Obstetrician, Dr B

Midwife, Ms C

Obstetric Group

A Report by the

Health and Disability Commissioner

(Case 15HDC00189)

Health and Disability Commissioner
Te Toihau Hauora, Hauātanga

Table of Contents

Executive summary 1

Complaint and investigation 2

Information gathered during investigation 3

Response to provisional opinion 13

Opinion: Introduction 14

Opinion: Dr B — Breach 15

Opinion: Ms C — Breach 22

Opinion: The Clinic — No breach 25

Recommendations 26

Follow-up actions 26

Appendix A: Expert obstetric advice 27

Appendix B: Expert midwifery advice 44

Executive summary

1. Mrs A booked an obstetrician from a private obstetrics group (the Clinic) to be her lead maternity carer (LMC).

2. At 39+3 weeks' gestation, Mrs A went into spontaneous labour. At 10.44am she went into the delivery suite at the public hospital, where the Clinic's duty midwife Ms C provided midwifery care to her.

3. At 11.40am, the Clinic's duty obstetrician Dr B arrived and assessed Mrs A, noting that she had been experiencing irregular contractions for the last couple of days, which had been regular since approximately 5am that morning. Dr B carried out a full assessment, noting that the cervix was fully effaced, 1cm dilated and central, and the fetal head was at station –3. Dr B planned to review Mrs A again in two hours' time.

4. At 12pm, Mrs A requested epidural anaesthesia, which was subsequently sited at 12.35pm.

5. At 1.40pm, Dr B assessed Mrs A again, noting that the fetal position was asynclitic and occipito-posterior[1] and the contractions varied between two and three every 10 minutes. Dr B made the decision to commence Syntocinon in an attempt "to try and regulate contractions, achieve descent of fetal head, and encourage rotation of the fetal head to occipito-anterior position".

6. The Syntocinon infusion was commenced at 2.04pm. Ms C then noted changes in the fetal heart rate (FHR) variability. At 2.35pm, she then noted an FHR deceleration down to 70bpm and turned off the Syntocinon infusion. She also noted that Mrs A's contractions continued to be "slightly irregular".

7. At 3pm, Ms C turned the Syntocinon back on at a reduced infusion rate. At 3.20pm, Mrs A reported feeling rectal pressure, and Ms C performed a vaginal examination, noting that the cervix was 6–7cm dilated and the fetal head was at station –1. The FHR was 151bpm and contractions were documented to be six every 10 minutes. Ms C turned down the Syntocinon infusion.

8. At 4pm, Dr B reviewed the CTG, noting that the contractions were still irregular with four to five every 10 minutes. At 4.45pm, Dr B noted that the CTG was showing decreased FHR variability. She performed a vaginal assessment, noting that Mrs A was almost fully dilated and that the fetal head was at station +1 and in a "? ROA [right occipito-anterior] asyclitism" position.

9. At 5.10pm, Dr B made the decision to proceed with an instrumental delivery owing to a deterioration in the FHR pattern.

10. At 5.20pm, Dr B commenced a ventouse delivery. The fetal head was delivered after three tractions. Shoulder dystocia was then noted and Dr B performed various

[1] The back of the fetal head facing towards the maternal spine. This position can make delivery more difficult. The preferred position is occipito-anterior where the back of the fetal head faces upwards.

manipulations to deliver the shoulders, and, subsequently, Baby A was delivered at 5.35pm with good Apgars.

11. However, at 7.45pm, Baby A's condition deteriorated and he was transferred to the neonatal intensive care unit. He was later diagnosed with severe dystonic cerebral palsy disease.

Decision

12. Dr B was found to have breached Right 4(1)[2] of the Code of Health and Disability Services Consumers' Rights (the Code) for continuing the Syntocinon infusion in the presence of a hyperstimulated uterus, and for her failure to recognise that this was the likely cause of the FHR abnormalities.

13. Ms C was found to have breached Right 4(1) of the Code for failing to comply with the DHB policies and guidelines in relation to the Syntocinon infusion, and by failing to recognise the clinical concerns and request Dr B's assessment in person. Criticism was also made of the failure by Ms C to document her discussions with Dr B, including the rationale for the decision to recommence the Syntocinon.

14. The Clinic was not found to have breached the Code.

Recommendations

15. In response to the recommendations of the provisional opinion, Dr B has agreed to provide a letter of apology, and has confirmed her enrolment in two courses relating to fetal and maternal assessment in labour.

16. Ms C has also agreed to provide a letter of apology, and has confirmed that she has undertaken further training in documentation and fetal and maternal assessment in labour.

17. It is also recommended that the Clinic remind its staff of the importance of documenting clinical decisions, particularly when they depart from accepted practice.

Complaint and investigation

18. The Commissioner received a complaint from Mr and Mrs A about the services provided to Mrs A. The following issues were identified for investigation:

- *The appropriateness of the care provided to Mrs A by Ms C in 2015.*
- *The appropriateness of the care provided to Mrs A by Dr B in 2015.*
- *The appropriateness of the care provided to Mrs A by the Clinic in 2015.*

[2] Right 4(1) states: "Every consumer has the right to have services provided with reasonable care and skill."

19. An investigation was commenced in October 2015.

20. The parties directly involved in the investigation were:

Mrs A	Consumer/complainant
Mr A	Complainant
Dr B	Obstetrician/provider
Ms C	Midwife/provider
The Clinic	Provider

Also mentioned in this report:
District Health Board

Independent expert advice was obtained from obstetrician Dr Jenny Westgate (**Appendix A**) and midwife Bridget Kerkin (**Appendix B**).

Information gathered during investigation

Antenatal care

Background

21. Mrs A booked with an obstetrician from a private obstetrics group to be her lead maternity carer (LMC).

The Clinic

22. The Clinic is a private obstetrics group run by a group of obstetricians.

23. When a woman books with a Clinic obstetrician, her maternity care is shared between the Clinic obstetricians. There is a roster with a dedicated obstetrician scheduled on call to manage all emergencies, labour, and deliveries.

Antenatal care

24. During Mrs A's antenatal period she was seen by five different obstetricians, including Dr B.[3] Mrs A's pregnancy progressed normally, except for a suspected slowing of fetal growth identified on ultrasound scan at 35+5 weeks' gestation. The scan showed normal liquor and dopplers.[4] Following this scan Mrs A was assessed and noted to be reporting good fetal movements. The plan was for a repeat growth scan the following week and for a vaginal examination (VE) to be carried out with the view to planning for an induction of labour (IOL) if needed, or a stretch and sweep.[5]

25. At 37+4 weeks' gestation, Mrs A had a repeat growth scan, which showed good interval growth (ie, growth from the previous scan) and normal dopplers. The

[3] Dr B is a vocationally trained obstetrician and gynaecologist. Dr B has held vocational registration in New Zealand for over ten years.
[4] The assessment of the blood circulation in the fetus.
[5] A procedure that involves the clinician introducing a finger into the opening of the cervix and using a circular motion to separate the membranes from the uterus.

estimated fetal weight was 2901g (on the 10th percentile). On VE the cervix was noted to be posterior and 2cm long.[6] The presenting part was at station –3.[7] The plan was to book an IOL for 40 weeks' gestation and to review Mrs A again in one week's time.

26. At 39 weeks' gestation, Mrs A was reviewed again. Normal fetal heart function was observed on ultrasound scan. On VE the cervix was noted to be 1cm dilated[8] and 2cm long. An IOL was booked for her estimated delivery date.

Labour

27. At 39+3 weeks' gestation, Mrs A went into spontaneous labour and at approximately 10.44am went into the delivery suite at the public hospital. She was met by the Clinic's duty midwife, Ms C.[9] Ms C noted that Mrs A was experiencing two contractions every ten minutes, which were irregular, and was reporting good fetal movements. Ms C commenced a cardiotocograph (CTG).[10]

28. At 11.40am, Dr B, the duty obstetrician, arrived and assessed Mrs A, noting that she had been experiencing irregular contractions for the last couple of days, which had been regular since approximately 5 o'clock that morning. Dr B noted that Mrs A had had a show "++" and that the CTG was reactive.[11] Dr B carried out a VE, noting that the cervix was fully effaced, 1cm dilated and central, and that the fetal head was at station –3. Dr B performed an artificial rupture of membranes, and "clear liquor" was noted. The plan was to reassess Mrs A in two hours' time.

29. At 12pm, Mrs A requested epidural anaesthesia,[12] which was subsequently sited at 12.35pm.

Decision to commence Syntocinon

30. At 1.40pm, Dr B assessed Mrs A again. Dr B noted that Mrs A was "well" and "comfortable" with the epidural now sited. Dr B noted that the CTG trace was showing a "sleep pattern". Dr B carried out a repeat VE, noting that the cervix was unchanged at 3cm dilated, and the fetal head was at station –2 to –3. Dr B documented that her plan was to commence Syntocinon,[13] with the midwife (Ms C) to reassess Mrs A with a VE in four hours' time.

[6] During labour the cervix thins, shortens and dilates. The cervix is normally approximately 3cm long and posterior facing. During labour it moves into a more anterior position.
[7] Station refers to the position of the presenting part of the baby in relation to the ischial spines of the mother's pelvis. Station –3 indicates that the presenting part is 3cm above the ischial spines and not fully engaged in the pelvis.
[8] Full dilation is considered to be 10cm.
[9] Ms C has been a registered midwife for many years. Ms C is contracted, together with other midwives, to provide intrapartum and postnatal midwifery support to Clinic obstetricians. At the time of these events Ms C was the midwife rostered on duty.
[10] A CTG is a device that continually measures the fetal heart rate and uterine contractions.
[11] A normal trace indicating fetal well-being.
[12] Epidural anaesthesia is a route of administration of anaesthetic into the epidural space in the spine that provides a regional block, depending on the level of insertion.
[13] A synthetic form of the hormone oxytocin, which is used to stimulate uterine contractions.

31. In a statement to HDC, Dr B said that the fetal position was difficult to assess, and she considered asynclitism[14] or that the baby was in an occipito-posterior position,[15] although this is not documented. Dr B said that at that time the frequency of contractions varied between two and three contractions every 10 minutes, and her reason for commencing Syntocinon was "to try to regulate contractions, achieve descent of fetal head, and encourage rotation of the fetal head to occipito-anterior position". Dr B said that at that time her focus was on the irregularity of the contraction pattern, rather than its frequency. Furthermore, Dr B stated that she prescribed Syntocinon in anticipation that labour would slow following the insertion of the epidural. Dr B stated:

> "The decision to use syntocinon was based on the period of time over which [Mrs A] had experienced irregular contractions without labour becoming established, and the slow progress in fetal head descent once the contractions had increased in frequency and become more regular. The contractions continued to vary and were not well established when [Mrs A] was admitted to the Delivery Suite. Often in a first labour, irregular contractions reflect incoordinate uterine activity and this hampers progress. Further, with the decision to have epidural pain relief I also considered the prospect that this could slow contractions and likewise progress through the first stage of labour.
>
> My intention with the syntocinon was that it would assist in making the contractions more regular, allowing the labour to progress and fetal head to descend and rotate. The midwife would closely monitor the syntocinon and the fetal heart rate through continuous CTG."

32. At 2.04pm, the Syntocinon infusion was commenced at a rate of 3mu/min. At that time Ms C noted that the CTG showed decreased variability[16] and turned Mrs A onto her left side. At 2.28pm, Ms C noted that Mrs A's contractions were "[s]lightly irregular. 3–5:10" and the Syntocinon infusion was turned up to 6mu/min. At 2.35pm, a deceleration of the fetal heart rate (FHR) down to 70 beats per minute (bpm) lasting two minutes was noted, before it returned to baseline. Ms C turned off the Syntocinon infusion. She carried out a VE, and noted that the CTG was showing decreased variability, with a baseline FHR of 140–145bpm. She recorded that the contractions continued to be "slightly irregular".

33. At 3pm, Ms C turned the Syntocinon back on at a reduced infusion rate of 4mu/min. Dr B told HDC that this was "to achieve more regular contractions and disperse the coupling pattern"[17]. Ms C told HDC that "[c]ommonly the oxytocin [Syntocinon] will be lowered or turned off to try to correct a fetal heart rate abnormality and then restarted after a 20 minute period, usually at a lower rate as I have done. It is optimal for [the] contraction pattern in labour to be regular." Furthermore, Ms C stated: "My

[14] The fetal head in an oblique/tilted position.
[15] The back of the fetal head facing towards the maternal spine. This position can make delivery more difficult. The preferred position is occipito-anterior where the back of the fetal head faces upwards.
[16] Variability refers to the variation in fetal heart rate. Normal variability is considered to be between 6–26 beats per minute (bpm).
[17] When two contractions occur one directly after the other.

focus in [Mrs A's] case was to try to achieve a consistent and regular pattern of contractions with close communications with the LMC." Ms C said that she made several telephone calls to Dr B (which Dr B agrees occurred) "and discussed the fetal heart rate with her, discussed progress with her both when she was present in the room for assessments and when she was not". These discussions and the rationale for stopping and restarting the Syntocinon infusion are not documented.

34. At 3.20pm, Ms C noted that Mrs A was experiencing rectal pressure. Ms C carried out a VE, noting that the cervix was 6–7cm dilated and that the fetal head was at station –1. Bloodstained liquor was noted to be draining. The FHR was 151bpm. Ms C documented that she turned down the Syntocinon infusion to 2mu/min, and that contractions were six every 10 minutes. According to Dr B, Ms C informed her of these findings by telephone. This discussion is not documented.

35. Dr B said that she reviewed the CTG at 4pm and noted that the contractions were still irregular with four to five every 10 minutes and occasional coupling present. She recorded that FHR variability was still reduced, but "was improved from [the] previous trace". Dr B's interpretation of the CTG is not documented in the clinical records but her having viewed the CTG is indicated by her initials on the CTG trace.

36. At 4.45pm, Dr B assessed Mrs A. Dr B documented that the CTG continued and was showing decreased variability. She also recorded that the cervix was almost fully dilated and the fetal head was at station +1 and in a "? ROA [right occipito-anterior] asynclitism" position. Her plan was to wait for sensation to return after the epidural had been turned off.

37. In her statement to HDC, Dr B said that at 4.55pm there was an FHR deceleration to 80bpm, which "is not an unusual reading when the mother is fully dilated and there is pressure on the fetal head". Dr B said that she then carried out a further VE and that the fetal head had descended to station +1. Dr B told HDC that she was concerned about the deceleration but was "somewhat reassured by the quick return to baseline and good variability" and, as such, made a plan to await further descent of the fetal head. Dr B further commented that at that time (when the CTG was showing deep decelerations), she encouraged Mrs A to push.

38. Ms C documented that Mrs A was then placed into the lithotomy position.[18]

Decision for instrumental delivery

39. At 5.10pm, a sudden increase in the FHR to 160bpm was noted with a loss of variability. Dr B made the decision to proceed with an instrumental delivery to expedite delivery. Dr B said that this decision was made "in view of [the] fetal heart rate and ineffective maternal effort"[19]. Furthermore, Dr B told HDC that the decision was influenced by the earlier decelerations noted between 4.55pm and 5.10pm. Dr B stated:

[18] The woman is positioned sitting back with her knees flexed and feet above the hips, usually in stirrups.
[19] When there is maternal effort but it is ineffective in pushing the baby out.

> "The decision was made for an instrumental delivery when there was a very sudden and abrupt change in the fetal heart rate pattern at [5.10pm] that lasted to [5.17pm]. The baseline went from 140 to 160 and there was complete loss of variability. Taking into account the previous late decelerations and then subsequent sudden change in the heart rate pattern, I made the decision to proceed with an instrumental delivery."

40. Dr B documented in the clinical records:

> "↓variability with deeper decelerations — for ventouse delivery — explained to parents
> Epidural still effective
> [Catheter] balloon deflated
> Station +1, ROA Asynclitic."

41. Dr B did not document whether she performed an abdominal palpation to determine the position of the fetal head. However, she stated that she is "absolutely certain" that she did do so. She told HDC that it is her "invariable practice to determine whether there is any part of the fetal head still palpable abdominally prior to making any decision about conducting an instrumental vaginal delivery". Dr B stated that she has "never attempted any instrumental delivery if [the] fetal head is palpable abdominally". In response to the provisional opinion, Mr and Mrs A advised that it is their recollection that Dr B did not perform an abdominal palpation.

42. At 5.15pm, prior to proceeding with the ventouse delivery, Dr B undertook a further VE and documented that the cervix was fully dilated.

43. Following this examination, Dr B confirmed her decision to proceed with an instrumental delivery. She told HDC that she considered whether to do a Caesarean section but considered ventouse delivery was more appropriate.

Delivery

44. At 5.20pm, Dr B documented that Mrs A had a narrow pubic arch and that she was in the lithotomy position. Dr B then applied the ventouse cup and checked its position. She said that she had assessed the baby's position and was confident that the position of the fetal head was ROA and asynclitic, and that there had been no change in the caput[20] and moulding[21] from 5pm.

45. Dr B then applied the first pull during a contraction and documented in the clinical records that the head had descended to the perineum. She estimated that traction began at approximately 5.30pm. Dr B said that although the delivery was from mid cavity, at the time of the VE she noted no soft tissue stiffness or obstruction, and she did not need to exert "more than usual traction on the baby's head to effect delivery of the head". Ms C also told HDC that her recollection was that the application of the

[20] Swelling of the tissues over the head as it is forced through the cervix. The presence of caput is common but increasing caput may indicate prolonged or obstructed labour.
[21] The overlapping of the skull bones as it passes through the birth canal. Some moulding is normal during labour but excessive moulding may indicate disproportion between the fetal head and pelvis.

ventouse cup and bringing up of the pressure "was no different in this instance to any other Ventouse delivery" at which she had been present.

46. The head was delivered on the third traction that was coordinated with a contraction, at approximately 5.33pm.

47. Dr B told HDC that as the head was delivered she saw it retract back onto the perineum, indicating a possible shoulder dystocia,[22] which Dr B said "was confirmed with [her] usual practice of axial traction[23] of the fetal head". Mrs A was then placed in the McRobert's position.[24] Dr B said that it is her usual practice to then apply gentle axial traction again, and that she would consider other manoeuvres only if this was unsuccessful in delivering the anterior shoulder.

48. Dr B told HDC that she cannot recall any discussion regarding Ms C applying suprapubic pressure.[25] Dr B said that this would be her usual practice, but that on rare occasions the midwife is not in an ideal position to do so, either because the McRobert's position would be compromised or it was not clear in which direction pressure should be applied. Ms C told HDC that she specifically asked Dr B if she required her to apply suprapubic pressure to assist with delivery of the shoulders, and that Dr B said "no".

49. Dr B said that she needed to perform various manipulations in order to dislodge the shoulders from behind the pubic bone. She said that she chose to deliver the posterior shoulder by axillary traction,[26] rather than delivering the arm. In her statement to HDC Dr B said:

> "In view of the narrow pubic arch, [the] decision was made to deliver [the] posterior shoulder and rotate this shoulder anteriorly to deliver the other shoulder. However, once [the] posterior shoulder was delivered the anterior shoulder delivered without the need for rotation."

50. Furthermore, Dr B stated:

> "In my experience, I have found delivery of the posterior shoulder to be more effective when there is a narrow pubic arch than attempting the Rubin[27] or [Woods' screw][28] manoeuvers. It is also easier than trying to deliver the arm."

51. Dr B stated that this approach is recognised as acceptable practice, and that another DHB has now adopted delivery of the posterior shoulder rather than the arm in their

[22] Shoulder dystocia is where additional obstetric manoeuvres are required to deliver the fetus after the head has delivered and gentle traction has failed to deliver the shoulders.
[23] Axial traction is defined as traction in line with the fetal spine.
[24] McRobert's position is where the woman is lying on her back with her legs flexed to her abdomen.
[25] Pressure directed downwards from above the pubic bone.
[26] Traction applied to the baby's armpit.
[27] Suprapubic pressure.
[28] Pushing the anterior shoulder towards the baby's chest and the posterior shoulder towards the baby's back.

guidelines for managing shoulder dystocia. Dr B provided a list of publications discussing this approach.[29]

52. Dr B said that she did not consider the delivery to be "particularly difficult". She explained that this assessment was based on the following:

> "I did not encounter any difficulty in applying or conducting the ventouse delivery.
>
> I used a soft silicone cup that will come off more easily than the Malstrom metal cups if traction is excessive, not applied on the flexion point or if traction is in the wrong direction. The cup did not come off or [lose] suction at any stage.
>
> Good descent of the fetal head occurred as I anticipated, with each pull.
>
> I agree … that there was significant shoulder dystocia. However once I suspected and confirmed shoulder dystocia, McRobert's position and delivery of the posterior shoulder effected delivery without the further need for rotation or other internal manoeuvers that I have on other occasions needed to employ in other cases of shoulder dystocia that I was involved in."

53. Ms C told HDC that while she does not recall the exact time period between the delivery of the head and the delivery of the body, she does not recall it being prolonged. She said that the baby's body was delivered immediately after the delivery of the shoulders.

54. Dr B documented in the clinical records: "Tight shoulders → Posterior shoulder delivered 1st with mum in McRoberts."

55. At 5.35pm, Baby A was delivered with Apgars of 8 at 1 minute and 10 at 5 minutes.[30] Cord lactates[31] were taken, which were normal (arterial — 2.1 and venous — 2.0).

56. Mr A told HDC that he considered that the delivery was "extremely aggressive". He said that he was present for the birth of his previous children, including one involving shoulder dystocia, and that he could not believe how aggressive the extraction was when compared to those he had witnessed previously. Mr A stated that he believes that Dr B panicked as she could not orientate the baby's ears, and that she then proceeded to extract him "in one extremely aggressive exit". Mr A provided HDC with a photo of Baby A taken eight days after his birth, showing a large lump on the back and left side of his head. Mr A considers that this clearly shows that the vacuum cup was incorrectly positioned.

[29] Hoffman, MK, Bailit, JL, Branch, RT, et al (2011), *Obstetrics and Gynaecology*, 117(6): 1272–8.
Ansell, L, McAra-Couper, J & Smythe, E (2012), *Midwifery*, 28(40: 521–8.
Stitely, ML & Gherman, RB (2014), *Seminars in Perinatology*, 38(4): 194–200.

[30] Apgar is an assessment used to assess the health of a newborn baby at 1 and 5 minutes of age. A score of 7 and above is generally considered normal.

[31] A measure of fetal metabolic acidosis.

Ongoing care

57. Following delivery, Dr B queried a transfer to a postnatal care unit, if "mother and baby well", noting the possibility of a left clavicle[32] fracture. Dr B then requested a paediatrician to assess Baby A.

58. In her statement to HDC, Dr B said:

> "There were no immediate signs of concern with [Baby A], with good Apgar scores of 8 and 10. I examined [Baby A] at about 30 minutes of age. I noted that the left clavicle sustained a fracture during the delivery. This was the shoulder that was posterior and was delivered first with manipulation. I was surprised to find this as I did not perceive the delivery of the posterior shoulder to be particularly difficult and I did not feel the fracture as it happened. I also noted an undescended left testes and I requested [the neonatologist] to review [Baby A], which he promptly did. He also reassured [Mr and Mrs A] regarding the clavicle fracture."

59. At 5.55pm, Ms C noted that the paediatrician had assessed Baby A and was happy for him to be transferred to the postnatal care unit once he had breast fed.

Transfer to NICU

60. At 7.30pm, it was noted in the ongoing midwifery notes that Baby A was introduced to the breast but was not interested.

61. At 7.45pm, Baby A experienced hypotonia[33] and an apnoea episode[34] while at the breast. An emergency call was made, and the neonatal team attended. Subsequently Baby A was transferred to the neonatal intensive care unit (NICU).

62. Baby A continued to receive care in NICU. An MRI of Baby A's head was carried out, which revealed multiple bilateral emboli in the cerebral circulation[35] resulting in an acute posterior circulation infarct[36] and subdural bleeding.[37]

63. Baby A has since been diagnosed with severe dystonic cerebral palsy,[38] as well as riga fede[39] disease.

Postnatal care

64. Dr B and Ms C continued to provide care to Mrs A in the immediate postnatal period.[40]

---

[32] Often referred to as the collar bone.
[33] Hypotonia is a state of low muscle tone.
[34] Cessation of breathing.
[35] Blockage in the arteries that supply the back of the brain.
[36] Area of dead tissue.
[37] Bleeding around the outside of the brain.
[38] Cerebral palsy is the umbrella term used to describe disorders caused by brain damage that has occurred either prior to, during, or immediately following birth. The types and severity of cerebral palsy varies significantly. Dystonic cerebral palsy is used to describe cases where there is involuntary muscles spams and uncontrolled movement of the limbs.
[39] Ulceration of the front of the tongue or inner service of the lower lip.
[40] Dr B visited Mrs A twice. Ms C visited Mrs A once in NICU, and twice in the delivery unit.

65. Ms C carried out a full assessment of Mrs A, noting some abdominal pain present. Ms C noted that Mrs A had been doing abdominal exercises, and recommended that she stop these. Ms C told HDC that she felt that the exercises Mrs A had been doing, coupled with the amount of walking she had been doing to get to the hospital from where she was staying, were contributing to her abdominal discomfort. Ms C noted no signs of infection or other concerning issues.

66. Baby A was discharged home at about three weeks'. Following their return home, Mrs A continued to be seen for midwifery follow-up by two midwives who were also contracted by the Clinic to provide midwifery care.[41] Baby A's care was then transferred to Plunket.

67. The Clinic advised HDC that, once a woman has delivered her baby, a six-week follow-up appointment with the delivery doctor is arranged. This appointment is automatically generated upon notification of the baby's birth. However, Dr B did not see Mrs A for her six-week follow-up appointment. Dr B said that she requested that the appointment be put on hold owing to Baby A still being in hospital, and then had a number of personal and professional events in succession from February to July, and "regretfully" she did not keep in touch with Mr and Mrs A.

Further comment from Dr B

68. In relation to her management and monitoring of Mrs A, Dr B stated:

> "There was one episode of uterine hyperstimulation,[42] where the fetal heart decreased well below baseline in conjunction with contractions and at that time syntocinon was stopped. There were episodes of tachysystole where contractions were frequent (and largely irregular) but where the fetal heart rate was satisfactory, although with reduced variability. The reduced variability on the CTG trace was something I was very mindful of, and it was the complete loss of variability that led me to want to expedite delivery."

69. Dr B advised that she was familiar with the DHB's Syntocinon policy, and acknowledged that they "were not strictly followed in some respects". However, Dr B said: "I do not believe that the manner in which midwife [Ms C] and I used the Syntocinon was unreasonable or unsafe: even by reference to the guidelines the amount of syntocinon used was low."

70. In relation to her decision to proceed with an assisted delivery, Dr B stated:

> "I acknowledge that I could have stopped the syntocinon infusion and waited a period of time to see if the fetal heart rate pattern would improve and whether [Mrs A] was able to push effectively. It cannot be said though that adopting that approach would have prevented shoulder dystocia occurring. The knowledge that

[41] Mrs A and Baby A were seen at home on four occasions.

[42] The Royal Australian and New Zealand College of Obstetricians and Gynaecologists (RANZCOG) define uterine hyperstimulation as "tachysystole (more than five active labour contractions in ten minutes, without fetal heart rate abnormalities) or uterine hypertonus (contractions lasting more than two minutes in duration or contractions occurring within 60 seconds of each other, without fetal heart rate abnormalities) in the presence of fetal heart rate abnormalities".

the cord gases were normal means a wait and see approach may have been possible, however I did not have this information at the time. In view of my concern about the fetal status at full dilatation with no head above the brim, I decided to proceed with an assisted vaginal delivery. I did not consider fetal blood sampling at that stage as I felt the baby was deliverable.

Although I had described a narrow pubic arch and the position of the fetal head, I did not anticipate a difficult delivery."

The DHB's Syntocinon policy

71. The DHB's Syntocinon policy recommends that a Syntocinon infusion should commence at 2mu/min, increasing up to 4mu/min after 30 minutes. It states that the goal in the use of Syntocinon for augmentation of labour is to achieve four contractions in 10 minutes, lasting 40–90 seconds each. Uterine hyperstimulation is defined as:

"
- More than 4 contractions in 10 minutes and/or
- Contractions lasting 2 minutes or more and/or
- Less than 60–90 seconds between each contraction."

72. In the case of hyperstimulation in the presence of a normal CTG, the guideline recommends that the infusion is decreased until contractions settle. In a case of suspected fetal compromise, it recommends the infusion is stopped, and intrauterine resuscitation is commenced, ie, position the woman on her left side and increase fluids, and consider acute tocolysis[43] and blood sampling.

The DHB — Rapid Multidisciplinary Review Process (RAMP)

73. The DHB carried out a RAMP review, which made the following findings:

"1. The case was found to be not potentially avoidable as there was no clear link between management and the outcome for the baby.
2. It was felt that there was evidence of substandard care in the use of syntocinon. It was documented clearly on the partogram that the labour was progressing normally."

74. The report recommends that the LMC and midwife involved should receive feedback, and that "there should be an audit of indications for syntocinon use at [the hospital] against best practice guidelines (eg NICE); and that this audit should include the incidence of tachysystole following syntocinon use".

Further comment — Ms C

75. In relation to the Syntocinon infusion, Ms C told HDC that she commenced the infusion at the rate of 3mu/min, which was in accordance with the old Syntocinon policy in place at the DHB. Ms C said that this policy had been updated, and that the recommended starting rate in the new policy was 2mu/min. However, Ms C said that the changes had been poorly communicated to midwifery and LMC staff and, in

[43] Inhibition of uterine contractions with medication. Drugs used for this include adrenergic agonists and magnesium sulfate.

addition, she had been on holiday for four weeks prior to the birth of Baby A. As a result, Ms C said that she had not been made aware of the policy change.

76. In relation to the decision to recommence and continue the Syntocinon infusion from 3pm, Ms C stated:

> "It is highly unusual if unprecedented for me to have ever been in the position where I would disagree with an obstetrician's plan in [the Clinic]. I consider it should be appreciated that we have an ongoing, respectful and trusting relationship. … I was not an LMC working under section 88 guidelines. I did not have overall responsibility for the care. I was contracted to work under direction from a specialist whose knowledge and skills I had come to trust."

Response to provisional opinion

77. Dr B, Ms C and the Clinic were given the opportunity to comment on the provisional opinion as it relates to them. Their responses are summarised below or incorporated into the report where appropriate.

Dr B

78. Dr B stated: "Overall I consider the provisional decision and Dr Westgate's advice fair." Dr B advised that she did not wish to make any further comment.

Ms C

79. Ms C stated:

> "I have reflected at length on this event and all aspects of my involvement. I have been proactive in identifying my own learning needs and active in attending to these during 2015."

80. Ms C advised that she has critiqued her own communication and documentation in this case, and stated: "I am critical of my lack of documentation." Ms C advised that she now ensures that she provides "extensive, accurate and thorough documentation at all times". Furthermore, Ms C advised that she has attended a documentation workshop provided by the New Zealand College of Midwives. Ms C provided her reflection from this workshop, identifying her learnings from this day and how these can be applied to her practice.

81. Ms C advised that she has also attended Fetal Surveillance education workshops annually, and is also proactive, through the Clinical Governance group at the DHB, in advocating for all DHB midwives to attend this workshop compulsorily on an annual basis.

82. In relation to her communication with Dr B, Ms C reiterated that she did provide Dr B with "full and accurate information of events and [her] concerns with the FHR and

Uterine activity". Ms C noted that Dr B agrees that these discussions took place. Ms C stated:

> "As I report events, findings from assessments or my concerns to the LMC as I did in this situation I am seeking their recommendation, plan of management and request they attend to review events as necessary. As was the situation on this day."

83. Ms C submitted that she informed Dr B appropriately when FHR changes were identified, and stopped the Syntocinon infusion. However, Ms C stated: "I regret that I proceeded with the request to re commence and continue Syntocinon, despite it being at the minimum dose of 2mu, after turning it off, and acknowledge the inappropriateness of this."

84. Furthermore, Ms C stated:

> "The events that have occurred have allowed me to reflect on the professional responsibility I have in my daily practice as a midwife and how this impacts on the relationships between myself and my colleagues."

The Clinic

85. The Clinic advised that it accepts the findings of the provisional opinion.

Mr and Mrs A

86. Mr and Mrs A were given the opportunity to respond to the "information gathered" section of the provisional opinion. Mr and Mrs A's responses have been incorporated into the report where appropriate. In addition, Mr and Mrs A stated:

> "For us, every day of our life [is] a stressful one, where we manage nurses (night shift and day shift), therapists, purchasing additional private therapy programmes, and [Baby A's] ongoing multiple medical conditions, preventing us from travelling freely and being independent of medical professionals."

Opinion: Introduction

87. Sadly, Baby A has brain damage and resultant disabilities. However, my role is not to assess whether the actions of the clinicians involved in Mrs A's care caused this outcome. Rather, my role is to assess whether the care provided to Mrs A, with the information available at that time, was reasonable in the circumstances and in accordance with accepted standards of practice. Accordingly, my opinion will not discuss causation and outcome.

Opinion: Dr B — Breach

Introduction

88. Dr B works as part of an obstetrics group — the Clinic — in which several obstetricians share the care responsibilities of all women for whom it provides LMC care. Dr B was working as the duty obstetrician and, accordingly, she attended Mrs A when she went into the Delivery Unit at the public hospital in spontaneous labour.

Standard of care

Decision to commence Syntocinon

89. Dr B first reviewed Mrs A at 11.40am. At that time Dr B carried out a VE and noted that the cervix was 1cm dilated with the presenting part at station –3. Contractions were at a rate of four every 10 minutes, and were moderate in strength. Dr B planned to reassess Mrs A in two hours' time.

90. An epidural was sited at approximately 12pm, and Dr B reassessed Mrs A at 1.40pm, as planned. At that time, Dr B considered that the CTG was showing a "sleep pattern". Dr B carried out a VE and found that the cervix had dilated to 3cm (2cm in two hours) and the presenting part was at station –2 to –3. While Dr B did not document the rate of contractions at that time, according to my obstetrics expert advisor, Dr Jenny Westgate, the CTG shows that they had reduced in frequency for 10 to 15 minutes following the insertion of the epidural, but had increased again to a rate of three to four every 10 minutes at the time of Dr B's review. Dr B told HDC that the fetal position was difficult to assess, but she considered it to be asynclitic or in an occipito-posterior position.

91. Dr B decided to commence Syntocinon because, in her opinion, at that time the contractions varied between two to four every 10 minutes. She said that her plan to commence Syntocinon was "based on the period of time over which [Mrs A] had experienced irregular contractions without labour becoming established, and the slow progress in fetal head descent once contractions had increased in frequency and become more regular". Dr B also considered that contractions and labour progress would likely slow down through the first stage of labour as a result of the decision to have epidural pain relief. Furthermore, Dr B stated:

> "My intention with the syntocinon was that it would assist in making the contractions more regular, allowing the labour to progress and fetal head to descend and rotate."

92. Dr B did not document this rationale for commencing Syntocinon.

93. I note Dr Westgate's advice that, while Mrs A's contractions had reduced in frequency for approximately 10–15 minutes after the epidural was inserted, they were increasing in frequency again and, taking into account Mrs A's good progress (2cm in two hours), "there was no indication to commence syntocinon". This view is shared by the DHB's RAMP team, which stated in its report that "[i]t was felt there was evidence of substandard care in the use of Syntocinon. It was documented clearly on the partogram that the labour was progressing normally."

94. However, I also note Dr Westgate's advice that, in her opinion, while not indicated, given that there was a reduction in contractions following the insertion of the epidural, the decision to commence Syntocinon itself would not be considered below an acceptable standard.

95. I accept that there may be an element of judgement in any clinical decision and, taking that into account, I accept Dr Westgate's advice. However, I have concerns about Dr B's lack of documented justification for her decision in these circumstances, which I discuss further below.

Management following commencement of Syntocinon

96. Following the commencement of the Syntocinon, Mrs A's contractions increased to five every 10 minutes. Thirty minutes later, Ms C noted that Mrs A's contractions were "[s]lightly irregular. 3–5:10" and doubled the Syntocinon infusion to 6mu/min. Dr Westgate noted that the contractions then increased to seven every 10 minutes.

97. At 2.35pm, Ms C noted an FHR deceleration down to 70bpm lasting two minutes. She turned off the Syntocinon and carried out a VE, noting that Mrs A had dilated a further 2cm over the last hour to 5cm dilation. Ms C documented that the contractions continued to be "slightly irregular".

98. At 3pm, Ms C turned the Syntocinon infusion back on at a reduced rate of 4mu/min. While there is no documentation of Ms C having contacted Dr B, or any discussions about the plan, Dr B and Ms C agree that they had several telephone conversations regarding Mrs A's progress and the FHR. Dr B told HDC that the reason for recommencing the Syntocinon at that time was "to achieve more regular contractions and disperse the coupling pattern".

99. Following the recommencement of the Syntocinon, the contraction frequency increased to five every 10 minutes, and then to seven every 10 minutes, at which point Ms C decreased the infusion rate and the contractions slowed to five every 10 minutes.

100. At 3.20pm, Ms C noted that the contraction frequency was six every 10 minutes, and turned the Syntocinon infusion down to 2mu/min. At 4pm, Dr B reviewed the CTG, noting that the contractions remained irregular.

101. The DHB's Syntocinon policy states that the goal in the use of Syntocinon for augmentation of labour is to achieve four contractions in 10 minutes, lasting 40–90 seconds each. Uterine hyperstimulation is defined as:

> "• More than 4 contractions in 10 minutes and/or
> • Contractions lasting 2 minutes or more and/or
> • Less than 60–90 seconds between each contraction."

102. Dr Westgate advised me that, in her opinion, uterine hyperstimulation was present. However, despite this Dr B made the decision to continue the Syntocinon infusion. In my view, this is concerning and a departure from DHB guidelines.

103. At 4.45pm, Dr B assessed Mrs A again. She noted that the CTG was showing decreased variability. Dr B said that at 4.55pm there was an FHR deceleration to 80bpm, which "is not an unusual reading when the mother is fully dilated and there is pressure on the fetal head". Dr B then carried out a VE (which is recorded as being completed at 5pm) and noted that the cervix was fully dilated and that the fetal head was at station +1 and in a "? ROA asynclitism" position. Dr B said that while she was concerned about the FHR deceleration, she was reassured by the "quick return to baseline and good variability".

104. Dr Westgate advised that, from her review of the CTG, at the time of Dr B's VE there was a two-minute FHR deceleration from 140bpm to 80bpm, and the contraction frequency increased from five to eight every 10 minutes. There is no reference in the clinical records to these rates. Dr Westgate advised that decelerations are not uncommon during VEs and, "as the FHR recovered afterwards, no specific action was required other than stopping the syntocinon". However, the Syntocinon was not turned off.

105. Dr B acknowledged that she could have turned off the Syntocinon at that stage and waited for a period of time to see if the FHR pattern improved and whether Mrs A could push effectively. However, Dr B stated:

> "It cannot be said though that adopting that approach would have prevented shoulder dystocia occurring. The knowledge that the cord gases were normal means a wait and see approach may have been possible, however I did not have this information at the time. In view of my concern about the fetal status at full dilation with no head above the brim, I decided to proceed with an assisted delivery."

106. According to Dr Westgate, following the VE there were at least two further decelerations down to 90bpm, both with good recovery. The contraction frequency was five to six every 10 minutes.

107. Dr Westgate advised that the Syntocinon, even at the low dose being used at that time, is "likely to have contributed to the increased uterine contraction frequency", and that "[t]he frequent contractions caused a reduction in oxygen supply to [Baby A] and is most likely to have caused the fetal heart rate changes that occurred during labour".

108. I am concerned that Dr B continued the Syntocinon infusion in the presence of a hyperstimulated uterus and failed to recognise that this was the likely cause of the FHR abnormalities. I note that Dr Westgate considered this omission to be a moderate to severe departure from accepted standards, and I accept that advice.

Decision to perform instrumental delivery

109. At 5.10pm, Dr B documented: "[R]educed variability with deep decelerations, for vacuum delivery, explained."

110. Dr B said that the decision to proceed with an instrumental delivery was made "in view of [the] fetal heart rate and ineffective maternal effort". Furthermore, Dr B stated:

> "The decision was made for an instrumental delivery when there was a very sudden and abrupt change in the fetal heart rate pattern at [5.10pm] that lasted to [5.17pm]. The baseline went from 140 to 160 and there was complete loss of variability. Taking into account the previous late decelerations and then subsequent sudden change in the heart rate pattern, I made the decision to proceed with an instrumental delivery."

111. At 5.15pm, Dr B performed a repeat VE, noting that the fetal head was at station +1 and in an "ROA Asynclitic" position. Dr B did not document whether she palpated Mrs A's abdomen at that time to assess the descent of the fetal head.

112. The RANZCOG Guidance Statement: *Instrumental Vaginal Birth C-Obs 16* states that a full abdominal examination and VE is required in order to assess whether the woman meets the prerequisites for instrumental delivery, which include the requirement that "[l]ess than or equal to one fifth of the head is palpable abdominally".

113. Dr B told HDC that she is "absolutely certain" she palpated Mrs A's abdomen to determine whether the fetal head was still palpable prior to making her decision to proceed with an instrumental delivery. Dr B stated that it is her "invariable practice to determine whether there is any part of the fetal head still palpable prior to making any decision about conducting an instrumental delivery". Furthermore, Dr B stated that she has "never attempted any instrumental delivery if [the] fetal head is palpable abdominally".

114. I note Dr Westgate's view that, even accepting Dr B's assertion that she did palpate Mrs A's abdomen, at that stage there were still a number of suboptimal features that meant that the decision to perform an instrumental delivery "needed to be carefully considered". Dr Westgate stated that these features were:

> "— [Mrs A] had only just become fully dilated and had not attempted to push,
>
> — the baby's head was still in the mid pelvis (station +1) and was slightly tilted to one side,
>
> — [Mrs A] was in her first labour so her vaginal tissues had not been stretched by a previous delivery. This meant that traction on the baby's scalp with the vacuum would have to be sufficient to bring the baby through most of the length of the vagina.
>
> — [Dr B] knew that [Mrs A] was of short stature (160.7cm, 5ft 2") and that
>
> — [Mrs A] had a narrow subpubic arch."

115. Dr Westgate does not consider that the FHR was "sufficiently abnormal" to warrant immediate instrumental delivery. In addition, as noted above, it is Dr Westgate's view that Dr B does not appear to have recognised the uterine hyperstimulation in the presence of the Syntocinon infusion. In Dr Westgate's view, given the circumstances outlined above:

> "[T]he more appropriate management would have been to turn the syntocinon off and observe the contraction frequency and FHR over the next 10 minutes. If the FHR improved then further time could be given to allow the fetal head to descend through the vagina. If the FHR failed to improve then the options included assessment of fetal condition by fetal blood sampling (FBS) or reduction in the contraction frequency with a short acting tocolytic drug."

116. However, Dr Westgate also acknowledged that "it is likely that faced with this scenario many obstetricians would perform an instrumental delivery if they believed the delivery would be straightforward".

117. I note that Dr B has acknowledged that she could have stopped the Syntocinon infusion in order to see if the FHR pattern improved, but considered that her decision was justified given her concern with the FHR, coupled with the position of the baby within the pelvis, and no perceived difficulty with the delivery. Dr B stated: "Although I had described a narrow pubic arch and the position of the fetal head, I did not anticipate a difficult delivery."

118. Again, I have a number of concerns regarding Dr B's lack of documentation regarding her clinical decision-making. However, notwithstanding these concerns, I accept Dr Westgate's advice that while arguably controversial, in this situation, many obstetricians might adopt a similar approach "if they thought the delivery was likely to be straightforward", which Dr B said she considered was the case.

Delivery

119. Following the decision to proceed with an instrumental delivery, Mrs A was placed in the lithotomy position and, at 5.20pm, Dr B applied the ventouse cup and checked its position. Dr B told HDC that she assessed Baby A's position and was confident that he was in an ROA and asynclitic position and that there had been no change in caput and moulding from 5pm. Dr B estimated that after positioning Mrs A, checking the position of the fetal head, applying the vacuum cup and taking up pressure, the first traction commenced at approximately 5.30pm. Dr B said that the head was noted to have descended to the perineum with the first contraction. She then applied two further tractions coordinated with Mrs A's contractions, and the head was delivered on the third traction. Dr B estimated that Baby A's head was delivered at approximately 5.33pm.

120. Dr B said that as the head was delivered it retracted back onto the perineum, indicating a possible shoulder dystocia. Dr B said that she needed to perform a number of manoeuvres in order to dislodge the shoulders from behind the pubic bone, and that she chose to deliver the posterior shoulder first using axial traction. Dr B stated:

> "In view of the narrow pubic arch, [the] decision was made to deliver [the] posterior shoulder and rotate this shoulder anteriorly to deliver the other shoulder. However, once [the] posterior shoulder was delivered the anterior shoulder delivered without the need for rotation."

121. Dr B submitted that this approach is in line with current recommended practice. Dr B did not document, and does not recall, the time between the delivery of the head and the rest of the body, but estimated that it took two to three minutes following the delivery of the head. Ms C does not recall the exact time period between the delivery of the head and the body but does not recall it being prolonged.

122. Dr B advised that she did not encounter any difficulty in applying or conducting the ventouse delivery, but noted that there was a significant shoulder dystocia. Dr B stated that she had no difficulty applying the vacuum cup, she used a silicone cup that did not come off or lose suction, and there was good descent of the head with traction. Furthermore, Dr B stated that the following facts support her view — she did not have to do an episiotomy, there was no perineal or vaginal trauma, and no trauma to Baby A's scalp.

123. In contrast, Mr A recalls that Dr B had difficulty locating Baby A's position but, despite this, chose to proceed with delivery. Mr A told HDC that the traction Dr B applied was significant and "excessive" with some twisting. He also stated that there was one traction, rather than three tractions, as described by Dr B. Mr A stated: "[H]e was delivered with such force, it all occurred in one rapid exit."

124. I note Dr Westgate's view that Dr B used a soft silicone cup for the delivery, which she advised has a weaker attachment compared to other types of cup, and "does not usually remain attached to the scalp if it is pulled aggressively or in the wrong direction or if the handle is swung from side to side". Dr Westgate advised that while Baby A clearly had a left parietal haematoma, there is no evidence of scalp abrasions, which she would have expected to occur "if the vacuum had been twisted forcefully or had traction been at the wrong angle".

125. I have taken into consideration Mr A's description of the delivery of his son. However, taking into account all the information provided and, in particular, Dr Westgate's advice, I accept that it is more likely than not that this aspect of the delivery was conducted in a manner consistent with accepted standards.

126. The next aspect of the delivery was the management of the shoulder dystocia. As noted above, Dr B identified the shoulder dystocia at the point that Baby A's head was delivered. She then placed Mrs A into the McRobert's position and delivered the posterior shoulder, and estimated that it took two to three minutes to deliver the shoulders.

127. Dr Westgate advised that Dr B's approach to the management of the shoulder dystocia was not the "conventional approach" (as described in the RANZCOG Greentop Guideline 42), in that she did not apply suprapubic pressure and she did not attempt to deliver the posterior arm before delivering the posterior shoulder. However, Dr Westgate noted the references provided by Dr B endorsing her approach of delivering the posterior shoulder first, including another DHB's guideline for the management of shoulder dystocia. Dr Westgate concluded that "[t]he process used to manage [the] shoulder dystocia was acceptable".

128. Dr Westgate advised that Baby A's fractured clavicle was the result of the shoulder dystocia and the delivery process, and was "most likely to have fractured during [Dr B's] traction on the shoulder", which resulted in a reduced shoulder width which facilitated delivery. Dr Westgate stated: "I regard this as evidence that a significant degree of shoulder dystocia was present and not that the delivery was conducted improperly." I accept Dr Westgate's advice.

Postnatal follow-up

129. Postnatally, Dr B saw Mrs A twice while she was still in hospital, and Ms C also visited Mrs A a number of times. Following Baby A's discharge, postnatal care continued to be provided by midwives contracted by the Clinic. I have no concerns in relation to Dr B's involvement in this aspect of the care. However, I note that it was standard practice at the Clinic for the delivery obstetrician to carry out the final postnatal review in the fifth or sixth week following birth. The Clinic told HDC that this appointment is generally scheduled automatically once delivery has been confirmed. However, Dr B said that she requested that this appointment be put on hold owing to Baby A remaining in hospital. Dr B said that she then had a number of personal and professional events in succession for the next few months, and "regretfully" she did not keep in touch with Mr and Mrs A. As a result, Mrs A was not seen for her six week follow-up appointment. This is disappointing.

Conclusion

130. In my view, Dr B made a series of suboptimal clinical decisions during Mrs A's labour. First, commencing Syntocinon in an attempt to regulate Mrs A's contractions was not clinically indicated, as Mrs A's labour was progressing adequately and it resulted in hyperstimulation of the uterus. However, I accept Dr Westgate's advice that in the circumstances of a slowing of contractions following the insertion of the epidural, Dr B's decision would not be considered below an acceptable standard.

131. Next, Dr B failed to diagnose uterine hyperstimulation in the presence of a Syntocinon infusion and to recognise that this was likely to have caused, or at least contributed to, the fetal heart rate changes observed. Dr Westgate advised that the assessment of uterine contractions is a "fundamental aspect of intrapartum care", and I am critical of Dr B's failure to do so in this case.

132. I note Dr Westgate's advice that, in her view, when the FHR became abnormal following the hyperstimulation, Dr B should have stopped the Syntocinon infusion and observed for 10 minutes, rather than proceeding with a mid cavity instrumental delivery given its associated risks. However, I also accept Dr Westgate's advice that many obstetricians, when faced with a similar presentation, would have also proceeded with a mid cavity delivery.

133. In summary, I accept that Dr B's decision to commence Syntocinon and, following the identification of the FHR changes, the decision to proceed to an instrumental delivery, would not be considered inconsistent with accepted practice. I also accept that Dr B carried out the vacuum delivery in accordance with accepted standards. However, Dr B's decision to continue the Syntocinon infusion in the presence of a hyperstimulated uterus and her failure to recognise that this was the likely cause of the

FHR abnormalities was a departure from accepted standards. Accordingly, I consider that Dr B failed to provide Mrs A with services with reasonable care and skill and breached Right 4(1) of the Code.

Documentation — Other comment

134. Dr B's documentation of the care she provided to Mrs A is limited in relation to her clinical decision-making. For example, Dr B did not document her rationale for commencing Syntocinon despite the fact that this was a departure from DHB guidelines, and did not document her rationale for delivering the posterior shoulder first when dealing with the shoulder dystocia.

135. In circumstances such as these, comprehensive documentation of decision-making and actions taken, even if such documentation is retrospective, would in my view have been appropriate.

Opinion: Ms C — Breach

Initial assessment

136. Ms C first became involved in Mrs A's care when Mrs A presented to the delivery unit at the public hospital in labour at 10.44am.

137. Ms C noted Mrs A's history and carried out an initial assessment, which included abdominal palpation and maternal observations, and commenced a CTG. According to my expert midwifery advisor, Bridget Kerkin, Ms C's actions at that time were appropriate. However, Ms Kerkin does note the brevity of Ms C's documentation, which I discuss further below.

Decision of commence Syntocinon

138. At 11am, Ms C noted that Mrs A was "contracting irregularly, 2:10". At 11.40am, Dr B assessed Mrs A and performed an ARM. Dr B noted that the cervix was 1cm dilated and the fetal head was at station –3. At 12pm, Mrs A requested an epidural, which subsequently was sited.

139. At 1.40pm, Dr B assessed Mrs A again, noting that the cervix was 3cm dilated and the fetal head was at station –2 to –3. Dr B made the decision to commence Syntocinon.

140. Ms Kerkin advised that when using Syntocinon for the augmentation of labour, its purpose is to "increase frequency, regularity and strength of the woman's contractions and facilitate descent of the fetal head and dilation of the woman's cervix". Ms Kerkin advised that the decision to prescribe Syntocinon cannot be made by a midwife, but "midwives are generally responsible for the administration and monitoring of the infusion". I accept that Ms C did not make the decision to commence Syntocinon. However, I am concerned about Ms C's actions following the commencement of Syntocinon.

Response to initial decelerations

141. At 2.04pm, Ms C commenced the Syntocinon infusion at a rate of 3mu/min.

142. The DHB's Syntocinon policy provides the standard protocol for Syntocinon infusion, recommending that the infusion should commence at 2mu/min, increasing up to 4mu/min after 30 minutes.

143. Ms C told HDC that the rate at which she commenced the Syntocinon infusion was in accordance with the old policy in place at the DHB. She stated that the policy had been updated but that it had been poorly communicated to midwifery and LMC staff.

144. In my view, Ms C had a responsibility to be familiar with, and comply with, the DHB's policies and guidelines, and I am critical of her failure to do so in this case.

145. Shortly after commencing the Syntocinon infusion Ms C noted "decreased variability" of the FHR on the CTG, and responded by turning Mrs A onto her left side. At 2.28pm, Ms C increased the infusion rate to 6mu/min. At that time Ms C noted that Mrs A's contractions were "[s]lightly irregular. 3–5:10". At 2.36pm, Ms C noted a deceleration down to 70bpm that lasted two minutes. Then, following a further immediate deceleration, Ms C stopped the Syntocinon infusion, changed Mrs A's position, and performed a VE, noting that the cervix had dilated a further 2cm, to 5cm.

146. The DHB's Syntocinon policy defines hyperstimulation as:

> "
> - More than 4 contractions in 10 minutes and/or
> - Contractions lasting 2 minutes or more and/or
> - Less than 60–90 seconds between each contraction."

147. In the case of hyperstimulation in the presence of a normal CTG, the guideline recommends that the infusion is decreased until contractions settle. In a case of suspected fetal compromise, it recommends the infusion is stopped, and intrauterine resuscitation is commenced, ie, position the woman on her left side and increase fluids, and consider acute tocolysis and blood sampling.

148. In relation to the initial change on the CTG noted shortly after 2.04pm, Ms Kerkin advised that Ms C's actions were an "appropriate first-line midwifery response to concerns about the variability of the foetal heart". Similarly, following the decelerations noted at 2.36pm, Ms Kerkin advised that although Ms C's actions were "appropriate initial actions", immediate consultation with an obstetric specialist was warranted. While Ms C did not document any discussion with Dr B at that time, both Ms C and Dr B agree that it did take place. As such, while the details of what was discussed is unclear, I accept that Ms C did contact Dr B, and it was her expectation that, based on the information provided, Dr B would make a decision about how to manage the situation. Dr B then made the decision to recommence the Syntocinon infusion at the lower rate of 4mu/min. I am critical that the discussion, including the rationale for this decision, was not documented by Ms C.

149. I accept Ms Kerkin's advice that Ms C's responses to the initial CTG changes were reasonable and appropriate. However, I consider that Ms C departed from the accepted standard of care in relation to her management and response to the hyperstimulation and the running of the Syntocinon infusion after approximately 2.30pm.

150. In relation to the decision to recommence and continue the Syntocinon infusion, Ms C stated:

> "It is highly unusual if unprecedented for me to have ever been in the position where I would disagree with an obstetrician's plan in [the Clinic]. I consider it should be appreciated that we have an ongoing, respectful and trusting relationship. … I was not an LMC working under section 88 guidelines. I did not have overall responsibility for the care. I was contracted to work under direction from a specialist whose knowledge and skills I had come to trust."

151. The New Zealand College of Midwives publication *The Midwifery Handbook for Practice* (2008) provides in accordance with Standard Seven: "The midwife is accountable to the woman, to herself, to the midwifery profession and to the wider community for her practice." In particular, it notes that the criteria include that the midwife "recognises that she is an autonomous practitioner, regardless of setting, and is accountable for her practice".

152. While I accept that Dr B was the LMC and therefore responsible for the decision-making, I note Ms Kerkin's advice that "[g]iven the evidence of uterine hyperstimulation, and of more than adequate progress of labour, the choice to continue with the artificial oxytocin [Syntocinon] infusion is of concern. … [I]t was [Ms C's] professional responsibility to recognise the clinical concern, request [Dr B's] assessment in person and discontinue the infusion." I accept Ms Kerkin's advice.

Postnatal care

153. While I am critical of Ms C's failure to fully investigate Mrs A's report of abdominal pain in the postnatal period, I note Ms Kerkin's advice that this would be considered only a minor departure from accepted practice.

Conclusions

154. As noted above, I have accepted that the initial decision to commence Syntocinon was not made by Ms C. However, Ms C still had responsibility for the midwifery care she was providing. In my view, Ms C had a responsibility to be familiar with, and comply with, DHB policies and guidelines, and I am critical of her failure to do so in this case. In addition, given the evidence of uterine hyperstimulation, and the adequate progress of labour, the choice to continue with the Syntocinon infusion after 2.30pm is concerning. I note that Ms C accepts that her actions in proceeding with the request to recommence Syntocinon were inappropriate in the circumstances. I consider that it was Ms C's professional responsibility to recognise the clinical concerns and request Dr B's assessment in person. By failing to do so I conclude that Ms C did not provide services to Mrs A with appropriate care and skill and breached Right 4(1) of the Code.

Documentation — Adverse comment

155. Clinical records are central to ensuring safe, effective and timely care, and are a requirement of midwifery practice. Competency 2.16 of the New Zealand College of Midwives publication *Midwives Handbook for Practice* (2008) requires that a midwife provide "accurate and timely written progress notes and relevant documented evidence of all decisions made and midwifery care offered and provided".

156. Ms C's clinical records of the assessments she carried out lack some detail. In addition, Ms C did not document the details of her discussions with Dr B, including the instructions and the rationale for increasing and decreasing the Syntocinon infusion during Mrs A's labour. I am particularly critical that the discussion at 2.36pm with Dr B, including the rationale for the decision to recommence the Syntocinon, was not documented by Ms C.

157. I note Ms Kerkin's advice that Ms C's lack of documentation did not impact on the care she provided to Mrs A and, as such, would be viewed as a minor departure from accepted standards. However, I consider that Ms C's failure to fully document her assessments and discussions in this case was suboptimal.

Opinion: The Clinic — No breach

158. Both Dr B and Ms C are contracted by the Clinic to provide services to its clients. The Clinic had a duty to Mrs A to ensure that the services provided complied with the Code.

159. In my view, Dr B failed to diagnose hyperstimulation and recognise that this likely caused the FHR changes. I consider that Dr B's errors in this case were individual clinical errors, and cannot be attributed to the system within which she was working. The Clinic was entitled to rely on Dr B, as a consultant obstetrician, to provide an appropriate standard of care.

160. Similarly, as stated above, I consider that it was Ms C's individual professional responsibility to recognise the clinical concerns and request Dr B's assessment in person. I consider that this was an individual error and, again, cannot be attributed to the system within which she was working.

161. While the Clinic has a responsibility to have in place structures to ensure that all its patients are provided with an appropriate standard of care, there is no evidence in this case that the systems at the Clinic were such that Dr B or Ms C were unable to perform their duties appropriately. Accordingly, I conclude that the Clinic did not breach the Code.

Recommendations

Dr B

162. In accordance with my recommendations as set out in the provisional opinion, Dr B has agreed to provide Mr and Mrs A with a written apology for her breach of the Code. The apology is to be sent to this Office within three weeks of the date of this report, for forwarding to Mr and Mrs A.

163. In the provisional opinion I also recommended that Dr B undertake further training on fetal and maternal assessment during labour. Dr B has since confirmed her enrolment in a Fetal Surveillance education programme run by RANZCOG, as well as an Advanced Life Support in Obstetrics course that is endorsed by RANZCOG.

Ms C

164. In accordance with the recommendation of my provisional opinion, Ms C has agreed to provide Mr and Mrs A with a written apology for her breach of the Code. The apology is to be sent to this Office within three weeks of the date of this report, for forwarding to Mr and Mrs A.

165. In my provisional opinion I also recommended that Ms C undertake further training on fetal and maternal assessment during labour, and clinical record-keeping. Ms C confirmed that since this event she has undertaken further training in documentation and has attended yearly Fetal Maternal surveillance workshops.

The Clinic

166. In accordance with the recommendations as set out in the provisional opinion, the Clinic has agreed to remind staff of the importance of documenting clinical decisions, particularly when they depart from accepted practice. I recommend that the Clinic report back to this Office on this recommendation within three months of the date of this report.

Follow-up actions

167. A copy of this report with details identifying the parties removed, except the experts who advised on this case, will be sent to the Medical Council of New Zealand, RANZCOG, the Midwifery Council of New Zealand, the New Zealand College of Midwives, and the DHB. The Medical Council of New Zealand, RANZCOG, and the DHB will be advised of Dr B's name. The Midwifery Council of New Zealand and the DHB will be advised of Ms C's name.

168. A copy of this report with details identifying the parties removed, except the experts who advised on this case, will be placed on the Health and Disability Commissioner website, www.hdc.org.nz, for educational purposes.

Appendix A: Expert obstetric advice

The following expert advice was received from Honorary Associate Professor in Obstetrics and Gynaecology Dr Jenny Westgate:

> "Thank you for asking me to provide advice on this case. I am a Fellow of the Australian and New Zealand College of Obstetricians and Gynaecologists and am on their Expert Witness Register. I work as a general O&G Specialist and I provide medical opinions for the ACC. I have no personal or professional conflict in this case.
>
> I have read the documents you provided:
>
> - The letter of complaint and additional email correspondence from [Mr and Mrs A]
> - [The DHB's] clinical records for [Mrs A] and CTG recordings. A better copy of the CTG was sent a week or so after I received the first documents.
> - The clinical records for [Baby A's] first admission.
> - [The DHB's] oxytocin guidelines
> - A letter and a statement from [Ms C] to HDC
> - Response from [the Clinic]
> - Letter from [Dr B].
>
> In addition I requested further details about the delivery from midwife, [Ms C], and [Dr B] about the delivery itself. Their responses were sent to me on 28 September 2015. [Dr B] provided further information about the delivery on 6th November 2015.
>
> You have requested my comments on the following issues:
>
> 1. Comment generally on the standard of obstetric care provided to [Mrs A].
> 2. The appropriateness of [Dr B's] decision to commence syntocinon following her 1:40pm review.
> 3. The appropriateness of [Dr B's] actions following the commencement of the syntocinon infusion, including the decision to perform a vacuum delivery at 5.20pm.
> 4. [Dr B's] actions when shoulder dystocia was identified.
> 5. Any other comment on relevant issues.
>
> **Clinical Summary**
>
> I have not summarised the events of this case as they have been detailed previously. I will detail events surrounding the delivery where required to explain my opinions on the questions asked.
>
> **Response to specific questions.**
>
> **1. The standard of obstetric care provided to [Mrs A].**
>
> My reading of [the Clinic's] notes for [Mrs A] is that the antenatal care provided by [Clinic] obstetricians was appropriate. There were no indications to induce

labour at any earlier time. [Dr B] attended [Mrs A] at appropriate intervals during labour.

2. The appropriateness of [Dr B's] decision to commence syntocinon at her 1:40pm visit.

[Mrs A] had come into spontaneous labour [at 39 and ½ weeks]. At the first vaginal examination she was found to be only 1 cm dilated but was experiencing 3 to 4 contractions every 10 minutes (3–4:10). Two hours later she had progressed to 3 cm dilated. Her contractions had reduced in frequency for 10–15 minutes after an epidural was inserted at 1241 but by 1340 she was again contracting 3–4:10, albeit without a regular pattern.

I do not believe there was an indication to commence syntocinon at this time as [Mrs A] had made adequate progress (2cm in 2 hours) and her contractions were picking up after the epidural insertion.

I do not view the decision to commence syntocinon was itself below an acceptable standard as there was a reduction in contraction frequency following the epidural insertion. With the benefit of hindsight we know that the contraction frequency increased. Unfortunately, subsequent hyperstimulation of the uterus secondary to the syntocinon infusion thereafter was a significant factor in the decision to perform an instrumental delivery. Management of the syntocinon infusion did not follow [DHB] guidelines, as has been noted in the [DHB's] report. The frequent contractions caused a reduction in oxygen supply to [Baby A] and is most likely to have caused the fetal heart rate changes that occurred during the labour. Concern at the fetal heart rate appearance precipitated the decision to deliver [Baby A] by vacuum at the onset of the second stage of labour.

3. The appropriateness of [Dr B's] actions following the commencement of the syntocinon infusion, including the decision to perform a vacuum delivery at 5.20pm.

Almost immediately after the syntocinon was commenced the contraction frequency increased to 5:10. Despite this the midwife doubled the syntocinon 30 minutes later and the contraction frequency increased further to 7:10. There was a deceleration of the fetal heart at around 1427 followed by a second deceleration that resolved by 1442. The syntocinon was switched off and a vaginal examination performed by the midwife at 1440 showed that [Mrs A] was 5 cm dilated, an increase of 2cm in the last hour. According to the notes the midwife did not contact [Dr B] but recommenced the syntocinon at 1500, which resulted in a contraction frequency of 5:10 and then 7:10. The syntocinon rate was reduced to 2mu/min for the rest of the labour. The contraction frequency remained at 5:10 until [Mrs A] became fully dilated when the frequency increased to 8:10 and then to 6:10.

The fetal heart rate (FHR) remained normal with a baseline between 140 and 150 up to 1655. There were no accelerations and no decelerations.

[Dr B] wrote an entry in the notes timed at 1645 that she had performed a vaginal examination and [Mrs A] was nearly fully dilated, the head was at +1 below the ischial spines and was probably in the right occipito anterior position. Her plan was to wait for 1 hour to allow descent and return of sensation. The vaginal examination record sheet and a comment written on the CTG itself show that the vaginal examination occurred at 1700. At the time of the examination a 2-minute deceleration of the FHR occurred from 140 bpm to 80 bpm.

At this point there was no comment by [Dr B] about the contraction frequency being 5:10 and then 8:10 around the time of her examination, nor is there record of a decision to turn the syntocinon off. There was no comment about the FHR deceleration. FHR decelerations during vaginal examinations are not uncommon and, as the FHR recovered afterwards, no specific action was required other than stopping the syntocinon.

Following the deceleration during the vaginal examination, the FHR showed a loss of contact for around a minute at 1656, which is likely to have been due to a brief deceleration, and a further 1 minute deceleration to 90 bpm at 1701 and 1704 with good recovery. The contraction frequency was 5 to 6 in 10. Following this the FHR baseline rose from 140 to 165 bpm with a marked loss of variability. Contraction frequency was 6:10.

3a. Decision to perform an instrumental delivery.

[Dr B] wrote in the notes as follows:

'1710 reduced variability with deep decelerations, for vacuum delivery, explained.'

Between 1655 and 1710 four decelerations occurred, as I have described above. The deepest occurred at the time of the vaginal examination, the last two were smaller (to 90 bpm) and recovered quickly. [Dr B's] description of the FHR does not match the actual CTG record. On 6th November [Dr B] acknowledged that her description of the CTG 'should have been more descriptive'.

At 1715 [Dr B] recorded that she had done another vaginal examination and [Mrs A] was then fully dilated, head at +1, right occipito anterior with the baby's head tilted to one side slightly. She recorded that [Mrs A] had a narrow pubic arch. [Dr B] did not record if she could feel any of the baby's head still in the abdomen and whether there was any caput or moulding, and if so how much. This information is required to asses whether an instrumental delivery is likely to be successful or not (RANZCOG Statement C-obs 16). On 6th November [Dr B] advised that it is her invariable practice to determine whether the fetal head is palpable abdominally and she does not attempt an instrumental delivery if there is part of the fetal head palpable in the abdomen. She is confident that she made this assessment in [Baby A's] case but did not document it. She also explained that there was no change to the amount of caput she had recorded earlier.

At this point [Dr B] elected to perform a mid-cavity vacuum delivery on the basis of the abnormal FHR, which by that stage was showing reduced variability and a tachycardia of 165/min with uterine contractions at 6:10 and a syntocinon infusion running.

In my view there were a number of suboptimal features at that point that meant that the decision to perform a vacuum delivery needed to be considered carefully. They were:

— [Mrs A] had only just become fully dilated and had not attempted to push,

— the baby's head was still in the mid pelvis (station +1) and was slightly tilted to one side,

— [Mrs A] was in her first labour so her vaginal tissues had not been stretched by a previous vaginal delivery. This meant that traction on the baby's scalp with the vacuum would have to be sufficient to bring the baby through most of the length of the vagina.

— [Dr B] knew that [Mrs A] was of short stature (160.7cm, 5ft 2") and that

— [Mrs A] had a narrow subpubic arch.

I do not believe the appearance of the FHR was sufficiently abnormal to merit an immediate instrumental delivery. The subsequent umbilical cord lactate measurements (both around 2.0 mml/L) were normal, which supports my view.

I am concerned that [Dr B] did not appear to notice the uterine hyperstimulation in the presence of a running syntocinon infusion. The syntocinon dose was very low by this stage (2mu/min) but the earlier uterine contraction pattern suggests that [Mrs A's] uterus was very sensitive to even small doses of syntocinon. I believe that even this low dose is likely to have contributed to the increased uterine contraction frequency. The US FDA has listed syntocinon as a drug that carries risk of patient harm (ISMP, 2008) due to incorrect administration that results in excessive uterine activity that is unrecognised and inappropriately treated.

I suggest that more appropriate management would have been to turn the syntocinon off and observe the contraction frequency and FHR over the next 10 minutes. If the FHR pattern improved then further time could be given to allow the head to descend through the vagina. If the FHR pattern failed to improve then the options included assessment of fetal condition by fetal blood sampling (FBS) or reduction in contraction frequency with a short acting tocolytic drug. However, I believe it is likely that faced with this scenario many obstetricians would perform an instrumental delivery if they believed the delivery would be straightforward.

In her comments of November 6th [Dr B] advised that she proceeded with the instrumental delivery because she did not anticipate a difficult delivery and she did not consider fetal blood sampling to check fetal condition as she felt the baby was deliverable. I suspect that many of our colleagues if faced with a woman whose labour had been hyperstimulated in their absence, would have adopted a

similar approach if they thought the delivery was likely to be straightforward. It is more challenging to view a mid-cavity instrumental delivery done just at full dilatation along with the other factors [Dr B] recorded as likely to be uncomplicated compared with a delivery done with the head lower down in the vagina. This case is a salutary reminder that all intervention carries risk, no matter how straightforward it is anticipated to be.

The key question then becomes was the mid cavity vacuum delivery actually straightforward?

3b. Conduct of the vacuum delivery.

[Dr B] recorded in the notes that at 1720 [Mrs A] was placed in lithotomy position and the vacuum cup was applied. A note on the CTG record indicates that the vacuum was introduced into the vagina at around 1722 or 1723.

I specifically asked [Dr B] to provide more detail of the delivery process. She advised that from the decision to perform the delivery at 1720, it would have taken around 5 to 6 minutes to position [Mrs A] and then a further 2 to 3 minutes to check the position of the fetal head. She estimates that it took a further 4 to 5 minutes to apply the silicone vacuum cup, start the suction pressure and take the pressure to 20mmHg, check the position of the cup and increase the pressure to 80mmHg. She estimates that traction began around 1730 and the head was delivered at 1733. The shoulders and body of the baby took a further 2 to 3 minutes to deliver.

[Dr B's] formal report to the Commissioner advised that the baby's head was brought down to the perineum with the first contraction and was delivered by the third contraction. Contractions at the time were occurring every two minutes. Based on this information, delivery of the head should have taken closer to 6 minutes rather than 3 minutes. I do not regard this discrepancy as significant. The time taken (3 to 6 minutes) is consistent with a straightforward vacuum delivery.

[Dr B] provided more information about the delivery in her letter of 6th November. She advised that she had no difficulty with application of the vacuum cup to the flexion point on the fetal head. She used a soft silicone cup that did not displace or come off at any stage in the delivery process. She also points out that the delivery was achieved without the need for an episiotomy and without any vaginal or perineal trauma which is consistent with a straightforward delivery. She also confirms that there was no trauma to [Baby A's] scalp from the vacuum cup.

[…]

Midwife, [Ms C], also provided further information on the conduct of the vacuum delivery. There is no suggestion that she was concerned about any aspect of the delivery process. This information suggests to me that [Baby A's] vacuum delivery was achieved in a straightforward manner.

4. Management of the shoulder dystocia.

[Dr B] recorded following delivery of the head, the shoulders were 'tight' and [Mrs A] was placed in McRobert's position (legs pulled right up onto the lower abdomen) and the posterior shoulder of the baby was delivered first. In her report to the HDC, [Dr B] further elaborated as follows:

'Following delivery of the fetal head the head retracted and signs of shoulder dystocia were recognised. [Mrs A] was placed in McRobert's position (knees to chest to open the pelvis). In view of the narrow pubic arch, the decision was made to deliver the posterior shoulder and rotate the shoulder to deliver the other shoulder. However, once the posterior shoulder delivered, the anterior shoulder delivered without the need for rotation.' [Baby A] was not a large baby. He weighed 3190 grams, which is on the 30th centile on a customised chart.

[Dr B] provided further details about the delivery of the shoulders. She explained that once [Mrs A] was placed in McRobert's position following delivery of the head [Dr B] attempted gentle axial traction that was unsuccessful at delivering the shoulders. She cannot recall if she asked the midwife to apply suprapubic pressure however the midwife advised that she asked [Dr B] if suprapubic pressure should be applied and [Dr B] said no. [Dr B's] next action was to deliver the posterior shoulder:

I applied axillary traction on the posterior shoulder using my thumb and forefinger by following the curve of the sacrum.

[Dr B] estimates that it took two to three minutes to deliver the shoulders and body of the baby. The midwife has advised that as she was holding one of [Mrs A's] legs in McRobert's position she did not have a view of the management of the shoulder dystocia. She estimates that it took 1 to 2 minutes to deliver the shoulders.

[Dr B] did not describe the conventional approach to shoulder dystocia management as described in the RCOG Greentop Guideline 42 in that she omitted suprapubic pressure and did not attempt to deliver the posterior arm before delivering the posterior shoulder by traction on the axilla.

[Dr B] advised that she does usually ask the Midwife to apply suprapubic pressure but may not do so if the midwife was not in the ideal position to do so by virtue of her role in maintaining McRobert's position or if it was not clear which side the fetal back was on. She believes that it is likely that one of these factors played a role here.

[Dr B] advised that she has found delivery of the posterior shoulder to be more effective than attempts at rotation and easier than delivery of the posterior arm. She has provided a copy of [a] Guideline on Shoulder Dystocia in which axillary traction is the manoeuvre recommended if axial traction with suprapubic pressure is unsuccessful. She also references a number of publications dating from 2011 that show that this approach has been described in the literature since the mid

2000s and is a successful way of dealing with shoulder dystocia. It has not yet been incorporated into various guidelines about the management of shoulder dystocia. The authors of a recent review believe that delivery of the posterior shoulder either by delivery of the posterior arm or by traction on the posterior shoulder should be the first vaginal manoeuvre attempted to deliver after suprapubic pressure and traction has failed (Stitely and Gherman, 2014).

[Baby A's] left shoulder was posterior and it was his left clavicle that fractured in the delivery process. I believe that the clavicle is most likely to have been fractured during [Dr B's] traction on the shoulder and its fracture would have reduced the width of the shoulders thus facilitating delivery. My only occasion to use axillary traction in a case of severe shoulder dystocia when I was unable to deliver the posterior arm also resulted in a fractured clavicle of the posterior shoulder.

5. [Mr A's] account of the delivery.

It is relevant to consider [Mr A's] recall of the delivery process. I have copied the relevant section of his complaint below.

6. During this process, had difficulty orientating ears, but rapidly proceeded with the ventouse (despite the lack of orientation);

7. Both my mother-in-law & I observed the delivery - it was incredibly forceful and involved some twisting - both of us have witnessed a range of births and by all comparisons this was overly aggressive - our conclusion, along with was that panicked (given the ongoing distress of). too felt at the time that needed to be more gentle but was mortified into silence & did not say what she was thinking which was: please take your time & be gentle;

8. My personal comparison of deliveries (my other three which include forceps and ventouse were slow (despite some fetal distress), deliberate, and staged ie a deliberate break after the head was delivered before a second stage of the shoulders - in case, he was delivered with such force, it all occurred in one rapid exit. This was nothing like my prior experience which I would classify as very measured with the practioners displaying "soft hands" – mother concurs from her multiple personal birth & daughter's birth experiences that this was unnecessarily fast and aggressive;

I believe that it is important to note that these comments were not only written some time after the delivery but were also written after they were aware of the neurological opinion that [Baby A's] emboli were caused by a disturbance in his vertebro-basilar circulation, possibly due to twisting of his neck and stretching of the vessels during the vacuum delivery. This inevitably raises the possibility of recall bias. Nevertheless, this was not the first instrumental delivery [Mr A] had witnessed. His comments suggest that some time was taken with attempting to define the position of [Baby A's] head and apply the vacuum cup. [Dr B] has advised that this procedure took around 4 minutes which is longer than usual for a low vacuum delivery but appropriate for a mid cavity delivery. [Mr A] also recalls that there was very little time between delivery of the head and body of [Baby A]. [Ms C] and [Dr B] report a delay of between one and three minutes.

[Mr A's] recall of forceful twisting of the baby's head during the delivery process is obviously not consistent with a properly conducted vacuum delivery, and certainly not if the baby is thought to be in an occipito anterior position (as this is the normal position for a baby's head to deliver). The vacuum extraction procedure works by suctioning the skin and soft tissues of the baby's scalp into the vacuum cup. One would expect there to be obvious and notable trauma to the scalp at the site of the vacuum cup application if the cup had been twisted aggressively during the delivery. [Dr B] used a soft silicone cup for the delivery. This type of cup has a weaker attachment than other types of vacuum cup and does not usually remain attached to the scalp if it is pulled aggressively or in the wrong direction or if the handle is swung from side to side. [Dr B] has also advised that there was no scalp trauma at the application site. I cannot find any comments in the notes about the appearance of the vacuum cup application site following delivery. I believe this is most likely to indicate that no scalp trauma occurred. [Ms C] has not raised any concerns about [Dr B's] conduct of the delivery.

6. [Baby A's] injuries.

[Baby A] suffered a number of injuries, some of which are possibly due to trauma during the birth process. The question is whether these injuries are recognised as complications of an appropriately carried out vacuum delivery or whether they indicate that poor technique during the delivery has caused the injuries. I will first review the injuries and discuss their association with trauma during delivery. I will then review the association between vacuum delivery and intracranial injuries.

6.1 Fractured left clavicle. These fractures occur in 0.5 to 1.5% of all deliveries but are more common in babies with higher birthweight and after vacuum deliveries (Ahn et al, 2015). [Baby A's] fractured clavicle is evidence that a significant degree of shoulder dystocia occurred.

6.2 Left parietal cephalhaematoma. A cephalhaematoma forms as a result of tearing of small blood vessels between a fetal skull bone and the periostium overlying the bone.

[Image deleted]

Cephalhaematomas occur in about 1 to 2.5% of all deliveries with higher rates after instrumental deliveries. The literature on cephalhaematoma is rather sparse. A 1987 paper from Australia described the incidence of cephalhaematoma as 2.5% for all vaginal deliveries. The rate for spontaneous vaginal deliveries was not given but the incidence was higher after vacuum deliveries (22%) compared with forceps deliveries (5.1%, Thacker et al 1987). A larger study from deliveries in New Jersey between 1989 and 1993 found a rate of cephalhaematoma following spontaneous deliveries of 1.67% compared to 11.17% following vacuum deliveries (Demissie et al, 2004). More recently Doumouchtsis and Arulkumaran (2006) state the rate after vacuum delivery averages 6% with a range of 1–26%.

6.3 Bilateral retinal haemorrhages. These are due to small bleeds in the retina due to increased pressure within the brain during delivery. The incidence of retinal haemorrhages after both spontaneous and instrumental delivery was just under 0.2% in one study (Demissie et al 2004*)*.

6.4 Partial 3rd cranial nerve palsy causing bilateral ptosis (eyelid remains closed) and adduction deficit (eyes are deviated). This is likely to have been related to the injury described in section 6.6 or to pressure on the cranial nerve due to general increased pressure in the brain.

6.5 Posterior fossa subdural haematoma. This is a collection of blood on the inside of the skull bone between the inner lining of the skull bone (the dura mater) and the lining of the brain cavity (the arachnoid membrane). This is usually due to tearing of veins during delivery due to compression and distortion of the fetal skull during labour and birth.

Asymptomatic subdural haematomas can occur in up to 6.1% of normal deliveries. Most studies report higher rates of subdural haematomas with instrumental vaginal delivery, but the rates are not significantly higher than after caesarean section deliveries. This raises the question as to whether it was the labour or the delivery process that caused the injury. Some conclude that subdural haemorrhage is 'not necessarily indicative of excessive birth trauma' (Doumouchtsis and Arulkumaran, 2006). In [Baby A's] case, the subdural was in the back part of his brain and probably came from damage to vessels supplied by the vertebro-basilar circulation, which may indicate that the subdural is linked to the brain injury described in the following section.

6.6 Multiple bilateral embolic infarcts in the posterior area of the brain supplied by the vertebro-basilar circulation. The infarcts were in the upper and anterior aspects of both cerebellar hemispheres, the central portion of the mid-brain and in both thalami. These lesions were collectively referred to as a mid-brain stroke.

A key question is whether [Baby A's] embolic insults are known to be associated with trauma during the delivery process.

[Baby A's] stroke was embolic in nature and was unusual in that it involved the area of his brain supplied by the arteries which come up the back of the cervical spine — the two vertebral arteries which join in one midline basilar artery [reference to deleted images of the vertebral arteries].

[Images deleted]

The vast majority of neonatal stroke occurs in the area supplied by the carotid arteries situated on either side of the front of the neck. Most strokes occur on the left side of the brain. They are thought to be due to arteriolar venous thrombosis in the brain or from embolisms from the placenta which pass through the patent foramen ovale (a connection between the right and left side of the fetal heart which closes soon after birth), up into the main artery in the left side of the neck and thus into the left side of the brain supplied from the carotid artery.

A recent review of 100 cases of neonatal arterial stroke found that 89% were in the anterior circulation, 11% in both the anterior and posterior circulation and none were in the posterior circulation alone (Grunt et al, 2015). [Baby A's] lesions were exclusively in the parts of his brain supplied by the posterior circulation. Unfortunately, most recent reviews of neonatal stroke do not separate strokes in the anterior brain circulation from the posterior circulation. If the occurrence of posterior circulation strokes is universally low then it is possible that the findings of many of the studies looking for associations between neonatal stroke and pregnancy, labour and delivery factors may not be applicable in [Baby A's] case.

Injury to the vertebro-basilar arterial system due to trauma during delivery as a cause of neonatal stroke has been reported in only a few recently published cases (Rutherford et al, 2012). However, earlier publications document cases where mechanical trauma, thought to be due to damage of the posterior neck vessels during delivery is likely to have been the cause of lesions causing long-term neurological disability (Govert et al, 1992). These earlier cases did not have the benefit of CT and MRI scans to more thoroughly assess the injuries. But in a post-mortem study published in1959, Yates found adventitial haemorrhage in one or both vertebral arteries in 24 of 60 cases of perinatal death. Yates pointed out that the vertebral arteries unite in the midline to form a common single basilar artery so lesions of just one vertebral artery can cause bilateral lesions in the brain.

The neonatologists performed extensive tests to identify the cause of [Baby A's] stroke but were unable to identify the origin of the emboli. [The neurologist] who saw [Baby A] [when he was a week old] (page 57 of notes sent to me) was of the opinion that [Baby A's] injuries were due to trauma causing dissection of or injury to the vertebral arteries during the vacuum delivery. An MRI of [Baby A's] vertebro-basilar system could not be performed until one week after his birth as it required a general anaesthetic so [Baby A] would remain still enough for the scan to be completed. No evidence of vessel trauma was seen on the MRI at that time. I am not sure whether this excludes vessel trauma as a cause of the emboli given the fact that a week had elapsed since delivery.

7. The association between vacuum deliveries and neonatal cerebral injuries.

In the late 1990s the FDA released a warning about an incidence of intracranial haemorrhage associated with vacuum deliveries. RANZCOG advises that potentially life threatening complications occur in 1 in 300 vacuum deliveries (RANZCOG C-obs 16) and there is a specific guideline about prevention and detection of sub-galeal haemorrhage (C-obs 28), a complication specifically associated with vacuum delivery (which [Baby A] did not have). In 2007, Simonson et al prospectively studied 913 term babies born by vacuum. Cephalhaematoma, and skull fracture were present in, respectively, 10.8%, and 5.0% of cases. Intracranial haemorrhage occurred in eight cases (0.87%). Most babies were asymptomatic. Nulliparity, a vacuum attempt at mid station, an extraction requiring more than three tractions, and dislodgment of the cup were associated with these complications but had a low predictive value.

More recently, a Swedish study examined the risk of cerebral complications in newborns between 1999 and 2010 (Ekeus et al, 2014). This was a retrospective population study of over a million women who had a normal delivery or an intrapartum delivery by vacuum extraction (VE) or emergency caesarean section (CS). Swedish obstetricians almost exclusively use the vacuum for instrumental deliveries and have done so for decades. All neonates were examined by CT or MRI scans. Overall any cause of intra-cerebral bleeding occurred more frequently in the VE group; 19/10,000 compared to CS (7.3/10,000) and normal delivery (2.8/10,000). The risk of a traumatic intra-cerebral haemorrhage following VE was 6/10,000, which was 10-fold higher than CS and normal deliveries. Risk factors were babies with a high birthweight and short mothers.

Studies like these do not provide specific information on posterior circulation embolic injuries, as occurred in [Baby A's] case but nevertheless do indicate that the mechanism of vacuum delivery by traction on a baby's scalp is associated with increased risks of both extra and intra-cranial bleeding.

Data from Ekeus et al (2014) also showed that the additional occurrence of shoulder dystocia was associated with a markedly higher incidence of cerebral complications, whatever the mode of delivery as shown in the following table.

Neonatal injury	Normal delivery (/10,000)		Vacuum delivery (/10,000)	
	No sh dystocia	Yes, sh dystocia	No sh dystocia	Yes, sh dystocia
Intracranial haemorrhage	2.8	7.0	18.0	131
Convulsions or encephalopathy	12.5	341	89.8	857

(Data extracted from Ekeus et al (2014) Tables 3 and 4.)

Strangely (in my view), this association is not noted but not discussed in the paper. Yates (1951) suggested a mechanism for vascular damage of neck and head vessels due to the differential pressures between the head and neck once the head is delivered but the body is still in the uterus. However, [Baby A's] MRI showed no evidence of vertebro-basilar vascular damage and we have no clear understanding of the mechanism of his posterior and mid brain embolic injuries.

8. Did the vacuum extraction delivery cause [Baby A's] injuries?

Guidelines for vacuum deliveries stress the need for correct application of the cup in the midline at what is called the flexion point, traction only with contractions and maternal effort for a maximum of three contractions or not longer than 15 minutes (RANZCOG C-obs 28). In [Baby A's] case delivery occurred after three contractions which is well within the 15-minute guideline. [Dr B] has advised that the vacuum cup was placed over the flexion point and no scalp trauma occurred at the site of the cup. There was also no indication in the notes that there was any

trauma to the scalp at the site of the vacuum cup. Cup detachment during traction is another adverse feature of a vacuum delivery but this also did not occur in [Baby A's] case.

Some of the injuries [Baby A] sustained are well-described associations of a vacuum delivery and do not cause long-term neurological disability. Thus, his retinal haemorrhages and cephalhaematoma cannot be viewed as evidence of a technically deficient vacuum extraction. In my view they are not unexpected for a mid-cavity delivery in a primigravida at the onset of full dilatation compared to a delivery with the head lower down in the pelvis.

The key injuries [Baby A] sustained were the embolic strokes to his cerebellum and mid-brain. The neurological opinion conveyed to [Mr and Mrs A] before the MRI at one week of age was that these were caused by a disturbance in his vertebro-basilar circulation, possibly due to twisting of his neck and stretching of the vessels during the vacuum delivery. I do not know if the neurologists have revised their opinion of causation following the MRI results. The reliability of the MRI done one week after delivery is clearly a very important consideration. If vessel injury can be confidently excluded then I believe that it is difficult to ascribe the embolic insults to trauma to the posterior circulation of the brain during delivery.

Conclusions

1. Hyperstimulation of [Mrs A's] uterus with syntocinon is likely to have been a factor in causing the recurrent episodes of abnormal fetal heart rate patterns associated with very frequently occurring contractions. [Dr B] did not comment on the uterine hyperstimulation nor is there evidence that she considered that this may have been the cause of the heart rate abnormalities.

2. In my view the fetal heart rate changes present at full dilatation did not warrant an immediate mid cavity vacuum delivery, with its attendant risks. I believe it would have been more appropriate to stop the syntocinon infusion and observe the fetal heart rate pattern for signs of improvement over the next 10 minutes before deciding on subsequent management, which would include an instrumental delivery.

3. The vacuum delivery occurred over three contractions and was completed well within the recommended time frame without the need for an episiotomy and without vaginal trauma. This is consistent with a straightforward uncomplicated delivery. There is no clinical record of the presence of any scalp trauma from the vacuum cup. The midwife's recall of the events of the delivery contains no evidence of departure from standard practice.

4. The process used to manage shoulder dystocia was acceptable. It is most likely that the clavicle fracture occurred during the delivery manoeuvre. I regard this as evidence that a significant degree of shoulder dystocia was present and not that the delivery was conducted improperly.

5. [Baby A's] retinal haemorrhages and cephalhaematoma cannot be viewed as evidence of a technically deficient vacuum extraction. In my view they are not unexpected for a mid-cavity delivery in a primigravida at the onset of full dilatation compared to a delivery with the head lower in the pelvis.

6. Vacuum delivery is recognised to carry a risk of intra-cerebral complications, particularly subgaleal haemorrhage. [Baby A] sustained two different types of intra-cerebral haemorrhage: a subdural haemorrhage, which is also known to occur more frequently after vacuum delivery, and multiple embolic strokes in the area of his brain supplied by the vertebro-basilar circulation. This is an uncommonly reported injury in the recent literature and its association with vacuum delivery is unknown. Damage to one or both vertebral vessels during some stage of the delivery is a possible cause but an MRI done one week after birth did not show any evidence of vessel injury.

Departure from accepted professional standards.
The only departure from accepted professional standards I have identified is failure to diagnose uterine hyperstimulation in the presence of a syntocinon infusion and recognise that it was likely to have caused or at least contributed to the fetal heart rate changes observed. Assessment of uterine contractions is [such] a fundamental aspect of intrapartum care that I regard this omission as a moderate to severe departure from accepted standards. Having said that I acknowledge that it is likely that some clinicians would still have gone on to deliver the baby despite recognising the hyperstimulation and stopping the syntocinon if they thought the delivery would be straightforward.

I believe that it is clear that [Baby A's] injuries occurred during the delivery but I cannot identify any objective evidence to support the complaint that the delivery, once commenced, was improperly conducted.

References
Ahn ES, Jung MS, Lee YK, Ko SY, Shin SM, Hahn MH. Neonatal clavicular fracture: recent 10 year study. Pediatr Int. 2015 Feb;57(1):60–3.

Demissie K, Rhoads GG, Smulian JC, et al. BMJ 2004; 329:24.

Doumouchtsis SK and Arulkumaran S. Head injuries after instrumental vaginal deliveries. Curr Opin Obstet Gynecol 2006;18:129–134.

Ekéus C, Högberg U, Norman M. Vacuum assisted birth and risk for cerebral complications in term newborn infants: a population-based cohort study. BMC Pregnancy Childbirth. 2014 Jan 20;14:36.

FDA Warning on Vacuum deliveries, 1998.

Govaeret P, Vanhaesebroouck P and de Praeter C. Traumatic intracranial and stroke. Arch Dis Child 1992;67:840–845.

Grunt S, Mazenauer L, Buerki SE et al. Incidence and Outcomes of Symptomatic Neonatal Arterial Ischemic Stroke. Pediatrics 2015;135;e1220.

Institute for Safe Medication Practices. ISMP's list of high-alert medications; 2008. www.ismp.org.

RANZCOG Statement C-obs 16, first endorsed 2002, reviewed 2012 and 2015.

RANZCOG Statement C-obs 29, Prevention Detection and Management of Subgaleal Haemorrhage in the Newborn. first endorsed 2009, reviewed 2012 and 2015.

RCOG Greentop Guideline 42. Shoulder dystocia. 2012.

Rutherford MA, Ramenghi LA and Cowan FM. Neonatal stroke. Arch Dis Child Fetal Neonatal Ed 2012;97:F377–F384.

Simonson C, Barlow P, Dehennin N, Sphel M, Toppet V, Murillo D, Rozenberg S. Neonatal complications of vacuum-assisted delivery. Obstet Gynecol. 2007 Mar;109(3):626–33.

Stitely ML and Gherman RB. Shoulder dystocia: Management and documentation. Seminars in Perinataology 2014;3:194–200.

Thacker KE, Lim T and Dreq JH. Cephalhaematoma: A 10-Year Review. Australian and New Zealand Journal of Obstetrics and Gynaecology, 1987;27(3): 210–212.

Yates PO. Birth trauma to the vertebral arteries. Arch Dis Child 1959;34:436–41."

Further advice

Dr Westgate provided the following further advice:

"Thank you for asking me to respond to the issues raised by [Mr and Mrs A] in response to my report to the Commissioner. I have read their statement and reviewed the photograph they sent. I will respond to each point in turn and then address the issue of a neurologist opinion on the MRI findings.

As a prelude to my comments I acknowledge the devastation these events have caused to [the family], including [Baby A]. I am sorry that these events occurred and the outcome has been so terrible. The issues they raise are important as they seek to understand what happened and why and to determine if anyone is to blame.

[Question from Mr A]: '1. There is a lot of commentary wrt the delivery and shoulder dystocia (pgs 6 & 7) & that it was "not particularly difficult" — as per my statements, [Dr B] panicked as she could not orient [Baby A's] ears, and then proceeded to extract him in one extremely aggressive exit — it was not staged as asserted by [Dr B] & [Ms C].

I have reviewed my discussion regarding conduct of the vacuum delivery (Section 3b, page 5 of my report). The information given by [Dr B] is that the delivery occurred over three contractions and that no vaginal or perineal trauma occurred during the delivery. Whilst [Mr and Mrs A] report 'one extremely aggressive exit' as far as I can tell they have not challenged the assertion that no vaginal or perineal trauma occurred.

When the fetal head is still in the mid-cavity in a woman having her first baby, as in this case, the vaginal tissues below the head have not had the opportunity to slowly stretch with descent of the head. The absence of vaginal or perineal trauma

suggests to me that the delivery is likely to have occurred gradually enough to allow sufficient time to allow the vaginal and perineal tissues to stretch and avoid tearing. [Dr B] would have had to take care to follow the curve of the pelvic outlet to prevent a tear at the perineum. The lack of trauma to [Mrs A's] tissues also suggests that the fetal head was overly large with respect to the vaginal outlet.

[Question from Mr A]: '2. The writer appears to disregard our comments stating that they were written some time after the delivery — this is incorrect — [Mrs A's] mother & I who have both witnessed numerous births could not believe how aggressive the extraction was — note, I have [other] children and [Mrs A's] mother has 4 children and 6 grand children. We both disagree with [Dr B] & [Ms C's] account of the extraction. The birth is etched permanently with us as it was so shocking to all of us versus what we have previously experienced.'

I have not disregarded the view of [Mr and Mrs A] about the delivery process. I dedicated a complete section of my report (Section 5, pages 7 and 8) to their statements about the delivery and even copied the statements into my report. I believed that the statements made by [Mr A] which were sent to me were made during the HDC complaint and were therefore written some time after the event. If [Mr and Mrs A] have records of raising concerns soon after the delivery process and before discussions with the neurologist regarding causation they have not been included in the material sent to me. If the Commissioner is privy to these then he can of course disregard my comments about recall bias. I am also aware that the Commissioner will have encountered recall bias in his dealings with other cases as the phenomenon is very well documented. I am happy to withdraw these comments and apologize for the distress they caused if advised by the Commissioner that they were incorrect or unnecessary.

[Question from Mr A]: '3. It is also quite unbelievable that while the writer is discounting our account, and yet is relying on [Ms C] to support [Dr B's] account — the writer also states that the facts do not match their account, but seems to accept that [Ms C] did not raise any issues wrt [Dr B's] conduct — frankly they are clearly covering for each other & therefore their statements lack all credibility.'

I believe that I have dealt objectively with the issues raised and advised the Commissioner based on the evidence available in the documents sent to me. The Commissioner is the one who weighs the evidence and opinions and makes the final decision in all cases.

[Question from Mr A]: '4. Our concern wrt [Dr B]/[Ms C] integrity was highlighted by [Dr B's] conduct on day 2 when she sought blood tests for myself and [Mrs A] in order to try & direct the blame for [Baby A's] condition on us rather than accept responsibility for her sub standard care and the horrific consequences.'

One of the causes of neonatal stoke is inherited bleeding tendencies. It is standard practice in such cases to test both parents to see if they either have a bleeding tendency or carry a gene or marker for one of these conditions that they may have

passed on to their child. I believe that the paediatricians would have asked [Dr B] to arrange for these tests to be done on both [Mr and Mrs A].

[Question from Mr A]: '5. In point 7 on pg 11 there is the question of scalp trauma/haematoma appears to have been discounted. We have attached various medical notes referring to the haematoma, but more importantly, the writer appears to ignore the gravity of the situation at birth:

a. [Baby A] had 6 strokes;

b. He was taken away from us as his life was clearly in danger;

c. Tests were undertaken all night & finally when the strokes were identified, we were told to assemble our family as [Baby A] was not expected to survive;

d. The shape of [Baby A's] head and the scalp trauma was well down the priorities given the gravity of the situation — the focus in the day and days following [Baby A's] birth was around establishing the cause of the strokes, brain injury and then if there was any further risk of swelling and or further brain damage events (including further seizures or strokes from damaged blood vessels);

6. However, given my other boys had vacuum extraction, I had expected a cone head — [Baby A] did not — his cone went out the back of his head, and to the left side of his head — this is why we kept a hat on him for the first week (ie because his head was so out of shape).

7. [Statement from Mr A]: The attached photo clearly shows the position of the vacuum & the resultant affect on [Baby A's] head — note from all our records, this is the first photo we have with his hat off that shows the ventouse positioning — this photo was taken 8 days after his birth.'

In my report (Section 6.2, [reference to page number]) I addressed the causation and frequency of cephalhaematoma. I also provided a diagram … As can be seen the bleeding occurs from small blood vessels between the bone and the periosteum overlying the bone. This means that the location of the bleeding is limited to the area overlying the bone. In [Baby A's] case it was the left parietal bone. Any bleeding from any vessel in that layer between bone and periosteum at any point will cause the haematoma to form over that bone.

[Image deleted.]

[Reference is made here to an image of the fetal skull with the different anatomical bones labelled.] The flexion point is in the midline over the sagittal suture 3cm in front of the posterior fontanelle. It can be seen from this diagram that the left and right parietal bones are on either side of the sagittal suture.

[Image deleted.]

[Reference is made here to an image showing a correctly positioned vacuum cup which covers the inner aspects of both parietal bones, the posterior fontanelle and part of the occipital bone.]

If a cephalhaematoma occurs it is almost always over one of the parietal bones and thus will always be to one side of the midline.

[Image deleted.]

[Baby A] clearly had a left parietal haematoma as is shown in the photograph and documented in the notes. However, this does not prove that the vacuum was wrongly positioned for the reasons explained above.

Neither the notes nor the photo record any scalp abrasions as would be expected to occur if the vacuum had been twisted forcefully or had traction been at the wrong angle.

The MRI findings.
As I mentioned in my report this is a key aspect of this case. The neurologist involved in [Baby A's] care first advised [Mr and Mrs A] that the damage to the posterior vessels occurred as a result of twisting the neck during the vacuum delivery. However, no evidence of vessel trauma was seen on the MRI done when [Baby A] was one week old. I discussed this topic generally and informally with an experienced paediatric colleague before I wrote my report and the view expressed to me was that it was unlikely that vessel damage sufficient to cause a neonatal stroke would have resolved by one week of age. Nevertheless, as this is such an important aspect I believe that an opinion from a paediatric neuro-radiologist would ensure that due diligence has been done in covering the medical aspects of this case. It may also be helpful to ask the neurologist involved in [Baby A's] case whether he has changed his opinion on causation given the MRI findings.

The role of the shoulder dystocia.
In my report (page 12, 3rd paragraph, including a table) I reviewed recent evidence that the occurrence of shoulder dystocia was associated with a markedly higher incidence of cerebral complications, what ever the mode of delivery. I mentioned the possible role of a pressure differential between the vessels within (high intrauterine pressure) and around the head outside the vagina (low, atmospheric pressure) and within and around the neck (both high, intrauterine pressure) which is still in the vagina as a possible explanation. I draw attention to this again as I believe the associations reported in this very large study are too large to ignore. May I suggest that this information is also passed on to the paediatric neuro-radiologist and the paediatrician to consider. To facilitate this I attach copies of the Ekeus and Yates papers. I believe that this information could point to the shoulder dystocia as the key factor in [Baby A's] stroke.

When the evidence does not match expected causation it is important to both review the evidence and to consider alternate explanations. I hope that the Commissioner and [Mr and Mrs A] can see that I have followed both lines of enquiry by suggesting a review of the MRI findings related to timing and by looking for and finding evidence of a possible alternate explanation.

I acknowledge the concerns raised by [Mr and Mrs A] and hope my response has dealt with the issues they raised."

Appendix B: Expert midwifery advice

The following expert advice was provided by midwife Bridget Kerkin:

> "My name is Bridget Kerkin and I have been asked by the Health and Disability Commissioner Principal Investigator … to provide advice regarding the above complaint. I have read, and agree to follow, the Commissioner's Guidelines for Independent Advisors.
>
> I registered as a midwife in 1998 and have worked primarily as a Lead Maternity Carer since then, with a focus on primary care in the community. I have provided care for women birthing at home and in primary and secondary care facilities. I have worked in rural, remote rural and urban environments. I am currently employed as a Midwifery Lecturer at Otago Polytechnic while maintaining a small Lead Maternity Care practice. I am an active member of the New Zealand College of Midwives, having previously worked as a Midwifery Standards reviewer, represented the Wellington Region as the Midwifery Resolutions Committee Midwife Representative for three years and held a position on the core group of the regional College of Midwives. I have a BSc in psychology, a BHSc in midwifery and a postgraduate certificate in midwifery.
>
> This report represents my re-issued advice following submission of [Ms C's] response to my initial provision of opinion (dated 20/9/15).
>
> I have reviewed the documents provided to me which include:
>
> 1. Copy of complaint to HDC.
>
> 2. Copy of additional email correspondence with [Mr and Mrs A] dated 6 April 2015.
>
> 3. Copy of [the DHB's] clinical records for [Mrs A], including copy of CTG trace.
>
> 4. Copy of [the DHB's] [Syntocinon policy].
>
> 5. Copy of letter statement from [Ms C] in response to complaint (undated).
>
> 6. Copy of letter from [Ms C] to HDC dated 13 May 2015.
>
> 7. Copy of response from [the Clinic], including attachments as listed in letter.
>
> 8. Copy of letter from [Dr B], dated 17 April 2015.
>
> 9. [Ms C's] response to my initial advice.
>
> Additionally I have located the [DHB's fetal heartrate policy] which relates to the [Syntocinon policy].
>
> I have also requested, and received, a copy of [Ms C's] notes for her postnatal care of [Mrs A].

Summary of events:

- [Mrs A] booked with [the Clinic], a private Obstetric Specialist team, whilst in her first ongoing pregnancy with an estimated due date of [date].
- She was booked for induction of labour on [date] following a query of reduced foetal growth in late third trimester. However, [Mrs A] laboured spontaneously at [39+3 weeks gestation].
- [Ms C] was the midwife contracted by [the Clinic] to provide care for [Mrs A] in labour.
- [Ms C] met [Mrs A] in Delivery Suite of [the public hospital at 1100hrs].
- A cardiotocograph (CTG) was commenced at approximately 1120hrs.
- [Mrs A] was assessed by [Dr B] (in the capacity of Lead Maternity Carer) at 1140hrs and her cervix was found to be 1cm dilated and fully effaced. The foetal head was at station –3. [Dr B] ruptured [Mrs A's] membranes at this time and clear liquor was draining.
- An epidural was sited at 1230hrs with good effect.
- [Dr B] assessed [Mrs A] again at 1340hrs and her cervix was 3cms dilated, with the foetal head at station –2 to –3. The plan was made for a syntocinon (artificial oxytocin) infusion.
- [Ms C] commenced the artificial (synthetic) oxytocin infusion at 1404 and documented that there was 'Decreased variability at present'.
- At 1435 there was a foetal heartrate deceleration to less than 70bpm, reported to last 2 minutes. The artificial oxytocin infusion was turned off at this time. The infusion had been running at 6mu/min. A vaginal examination was performed by [Ms C] and [Mrs A's] cervix was found to be 5cms dilated.
- At 1500hrs [Ms C] recommenced the artificial oxytocin infusion at 4mu/min.
- At 1520 [Mrs A] reported increasing rectal pressure and a further vaginal examination was undertaken — cervix 6–7cms dilated at this time. Contractions were noted to be occurring 6 times in 10 minutes and the artificial oxytocin infusion was reduced to 2mu/min.
- [Dr B] assessed [Mrs A] again at 1645hrs and her cervix was 'nearly fully' dilated and the foetal head was at station +1. [Dr B] noted 'CTG: continued decreased variability' and the plan was made to await sensation to return, presumably before [Mrs A] began pushing.
- At 1720hrs [Ms C] placed [Mrs A] into lithotomy. She noted variable decelerations of the foetal heart, an increasing baseline heartrate, and decreasing variability.
- [Dr B] performed a ventouse delivery and [Mrs A's] baby boy, [Baby A], was born with good Apgars at 1735hrs. [Dr B] documented that the shoulders were 'tight' and the posterior shoulder was delivered first as a result. [Baby A's]

cord blood lactate results at birth were normal. He sustained a fractured clavicle and was assessed by a paediatric specialist soon after birth.

- At 1845hrs [Ms C] handed over [Mrs A's] care to a hospital midwife.
- Sadly, at 1945hrs, [Baby A] experienced an apnoeic episode and was admitted to the Neonatal Intensive Care Unit. He suffered multiple bilateral cerebral emboli and has since been diagnosed with severe dystonic cerebral palsy.

Instructions from the Commissioner and advice requested

1. Please comment generally of the standard of midwifery care provided to [Mrs A] by [Ms C].

In addition, if not covered above please provide advice on:

2. The appropriateness of [Ms C's] actions during labour, in particular:

a. her response to the FHR changes;

b. her communication with [Dr B].

3. The appropriateness of the care [Ms C] provided to [Mrs A] in the postnatal period.

4. Any other comment you wish to make.

Subsequent advice requested

1. In light of [Ms C's] further comments, please advise whether, having reviewed the new information, you wish to amend/add to your original advice. If so please re-issue your advice report.

2. Any other comment you wish to make.

I declare that I have no conflict of interest.

Commentary:

The standard of midwifery care provided to [Mrs A] by [Ms C]

When a woman is attended by a midwife in labour, the midwife will offer and undertake (with consent) regular assessments of the health and wellbeing of the woman and her baby. These assessments will inform conversations with the woman, and her support people/whānau, about choices for the labour. Working in partnership with the woman, the midwife will take a holistic approach to care during labour and these assessments, as an aspect of that care, contribute to the protection of the wellbeing of mother and baby (NZCOM, 2015).

In order to facilitate the provision of effective midwifery care in labour, NZCOM (2015) emphasises the need for rapid development of a partnership relationship between the woman and the midwife if this is the first contact they have had. [Mrs A's] clinical antenatal and labour records do not specify the nature of her relationship with [Ms C]. It is unclear whether [Mrs A] and [Ms C] had met

previously. [Ms C] has not documented the capacity in which she attended [Mrs A] during her labour. Additionally there is no information recorded, in the documents provided to me, which clarifies how and when [Ms C] made contact with her Lead Maternity Carer and/or [Ms C] in labour.

On [Mrs A's] admission to [hospital] in labour, [Ms C] provided a brief summary of [Mrs A's] history, noting important features of [Mrs A's] and her baby's wellbeing. [Ms C] commented on foetal movements, that the membranes were intact and that [Mrs A] had experienced mucousy show over the previous couple of days. Contractions were said to have commenced at 0800hrs that day. [Ms C] summarised: 'N pregnancy', which is an abbreviation for 'normal pregnancy'. There is no documentation of the queried foetal growth restriction or plan for induction of labour at 40 weeks gestation. There is a brief summary of the early labour history.

[Ms C] commenced CTG monitoring after performing an abdominal palpation and undertook baseline maternal observations. Other than the brevity of the documented history, these initial assessments and recordings were appropriate given [Mrs A's] clinical circumstances.

Midwifery assessments during labour include monitoring (by observation, palpation and sometimes CTG) the pattern of contractions, including length, strength, frequency/timing and regularity. The midwife will usually also undertake maternal observations, based upon the clinical circumstances, or approximately every 4 hours. Monitoring of foetal wellbeing is generally achieved through intermittent auscultation of the foetal heart every 15–30 minutes or continuous monitoring, using a CTG. The colour of amniotic fluid contributes to the assessment of both foetal and maternal wellbeing and is also regularly visualised, once the membranes have ruptured (Thorpe and Anderson, 2015).

At 1100hrs, [Ms C] documented that [Mrs A] was 'Contracting irregularly, 2:10.' This indicates that either [Ms C] had assessed [Mrs A] was having two contractions in each ten minute period, or that this is what [Mrs A] had reported. [Ms C] did not comment in the clinical record about the frequency of contractions again until 1425hrs, at which time she noted 'contractions remain slightly irregular. 3–5:10.' She did not comment about length or intensity of the contractions, or the time between contractions, in the body of [Mrs A's] notes at any time. The contractions were documented on the partogram which indicates that [Ms C] assessed the contractions to be at least four in ten minutes throughout — other than one period where she has recorded that they were three in ten minutes. The partogram indicates that [Ms C] considered the contractions were 'strong' from 1200hrs onwards.

The monitoring of contractions is relevant, in relation to [Mrs A's] labour, because of the use of the artificial oxytocin infusion, and evidence of hyperstimulation of her uterus. The continuous CTG shows that, throughout the majority of her labour, [Mrs A] contracted 4–5 times in each 10 minute period. At times the contractions were more frequent than this; on only two occasions the contractions occurred 3 times in 10 minutes.

In her response letter dated 15/5/15 [Ms C] identifies that the two relevant [DHB] policies in place at the time of [Mrs A's] labour: '[Syntocinon policy]' and '[Fetal heartrate policy]' gave different definitions for hyperstimulation of the uterus. This is correct, the latter defined hyperstimulation as '>6 or more contractions in 10 or less than 60–90 seconds relaxation between contractions' (pg 7) and the former as:

- More than 4 contractions in 10 minutes and/or
- Contractions lasting 2 minutes or more and/or
- Less than 60–90 seconds between each contraction (pg 6)

Although the difference in definition of frequency may have confused practitioners, both policies identified that there should be no less than 60–90 seconds between contractions. Throughout [Mrs A's] labour there were few 10 minute periods during which some of the contractions were not less than 60 seconds apart. Given this lack of resting tone between contractions, the commencement, and on-going use, of the artificial oxytocin infusion is of concern.

An infusion of artificial oxytocin may be used for induction or augmentation of labour (Hunter and Gunn, 2015). When utilised for augmentation, the purpose of the infusion is to increase the frequency, regularity and strength of the woman's contractions and facilitate descent of the foetal head and dilation of the woman's cervix. Because of the potential side effects of the infusion, artificial oxytocin must always be used judiciously. It cannot be prescribed by a midwife, but midwives are generally responsible for the administration and monitoring of the infusion ([Syntocinon policy]).

When administering an artificial oxytocin infusion, the practitioner must consider the woman's experience of pain, her physical observations (blood pressure, pulse, temperature and respirations), the frequency, regularity and length of contractions and the impact on the foetal heart recordings ([Syntocinon policy]; Hunter and Gunn, 2015).

[Mrs A] was apparently comfortable once the epidural was administered. Her observations (recorded in the partogram) remained normal throughout the labour.

The [DHB's Syntocinon policy] recommends increasing the artificial oxytocin infusion until four contractions in ten minutes, which last 40–90 seconds, are occurring. Once this is achieved, the policy recommends maintaining the infusion rate without further increase.

In her contemporaneous documentation, [Ms C] does not mention the [DHB's] '[Syntocinon]' policy and there is no documented prescription of the artificial oxytocin infusion by the LMC. [Ms C] reports, in her response letter dated 20/11/15, that she was relying on historic practice rather than the current protocol to guide her administration of the artificial oxytocin.

The purpose of establishing 'a pattern of regular, strong contractions' (pg 2 of [Ms C's] response letter dated 13/5/15) is to achieve effective cervical dilation/progress in labour. Whilst I agree that [Mrs A's] contractions were somewhat irregular at times, she was most likely just establishing in labour at the time that the artificial oxytocin infusion was commenced. [Ms C] also states (in her response letter date 13/5/15) that 'It is optimal for contraction pattern in labour to be regular.' (pg 2). It is important to note that this focus on regularity of contractions pertains primarily to circumstances where adequate progress in labour is not evident. Given that this was [Mrs A's] first labour, she made very good progress.

The assessments of [Mrs A's] cervical dilation are summarised below:

Time	Dilation	Assessment by	Notes
1140	1 cm	[Dr B]	Artificial rupture of membranes
1340	3 cm (2cm dilation in 2 hrs)	[Dr B]	Plan for artificial oxytocin infusion Midwife to examine in 4 hours
1435	5 cm (2cm dilation in <1 hr)	[Ms C]	Foetal heartrate decelerations evident. Artificial oxytocin infusion temporarily paused then recommenced at 4 mu/min at 1500hrs
1520	6–7 cm (1–2cm dilation in <1 hr)	[Ms C]	Artificial oxytocin reduced to 2 mu/min due to tachysystole
1645	'nearly fully' (2–3cm dilation in 1.5 hrs)	[Dr B]	'await 1 hr for sensation to return'

Although there is some debate within the maternity caregiver community about the acceptable rate of cervical dilation, there is evidence that the cervix of a woman in labour with her first baby can be expected to dilate at a minimum rate of at least 1cm every 2 hours (Thorogood and Donaldson, 2015). Certainly, dilation of the cervix of 1 or more cms per hour during a first labour, is considered more than adequate progress.

As [Mrs A's] obstetric LMC, [Dr B] prescribed the artificial oxytocin infusion, with [Ms C] responsible for administering the infusion and monitoring maternal and foetal wellbeing with reference to the relevant professional guidelines.

CTG monitoring is undertaken primarily to assess foetal wellbeing and involves continuous recording of the foetal heart rate and the woman's contractions. CTGs are used in circumstances of clinical complexity or concern and when labour interventions have been introduced (such as epidural anaesthesia or synthetic oxytocin infusion). Assessment of the pattern of contractions includes length, strength, frequency and regularity, as previously mentioned. This assessment contributes to the midwife's understanding of how the labour is progressing and also allows the midwife to assess how the foetal heart responds to contractions. Assessment of the foetal heart via CTG during labour includes looking at the variability of the heart responses, whether the baseline rate is within normal parameters and whether there are decelerations of the foetal heart. Decelerations in some circumstances will be normal physiological responses to labour, but in others they may indicate a degree of hypoxia in the fetus. Health professionals assess the foetal heart recordings on a CTG in relation to the broader clinical picture, including the progress in labour. The timing of any decelerations when compared to contractions is of particular relevance ([the DHB]).

Between [Dr B's] 1140 and 1340 assessments of [Mrs A], [Ms C] did not document any assessment of foetal wellbeing in the body of the clinical record. It would be usual midwifery practice to provide a full documentation of the CTG recording at least every half hour, and particularly before assessments and/or interventions (such as epidural anaesthesia).

At 1404, upon commencement of the artificial oxytocin infusion, [Ms C] documented 'decreased variability at present'. She responded to this circumstance by turning [Mrs A] to her left side. Lying in this position is known to improve blood flow to the foetus and is an appropriate first-line midwifery response to concerns about the variability of the foetal heart.

[Ms C] then commented about the foetal heart more frequently. However, she did not offer a full summary of her assessment of the foetal heart recording characteristics at any time. The [DHB's fetal heartrate policy]; appended to this report) provides a summary of what is expected in each description of the foetal heart recording. At each comment about the foetal heart, [Ms C] provides some of the expected information.

[Ms C] correctly identified a foetal heart rate deceleration which commenced at 1436hrs. She reported this deceleration lasted 2 minutes. It is my assessment that this deceleration was, in fact, a 3 minute deceleration. I agree with [Ms C's] assessment that the depth of the deceleration was to 70bpm. Upon recovery to baseline, the foetal heart rate immediately decelerated again to 75 bpm. This second deceleration lasted just over a minute. [Ms C] responded by immediately turning the artificial oxytocin infusion off, changing [Mrs A's] position and performing a vaginal examination to assess progress. These are all relevant and appropriate initial actions. [Ms C] did not, however, document a plan based upon the outcome of her assessments. She also did not record having contacted [Dr B] and I am unclear as to whether/when she did this. Given the concern about the

foetal heartrate at this time, immediate consultation with an Obstetric Specialist was warranted.

[Ms C] has reported to the Health and Disability Commissioner that she made several phone calls to [Dr B], and [Dr B] agrees these took place. It is unfortunate that the outcome of these conversations and the ongoing plan of care for [Mrs A] is not documented. This lack of documentation restricts the ability of the observer to determine how significant and concerning [Ms C] felt the foetal heart rate changes were, and who was responsible for the decision to continue with the artificial oxytocin infusion. In particular, justification for the choice to recommence the infusion at 4mu/min, rather than starting from the lowest dose again, should have been provided.

Despite this lack of documentation, [Ms C] appears to have responded appropriately to the foetal heart rate changes and it is clear she made contact with [Dr B] on a regular basis.

[Ms C] was not responsible for the initial decision to administer artificial oxytocin. As an autonomous and self-responsible practitioner she was responsible for undertaking the administration appropriately and responding to the developing clinical picture as needed. Guiding documents for midwifery practice include 'The Scope of practice of the midwife' (Midwifery Council of New Zealand, 2010), 'Competencies for Entry to the Register of Midwives' (Midwifery Council of New Zealand, N.D.), 'The Standards of Midwifery Practice' and 'The Code of Ethics' (NZCOM, 2008). These documents all address the responsibility of midwives to provide safe and effective care regardless of their work setting. Even when working in conjunction with other health professionals to provide care for women, midwives retain their autonomy and are responsible for the choices they make and the care they provide.

An important consideration for midwifery care in any labour is the assessment of labour progress. This involves observation of the woman and her behaviour, monitoring the pattern of contractions (as described earlier), palpation to assess descent of the foetal head, and often vaginal examination to determine dilation of the cervix. Additionally, midwives observe and assess the emotional wellbeing of the mother, her experience of the pain associated with contractions and how she is coping with the labour process generally.

As discussed previously, [Mrs A] made excellent progress during her labour. This progress (as assessed by vaginal examination) was documented by [Ms C] in the clinical record and on the partogram. [Ms C] did not provide summary of [Mrs A's] experience of the labour process, other than when she commented that [Mrs A] was considering options for pain relief.

Thorough, meaningful and contemporaneous documentation should be undertaken at every midwifery contact with a woman. During labour midwives document approximately every 15 minutes. This documentation should include 'comprehensive assessments of the woman and baby's health and wellbeing' (Thorpe and Anderson, 2015, p641). This record holds several purposes. One

purpose is the provision of a summary of events which serves to assist caregivers to make assessments of the woman, baby and progress in labour. Additionally the documentation forms a legal record which clarifies discussions and information-sharing with the woman and other health professionals, assessments, results, advice and decisions. Finally, this labour documentation provides a lasting record of events for the woman and her whānau/family.

The 'Competencies for Entry to the Register of Midwives' (Midwifery Council of New Zealand, N.D.) include reference to the requirement for midwives to communicate effectively with each woman and her whānau /family (Competency One), share decision making with the woman and document the outcome of those decisions (Competency Two). Competency Two and Standards Three and Four of the Standards of Midwifery Practice (NZCOM, 2008) also specifically address the responsibility of the midwife to document thorough and meaningful progress notes at each and every contact with the woman.

[Ms C's] documentation is brief, has a narrow focus, and does not provide evidence of her holistic assessment of [Mrs A's] labour, her discussions with [Mrs A] and her support people and the decisions arising from those discussions. Additionally, [Ms C] does not provide any record of her communication with other health professionals during [Mrs A's] labour. The brevity of [Ms C's] documentation does impact on the interpretation of her actions.

Midwifery labour care will include consideration of maternal hydration and nutrition, bladder care, the support that the woman needs and is receiving, and whether involvement of other health professionals is warranted. This care is provided with reference to the woman's care plan, the developing clinical circumstances and the choices made by the woman during her labour (Thorpe and Anderson, 2015).

Following [Dr B's] assessment and the artificial rupture of [Mrs A's] membranes at 1140hrs, [Mrs A] requested epidural anaesthesia and [Ms C] arranged the attendance of the on-call anaesthetic RMO. She inserted an intravenous cannula and took blood for a full blood count and a group and hold. These are appropriate actions under the circumstances.

I cannot find a prescription for the intravenous fluids that [Ms C] commenced. These are documented on the fluid balance chart and within the clinical record, but not on the medication record. [Mrs A] received a minimum of 3000mls of intravenous fluid between 1220hrs and 1700hrs. It would be useful to know the reason for the significant amount of intravenous fluid administered. An anaesthetist will often request that 1000mls of intravenous fluid is administered rapidly prior to an epidural, to counter any potential blood pressure effects. After this, fluids are usually maintained at 1000mls every 8 hours, unless there is a clinical indication to administer more. The fluids administered may have been prescribed by [Ms C], [Dr B] or the anaesthetist.

Postnatal care provided to [Mrs A] by [Ms C]

On days one and two postpartum, [Mrs A] was visited by [the Clinic's] obstetric staff. [Ms C] seems to have visited on [day three] once [Mrs A] was transferred to the neonatal intensive care unit. I have not been provided with clinical documentation of that visit. [Ms C] has a note in the postnatal record 'Monday [three days following the birth] — NICU visit'.

The first documented midwifery postnatal visit is dated [a week following the birth]. I am unclear who visited [Mrs A] between the [NICU visit and this visit]. It would be usual midwifery practice to visit every day or two in the first week postpartum to assess maternal wellbeing even in circumstances where the baby has been admitted to the paediatric unit. Perhaps [Mrs A] was visited during this time by a [Clinic] obstetrician, but I do not have records which clarify this, or [Ms C's] plan for postnatal visits.

[A week after the birth] [Ms C] undertook a full midwifery assessment of [Mrs A]. She has documented that abdominal tenderness was present and suggested that [Mrs A] cease abdominal exercises for the time being. She did not offer further discussion or description of the abdominal tenderness [Mrs A] reported, or relate it to any symptoms of infection, which would ideally be ruled out in this circumstance. It appears that [Ms C] felt that the abdominal tenderness related to [Mrs A's] activities, but she might have documented this more effectively, if so. No commentary about [Mrs A's] bowel movements was provided. This is a relevant discussion to have when a woman describes abdominal discomfort.

At the visit [nine days after the birth], [Ms C] again noted abdominal tenderness, without relating this to any other symptoms [Mrs A] might have. More investigation was warranted given that this was the second comment [Ms C] had made about [Mrs A's] abdominal discomfort. Other than this omission, [Ms C] seems to have initiated relevant discussions and has recorded some detail of these.

At this visit, [Ms C] provided [Mrs A] the offer of on-going support and encouraged her to ring anytime postnatally. [Ms C] did not provide a summary of the plan for the remainder of [Mrs A's] postnatal care. [Mrs A] could expect to receive a minimum of 4 more midwifery visits in the postnatal period (Ministry of Health, 2007). The majority of women, particularly following their first baby and/or in circumstances of clinical complexity, would receive more than this.

Summary of opinion:

To address the requested advice:

1. Please comment generally on the standard of midwifery care provided to [Mrs A] by [Ms C].

The basic midwifery assessments undertaken by [Ms C] during [Mrs A's] labour appear to have been appropriate. I do not consider that there has been a departure from accepted practice in relation to these assessments. [Ms C's] documentation is brief and does not provide the expected clinical detail, which restricts the ability

of the reader to interpret [Ms C's] actions. Please see discussion of documentation under point 4 below.

There is no evidence that [Ms C] consistently recognised the concerning aspects of [Mrs A's] uterine activity during her labour. I cannot identify from the records who she communicated with about any concerns she did have, and the content and outcome of these discussions.

Given the evidence of uterine hyperstimulation, and of more than adequate progress of labour, the choice to continue with the artificial oxytocin infusion is of concern. I am unclear whether this decision was made by [Ms C] or [Dr B]. However, it was [Ms C's] professional responsibility to recognise the clinical concern, request [Dr B's] assessment in person and to discontinue the infusion. The continued use of synthetic oxytocin in this circumstance would be viewed, by [Ms C's] peers, as a moderate departure from accepted midwifery standards.

In addition, if not covered above please provide advice on:

2. The appropriateness of [Ms C's] actions during labour, in particular:

a. her response to the FHR changes:

It is my opinion that [Ms C] recognised the foetal heart rate changes during labour and her immediate responses were clinically appropriate. I do not consider that there has been a departure from accepted practice in relation to this issue. Again, there is minimal documentation about these foetal heart rate changes, in particular [Ms C's] communication of them to other health professionals, and the ongoing plan of care.

b. Her communication with [Dr B].

[Ms C] did not document any of her communication with [Dr B]. This makes it difficult to assess the effectiveness and appropriateness of her communication and whether timely conversations were initiated by [Ms C] in response to the developing clinical picture. In addition, the plan as a result of any assessments and/or concerns is not evident to the reader. Please see point 4 below for discussion of [Ms C's] documentation.

3. The appropriateness of the care [Ms C] provided to [Mrs A] in the postnatal period.

[Ms C's] care of [Mrs A] for the two documented postnatal visits seems to have been generally reasonable. There was opportunity for [Ms C] to make more thorough assessments of [Mrs A's] report of abdominal discomfort and/or to document this more comprehensively. Ideally, [Ms C] would have also documented a clear plan for the on-going postnatal care of [Mrs A]. These omissions represent a minor departure from accepted standards of midwifery care.

4. Any other comment you wish to make.

There are deficiencies in [Ms C's] documentation, which she acknowledges in her letter (dated 20/11/15) responding to my initial advice. I agree with [Ms C] that a

lack of documentation does not indicate that events did not occur. Rather, this restricted documentation impacts the ability of the observer to determine the detail of the care provided, including the rationale for it, and also the midwife's communication with family members and other health professionals.

Meaningful and detailed records which are thorough, and ideally contemporaneous, should be documented throughout labour. This midwifery documentation should include discussion of significant results, assessments, conversations, advice and decisions. Appropriate collation and maintenance of the clinical record allows midwives to provide a thorough record of events for women, communicate effectively with other health professionals, and demonstrate the effectiveness of the care they have provided.

In some circumstances, a lack of documentation will significantly impact on the care provided to the woman and her baby as it will undermine the midwife's communication with the family and with other health professionals as events unfold. It is my opinion that, in the circumstances surrounding [Mrs A's] labour and birth, [Ms C's] restricted documentation did not impact on the care of [Mrs A] or [her] baby. Rather, it impacts the ability of the observer to retrospectively determine the course of events which occurred.

As a result, it is my opinion that the midwifery community would consider [Ms C's] documentation represents a minor departure from accepted standards of midwifery care.

References:

[The DHB's Fetal heartrate policy].

[The DHB's Syntocinon policy].

Hunter, M. and Gunn, J. (2015). Pharmacology and prescribing. In S. Pairman, S. Tracy, C. Thorogood, J. Pincombe. (Eds.) *Midwifery: Preparation for practice* (pp. 858–890). Chatswood, NSW: Elsevier.

Midwifery Council of New Zealand (n.d.). The Competencies for Entry to the Register of Midwives. Retrieved from http://www.midwiferycouncil.health.nz/images/stories/pdf/competencies%20for%20entry%20to%20the%20register%20of%20midwives%202007.pdf

Ministry of Health (2007). Maternity services: Notice pursuant to Section 88 of the New Zealand Public Health and Disability Act 2000. Wellington, New Zealand: Author.

New Zealand College of Midwives. (2008). Midwives handbook for practice. Christchurch, New Zealand: Author.

Thorpe, J. and Anderson, J. (2015). Supporting women in labour and birth. In S. Pairman, S. Tracy, C. Thorogood, J. Pincombe. (Eds.) *Midwifery: Preparation for practice* (pp. 626–655). Chatswood, NSW: Elsevier."