payton said there was no evidence of congenital abnormality. There was reference to Menkes Syndrome and although she could not exclude it, there also was no evidence of it. For the purposes of my findings it can be taken to be excluded.

67. The method used by Dr Cheung and Midwife Cousner in assisting in disimpacting the head was described to Dr Payton and Dr Milne. Dr Payton agreed that the compression to the brain together with the fractures most likely occurred due to the application of the hands to the head. Dr Milne thought the fingertips were the most likely source of the development of the fractures however the overall process had to be considered and he could not say exactly what part of the technique used caused what, as the fractures were spread out. Dr Payton did not think she could isolate one particular hand, event or incident. Dr Payton and Dr Milne both agreed that the release of suction could contribute to some of Benjamin's head injuries and although the suction could have exacerbated existing fractures, it would not have caused any fracture/s. They also agreed that although there was no evidence of undue force being needed it would seem the force used was sufficient to cause these abnormal findings.

68. Dr Payton also said there was some evidence that at the time of injury there may have been some hypoxia which may be related to the cord around Benjamin's neck but this could not explain the focal haemorrhage found which is suggestive of blunt force. Hypoxia could have contributed but it was not the cause of death and it was difficult to say what contribution it played. Dr Milne agreed.

69. Dr Child considered that the fractures and brain injury occurred in the one event and were associated with delivery. He considered that the labour was not long enough for that type of damage to have occurred in labour. Dr Weaver agreed that if the fractures occurred ante-mortem then the brain injury and fractures would be a single event. He gave evidence that the foetal skull is designed to go through labour and would be moulded but he had never heard or seen a skull fracture in 20 years. He considered it an extraordinarily rare event. If it was caused in labour (as distinct from the delivery) he would have expected to see

more signs of foetal distress and more haemorrhaging around the fractures. In his view it was not a long labour.

70. Dr Keeping did not think such a brain injury could be caused in labour lasting only hours. He also would have expected signs of foetal distress if this was due to fractures/brain injury from impact on the pelvis. He had never seen it happen before and it did not add up for him.

71. There was reference in the autopsy report to complications caused by a uterine constriction ring. This had initially been mentioned by Dr Cheung in her operation report, however Dr Cheung later reported[17] that she did not find a true constriction ring, rather some moulding of the uterine wall round the contours of Benjamin and this did not complicate the delivery. It has been accepted that this was not a complication and can be excluded. That will be excluded from the formal cause of death as set out in the autopsy certificate and report.

Conclusions

72. Benjamin Glasgow died very shortly after he was born. He suffered severe brain injuries in conjunction with multiple skull fractures which occurred during delivery. His birth was complicated by a brow presentation and a consequent obstructed labour. The balance of the evidence would support that the fractures and brain injury occurred whilst Dr Cheung and Midwife Cousner were endeavouring to disimpact Benjamin's head from the pelvis and to deflex the head to assist in his delivery. The evidence would not support a conclusion that the brain injury occurred in the course of labour due to compression of the skull in the pelvis. I do not accept that the fractures found by Dr Milne were caused by compression of the skull during labour or by the post-mortem removal of the brain by Dr Milne. The findings at autopsy were abnormal and have surprised Doctors Child, Keeping, Milne, Payton and Weaver. They are unprecedented.

73. Although criticism can be laid against some of the following:- the lack of documentation of patient information, the lack of a verbal handover and inadequacy of handover documentation and communication issues during the labour process, ultimately this would not have changed the tragic outcome. The experts agree that proceeding to a natural birth was not contraindicated. The labour was not lengthy. Decision making was made appropriately and within the bounds of reasonable medical practice. The decision to proceed to a caesarean section was made at the appropriate time and was conducted in a timely manner. The procedure was conducted with the recommended technique. The decision to request assistance by a midwife was correct and timely. There is no evidence which suggests that the labour was proceeding abnormally, although a brow presentation and impacted head are complications to which risks attach. However, the unprecedented

[17] Exhibit C4A

injuries that occurred here were not risks that have previously been documented in the medical literature or in the combined experience of all concerned in this case. The injuries are highly likely to have occurred at the time of placing the hand around the skull by Dr Cheung, the “pushing” from underneath through the vagina by Midwife Cousner and the subsequent removal of the impacted head from the pelvis during delivery. There is no evidence from others who were present at the procedure that anything unusual was happening.

74. There is no evidence that suggests that undue force was required but clearly it was enough force to cause these injuries. It cannot be said what part of the process caused the injuries. Was it the hand of Dr Cheung, the fingers of Midwife Cousner or both in the context of an impacted head against the pelvis which made it more difficult?

75. In those circumstances I do not consider this is a case where anyone should be referred to a disciplinary body. I understand that Mr and Mrs Glasgow may find that difficult to accept. I will be referring this decision to the College for consideration as to any lessons that can be learned from this adverse event. It does seem to me that some refinement of possible techniques that can be used and in particular the purpose of the midwife or other person providing assistance in such circumstances should be considered. The College is in the best position to decide this.

Findings required by section 45

76. I am required to find, as far as is possible, who the deceased was, when and where he died, what caused the death and how he came by his death. I have already dealt with the last of these issues, being the circumstances of Benjamin’s death. As a result of considering all of the material contained in the exhibits and the evidence given by the witnesses I am able to make the following findings in relation to the other aspects of the death:

   a. The identity of the deceased was Benjamin Glasgow
   b. The place of death was Mater Mother’s Private Hospital, South Brisbane, Queensland.
   c. The date of death was 19 October 2006.
   d. The formal cause of death was:
      1(a) Intrapartum head injuries
      1(b) Other conditions in the child: brow presentation and cord entanglement
      1(c) Main condition in the mother: obstructive labour

      2. Underlying cause of death: obstructed labour.

Concerns, comments and recommendations

77. Section 46 of the Act provides that a coroner may comment on anything connected with a death that relates to public health or safety,

the administration of justice or ways to prevent deaths from happening in similar circumstances in the future. The state of the evidence is such that no such comments or recommendations can be made.

My condolences are expressed to Mr and Mrs Glasgow. I know that these proceedings have been particularly distressing for both of them and Benjamin's loss will always be with them. I thank them for their assistance given to Counsel Assisting, Ms Rosengren and the courtesy they have shown to the staff at my office. I close this inquest.

John Lock
Brisbane Coroner
20 March 2009