Midwife, Mrs B

A Rural Maternity Hospital

A Report by the

Health and Disability Commissioner

(Case 07HDC16053)

Health and Disability Commissioner
Te Toihau Hauora, Hauātanga

Overview

At 4am on 13 January 2007, Ms A, a young woman in the 41st week of her first pregnancy, was admitted in labour to a private rural maternity hospital[1] by her midwife, Mrs B. At 10.35am, after a prolonged second stage, Mrs B arranged for Ms A to be transferred to a public hospital by ambulance. Ms A was admitted to the public hospital at 1.45pm. Her baby was delivered by a difficult emergency Caesarean section at 3.15pm with severe bruising to his brow and face, and a crush injury to his nose.

Complaint and investigation

On 7 September 2007, the Health and Disability Commissioner (HDC) received a complaint from Ms A about the services provided by midwife Mrs B. The following issue was identified for investigation:

- *The appropriateness of midwife Mrs B's management of Ms A's labour and transfer to the public hospital on 13 January 2007.*

An investigation was commenced on 24 September 2007. The parties directly involved in the investigation were:

Ms A	Consumer/Complainant
Mrs B	Provider/Midwife
Ms C	Midwife
A private maternity hospital	Provider/Private hospital/Employer

Independent advice was obtained from midwife Chris Stanbridge, and is attached as Appendix 1. Additional advice was sought from Ms Stanbridge and is attached as Appendix 2.

What happened?

Antenatal care
Ms A registered with LMC[2] midwife Mrs B on 18 September 2006 when she was in the 24th week of her first pregnancy. Ms A attended antenatal visits on 27 December 2006 and 10 January 2007.

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[1] Mrs B is the Charge Midwife at the private rural maternity hospital.

[2] A Lead Maternity Carer refers to the general practitioner, midwife or obstetric specialist who has been selected by the woman to provide her complete maternity care, including the management of her labour and birth.

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11 January 2007
At 3.30am on 11 January 2007, Ms A experienced contractions and telephoned Mrs B, who told her to wait for an hour and, if she was still contracting, to contact her again. Ms A was admitted to the private maternity hospital by midwife Ms C at 5.50am. Mrs B arrived at 6am. She performed a CTG[3] and found that labour had not yet established.

Ms A stayed at the hospital throughout the day. Mrs B did not keep any notes on the progress of Ms A's condition during this time.

At 10pm, Mrs B noted that Ms A was "not in established labour" and had been out for a long walk and a meal. Mrs B gave Ms A an intramuscular injection of 50mg of pethidine for relief of pain, and performed a CTG, which was satisfactory.

Mrs B stated that because Ms A was tired and very young she was allowed to stay at the hospital. Mrs B stayed on duty to reassure Ms A and her partner.

12 January
At 7am on 12 January, Mrs B reassessed Ms A and performed a further CTG, which showed mild uterine contractions and a normal fetal heart rate. Mrs B advised Ms A to go home to rest and to come back to hospital on Monday 15 January for a CTG, if her labour had not established.

Labour — 13 January
Ms A's labour commenced at 2am on 13 January. She was admitted to the private maternity hospital at 4am by senior midwife Ms C. Ms A did not bring the clinical record from her earlier admission on 11 January.

On admission, Ms A was in good labour with contractions occurring every two minutes. The fetal heart rate was noted to be 130–140 beats per minute (bpm).

Mrs B was notified that Ms A had been admitted and she arrived at the hospital at 4.20am. On admission, Mrs B examined Ms A and found that her cervix was 8−9cm dilated. Ms A's uterine membrane ruptured spontaneously at 4.15am, yielding "slight meconium[4] stained liquor".

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[3] A cardiotocograph or CTG is the external electronic monitoring of the fetal heart rate. A CTG can indicate any abnormalities in fetal heart rhythm, which may indicate fetal distress. The Doppler unit converts fetal heart movements into audible beeping sounds and records this on graph paper.

[4] Meconium is the first faecal material evacuated from the fetus's or newborn's rectum, and appears green to very dark green. It is normal for meconium to be expelled within the first one to two days of birth. Meconium can be present in the amniotic fluid as a green staining. Although not always a sign of fetal distress, meconium in the amniotic fluid is highly correlated with its occurrence. Meconium in the amniotic fluid reveals that the fetus has had an episode of loss of sphincter control.

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Ms A says that her membranes did not rupture spontaneously and that Mrs B ruptured it "purposely" with her fingernail, having told her she was going to rupture the membrane and held up her fingernail.

Mrs B recalls that the membrane bulged three times with contractions. On one of these occasions, she thought she saw the baby's head. She believes that when she inserted her finger to check for the presence of the head, she may have inadvertently ruptured the membrane. Mrs B said that when the membrane is bulging in this manner, the slightest touch is enough to cause it to rupture. She states that she would have told Ms A when the membrane ruptured, but she would not have held her finger up in the manner described.

Ms A started pushing shortly after she was admitted. She recalls that Mrs B told her she could push when she felt like it.

At 6.30am, Ms A was standing at the end of the bed, having "good" contractions every one to two minutes and feeling some pressure to push. Ms C continued to document Ms A's progress until 6.45am. At that time, Mrs B noted that Ms A was fully dilated (10cm).

At 6.50am the "first peep" of the baby's head was seen, and Ms A was noted to be "effectively pushing".

At 7.03am, Mrs B noted that although Ms A was pushing well, the head was "not as low as first appeared" and was advancing slowly. At 7.20am Mrs B recorded that Ms A was pushing well and the fetal heart rate was 120bpm.

At 7.50am Mrs B noted that the fetal heart rate dipped to 80−90bpm during a contraction, but recovered immediately after the contraction, rising to 130bpm.

At 8.15am, Mrs B performed a vaginal examination. She recorded her impression that the baby was presenting "face to pubes", not a good position for an easy delivery. She could also feel a "caput", which is a collection of fluid under the scalp caused by the prolonged pressure of the baby's head against the cervix. Mrs B recorded placing Ms A in a variety of positions, to enhance her ability to deliver vaginally.

Mrs B continued to observe Ms A and the baby closely. At 9.45am she recorded that the fetal heart rate was 135bpm and that she saw a "blister" on the baby's head.

Ms A complained that Mrs B ruptured this blister. Mrs B stated that she would not and could not do this. At that time the baby's head was still high in the pelvis. She did see "a little something" but was not sure what she was seeing. It could have been a blister or a piece of torn membrane. Mrs B stated that she was honest with Ms A and recorded what she saw.

At 10.15am, when Ms A had failed to progress further, Mrs B talked to her about transfer to the public hospital for the delivery. At 10.17am, Ms C telephoned the

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ambulance service and Mrs B started intravenous therapy in preparation for Ms A's transfer.

At 10.35am, Mrs B spoke to the public hospital's obstetric registrar, who recorded that Ms A would be coming by ambulance. The records note that Ms A was transferred to the ambulance at 10.55am, accompanied by Mrs B and Ms A's partner.

It was noted that meconium-stained liquor was still draining at 10.55am and the fetal heart rate was recorded. The fetal heart rate had been checked regularly between 7am and 9.55am, but had not been checked in the hour before transfer.

Pain relief during transfer
Ms A said she was very distressed with pain, but that Mrs B would not give her any pain relief until they were nearly at the public hospital, when she was given some Entonox.

The notes record that Ms A was given Entonox in the ambulance at 11am, about five minutes after transferring to the ambulance.

Ms A denies that she was given Entonox about five minutes after she was loaded into the ambulance. She clearly remembers first being given the Entonox just before a town which is more than half an hour by road from the private maternity hospital.

Mrs B stated that Ms A was connected to ambulance Entonox cylinders, mask and tubing as soon as she was settled in the ambulance. Ms A was "moving from position to position" at this stage and may not remember events clearly.

Mrs B is sure that had Ms A been given pethidine at that time it would have resulted in a "flat" baby, ie, the baby's respiratory and circulatory systems would have been adversely affected by the sedative effect of pethidine. She said, "It is very important to have a safe baby especially for the [2½ to 3 hours] transfer time."

During the journey Mrs B monitored the well-being of Ms A and her baby, who both remained stable.

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The public hospital

Ms A arrived at the public hospital at 1.40pm. She was assessed by an obstetric registrar who noted that there were fetal heart decelerations[5] with contractions. The obstetric registrar connected a CTG, called an anaesthetist to administer an epidural anaesthetic and, following discussion with a consultant, planned to examine Ms A in theatre after her pain had been brought under control. However, the spinal anaesthetic did not work well and a second procedure was performed, which provided effective anaesthesia. At 2.37pm the epidural was functioning but, by this time, the baby was showing signs of fetal distress.

At 2.42pm a further vaginal examination was performed to assess the progress and presentation of the baby. The consultant determined that the baby was presenting abnormally, with a brow presentation. It was decided to proceed with an immediate Caesarean section delivery.

Delivery and resuscitation of baby

Ms A was transferred to theatre for the Caesarean section. The hospital records indicate that the delivery was difficult and that forceps were needed to extract his head from the birth canal. The baby was suctioned at birth and initially attempted to breathe, but at around 10 minutes became pale and stopped breathing.

The baby required respiratory support. He was intubated[6] and transferred to the Neonatal Intensive Care Unit. The baby had a large haematoma on his forehead from the obstructed labour. He also suffered a crush injury to his nose, thought to be caused by the forceps pulling him from the birth canal. MRI scans have also revealed some brain disturbances thought to be caused by "peripartum hypoxia" (lack of oxygen during labour).

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[5] *Early decelerations* are periodic decreases in the fetal heart rate resulting from pressure on the fetal head during contractions. The deceleration follows the pattern of the contraction, beginning when the contraction begins and ending when the contraction ends. The tracing of the deceleration wave shows the lowest point of the deceleration occurring at the peak of the contraction. The rate rarely falls below 100 bpm and returns quickly to between 120 and 160bpm at the end of the contraction.

Late decelerations are delayed until 30 to 40 seconds after the onset of the contraction and continue beyond the end of the contraction. This is an ominous pattern in labour because it suggests placental insufficiency or decreased blood flow through the uterus during contractions. The lowest point of the deceleration occurs near the end of the contraction (instead of at the peak).

[6] A tube is inserted through the mouth into the trachea to maintain an airway.

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Related issues

Helicopter transfer to public hospital
Ms A thought that she would have had a more comfortable transfer by helicopter instead of an ambulance. Mrs B responded:

> "On occasions helicopter transfer is deemed necessary by both [a] Hospital specialist and the client's LMC midwife when the mother and/or baby is at risk. Mother and baby [in this case] had good observations on the way to [hospital]."

The Intensive Care Unit (ICU) Clinical Leader supported Mrs B's decision to transfer Ms A by ambulance. There is often an overly optimistic estimate of the time it takes to retrieve a patient by helicopter. If the referring hospital is within 60 to 90 minutes' drive, it is often quicker to travel by road.

He stated that there two criteria for helicopter retrieval: "time-critical" (when a patient is at such risk that it is imperative the patient receive treatment in the shortest possible time) and "skill-critical" (the patient needs to be provided with medical care not available at the referring centre). As well as taking into account staff pick-up, the weather, daylight conditions, and opportunity costs, the decision must be balanced with the clinical situation and whether the patient's condition is likely to deteriorate en route. It can be safer and quicker to transfer by road because of the immediacy of the ambulance. If the decision is made to decline air transport on clinical grounds, and the situation worsens, the helicopter can then be dispatched to meet the ambulance on the way. Delivering a baby in transit in a helicopter is less than ideal and should be avoided whenever possible.

Documentation
Mrs B recorded Ms A's labour on two separate sets of notes. She made rough contemporaneous notes and later transcribed them into a more legible form.

Mrs B made two errors in transcribing her rough 'Notes on Labour and Delivery' (the Notes) to the more legible form, the 'MMPO'[7] midwifery notes. Mrs B noted on the Notes at 7.20am that the fetal heart rate was recorded in the "120s". In the MMPO notes she recorded that at 7.25am the fetal heart rate was in the "130s". She also failed to transcribe into the MMPO notes a fetal heart rate, which was recorded in the Notes as 122bpm at 7.45am. The Notes record Entonox being given at 11am and the MMPO notes show that the Entonox was given at 11.30am. All other aspects of the notes correspond.

Mrs B stated:

[7] Maternity and Midwifery Provider Organisation.

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> "[Ms A] and her family did not bring the MMPO Care Notes with them at the second admission during the time of labour. Following two requests from me to the client and/or her family to give me the MMPO notes I was finally able to record, after several months, the care provided based on the Facility notes."

ACC decision
Ms A made a claim to ACC as a result of her baby's crush injury and suspected brain injury. ACC sought expert advice from independent obstetrician Dr Ngan Kee, who stated:

> "[Ms A] was fully dilated and pushed for three hours before the long transfer to [the public] Hospital was arranged. There is general agreement amongst Obstetricians that women should not push for more than 1–2 hours without intervention. In my opinion 8.5 hours in the second stage and over 3 hours pushing represents poor practice and in my judgement there has been an error in management in not arranging the transfer at an earlier stage.
>
> In summary, it is my opinion that errors in management occurred that contributed significantly to the injuries that the baby sustained."

Ms A's claim was accepted as treatment injury on 6 June 2007. For the purposes of determining whether a treatment injury has occurred, or when that injury occurred, section 33 of the Injury Prevention, Rehabilitation and Compensation Act 2001 defines "treatment" as:

a) the giving of treatment;

b) a diagnosis of a person's medical condition;

c) a decision on the treatment to be provided (including a decision not to provide treatment);

d) a failure to provide treatment, or to provide treatment in a timely manner.

Dr Ngan Kee's comments suggest that the delay in Ms A being transferred amounted to a failure to provide treatment in a timely manner, which caused a treatment injury.

Responses to provisional opinion

Mrs B
Mrs B stated:

> "I consider the report both professional and fair. … It is not easy being an LMC midwife in a rural environment two and a half hours from a base hospital.

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> Your best efforts to deliver 'Best Practice' care to client and baby are on occasions not understood nor appreciated."

Ms A
Ms A stated:

> "I find it unacceptable that this report gives little consideration to Obstetrician Dr Digby Ngan Kee's opinion but rather places major emphasis on Midwife Chris Stanbridge's opinion. I personally find the advice obtained by Chris Stanbridge unconvincing as it is based on a considerable amount of assumptions and creates in the reader's mind a sense of uncertainty rather than providing factual information as to what took place. This is highlighted by the regular use of phrases and words such as '*it appears*', … '*presumably*'. …
>
> Justifying [Mrs B's] actions because she operates in a rural location is also unacceptable. The very point I am trying to make with my complaint is that mothers and babies living in such locations are not disadvantaged and have the right to the very best kind of care appropriate to that location. Clearly the standard of care my baby and I received in this instance is unacceptable and needs to be addressed."

Dr Ngan Kee
Dr Ngan Kee reviewed the provisional opinion and advised:

> "The management of labour in this case ultimately led to a very prolonged second stage of 8.5 hours with an undiagnosed brow presentation. … In my opinion there was ample opportunity for much earlier intervention that might have resulted in a better fetal outcome. The professionals looking after [Ms A] should have also taken into account the increased transfer time from a remote location in their decision making. … By any first world standard, the care in this case is below what is generally considered acceptable and I believe your decision should reflect this opinion."

Dr Ngan Kee criticised the advice from Ms Stanbridge and Ms Thorpe as contradictory because they both note, "with hindsight", that the second stage of labour went on for too long but then go on to say that the care was appropriate. However, on several occasions in his report, Dr Ngan Kee refers to what "most obstetricians" would do in this scenario. When he considers the New Zealand College of Midwives standards, Dr Ngan Kee acknowledges that he is considering these "as an obstetrician".

Dr Ngan Kee also commented:

> "Several rural Obstetric units have already closed ie Kaitaia and several provincial Obstetric units [Wanganui, Masterton, Invercargill, Greymouth] are under threat due to resource issues, primarily specialist staffing. It is likely that many of these units will be closed (at times) in the future, and will have to partner with larger neighbouring units to accept acute transfers. Risk

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> assessment, risk management and clearly defined transfer protocols will be needed to ensure patient safety. Prolonged second stage will be a frequent reason for transfer and I think it is likely that a common criteria for the transfer of primigravida will be a second stage length of 1−2 hours."

Discussion — key issues

Labour management

There is some dispute about when Ms A started pushing but it is not disputed that Ms A was in good labour at about 4am and was fully dilated at 6.45am. The notes first show Ms A pushing at 6.50am.

Ms A believes that the baby should have been delivered sooner, noting obstetrician Dr Ngan Kee's advice to ACC that Mrs B's delay in deciding to transfer Ms A was an "error in management". Dr Ngan Kee said that allowing a woman to labour 8½ hours in second stage and push for more than three hours "represents poor practice". ACC, in accepting that the baby sustained a treatment injury, implicitly accepts the view that he should have been delivered sooner.

HDC's midwifery advisor agrees that Ms A laboured too long in her second stage, but explained that this is only apparent now, with the benefit of hindsight. Chris Stanbridge noted that "[The baby's] outcome will have been influenced by the length of [Ms A's] second stage of labour" and "8 hours is a long time for second stage of labour" but that "it is easy to make retrospective criticism about the care provided by another practitioner who works in a totally different environment". Mrs Stanbridge's colleague, Juliet Thorpe, who was asked to comment, stated that "with the beauty of hindsight we can see how the length of second stage is of concern".

Mrs Stanbridge advised that, in the past, there was a two-hour limit set on the second stage of labour for a first birth. However, the "medicalised approach" of trying to fit all women into a set time framework for any stage of labour can result in unnecessary intervention and cause harm. The role of the midwife is to support the normal physiological process of birth, while watching the mother and baby for any sign of deviation from normal. Mrs Stanbridge advised that Mrs B made "reasonable decisions" about Ms A's care, monitored her closely, and gave "close and appropriate care" during the labour.

I accept that Ms A was in a stable condition throughout her prolonged second stage of labour and that even after she was transferred to the public hospital, she was allowed to labour for another hour before the decision was made to proceed to delivery by Caesarean section.

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Meconium-stained liquor

Mrs B noted meconium-stained liquor when Ms A's membranes ruptured at 4.15am on 13 January 2007. The fetal heart rate was monitored regularly between 4.15am and 9.55am. However, there is no record of a fetal heart rate between 9.55am and 10.55am, when meconium-stained liquor is noted for the second time.

Mrs Stanbridge advised:

> "Meconium stained liquor (fluid around baby) can be indicative of a baby that has or is experiencing some element of stress. It can also occur in a mature baby without necessarily indicating stress. Thin watery meconium liquor is seen as less of an indication of stress than thick meconium. It is generally seen as an indication to monitor the baby's heart rate frequently."

Transfer to secondary services

The timing of Mrs B's decision to transfer is a key issue. There was slow progress in the baby's descent through the birth canal. At 8.15am, Mrs B suspected the baby was not in a good position, presenting "face to pubes". There was evidence of progress, albeit slow progress, until 10.15am. At that time Mrs B discussed with Ms A the need for her to transfer to the public hospital and arrangements were made for transfer by ambulance.

In arriving at her decision Mrs B had to balance the possibilities: Ms A delivering safely at the private maternity hospital, the baby delivering in the ambulance with only Mrs B in attendance and the baby needing resuscitating, and the chance of arriving at the public hospital with a well mother and baby. This is the reality of maternity services in rural New Zealand.

Mrs Stanbridge advised that the possibility of transfer is always present when a woman labours in an outlying area. In a remote rural setting, the practitioner is constantly aware of the progress of the labour and the possibility that transfer to secondary services might be required. When considering transfer, the midwife needs to consider a number of factors, including consent of the woman and her family, local transfer processes, and the ongoing assessment, care and support of the woman and baby. The decision to transfer needs to be balanced against the risk of not moving. The majority of women do not transfer to a major facility.

In relation to the timing of Ms A's transfer, Mrs Stanbridge advised that Mrs B made a "reasonable decision", noting the good condition of mother (although distressed) and baby on admission to the public hospital. Ms Thorpe advised that a more thorough vaginal examination in the second stage may have identified that the delay in Ms A's labour was caused by a brow presentation. However, both mother and baby were well during labour. The baby only exhibited signs of distress some time (more than an hour and a half) after admission. Ms Thorpe stated, "From the information I have read I would have to concur with [Mrs Stanbridge] that reasonable care was provided." In

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her view, the midwives "acted professionally … and within the environment that they were working [in]".

Documentation
Mrs B's 'Notes on Labour and Delivery' were a handwritten contemporaneous record, whereas the MMPO notes were not completed for several months, because she was unable to obtain the notes from the family and finally transcribed from the original notes. Mrs B failed to annotate that the MMPO records were completed retrospectively.

Mrs Stanbridge advised that Mrs B's notes are "adequate, [but] fuller notes could have documented her rationale for actions and decisions made and how she included Ms A and her family in decision making". There are some minor disparities between the two sets of notes, although not issues critical to the management of Ms A's labour and transfer.

Opinion

I have reached the following conclusions about this case:

1. Mrs B met professional midwifery standards in her management of Ms A's labour and the timing of the decision to transfer to the public hospital.

2. Noting the advice from my expert and the clinical leader from the public hospital's ICU, I accept that the decision to travel by road (ambulance) rather than air (helicopter) was sound. Nor do I have any concerns about Mrs B's pain management during the trip. Although the journey must have been very unpleasant for Ms A, there was a risk that pethidine could endanger her baby.

3. Mrs B's documentation did not meet professional standards. Health professionals are required to keep accurate, clear and legible clinical records. They are a record of the care provided to the patient and clinical decisions made, and enable other health professionals to coordinate care. I recommend that Mrs B review her documentation practice in light of Mrs Stanbridge's comments.

4. Did Ms A receive "services of an appropriate standard", to which she was entitled under Right 4(1) of the Code of Health and Disability Services Consumers' Rights (the Code)? A woman in Ms A's situation has the right to a reasonable standard of *maternity* care. Mrs B was Ms A's lead *maternity* carer. According to HDC's midwifery expert, Ms A received a reasonable standard of midwifery care, and it is only with the benefit of hindsight that we can say Ms A laboured too long in the second stage of labour. According to ACC's independent obstetric expert, Ms A did not receive an appropriate standard of

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maternity care, because of "an error of management in not arranging the transfer at an earlier stage".

It seems that obstetricians (who take a risk-averse, interventionist approach) and midwives (who take a less interventionist approach, to allow the normal physiological process of labour to proceed) do not agree on what is reasonable care in this type of situation.

The differing philosophy and practice is evident in the approach to key issues in this case, including the frequency of fetal heart monitoring (given the long labour and the presence of meconium-stained liquor) and the timing of the decision to transfer to secondary services. A case can certainly be made for closer monitoring of the fetal heart rate (I note that there is no record of it between 9.55am and 10.55am on 13 January 2007) and for earlier transfer. It is a curious situation where ACC accepts that the midwife's delay amounted to "poor practice", but midwifery advisors describe the same care as "reasonable" and "close and appropriate".

I hesitate to find that Ms A did not receive services of an appropriate standard given this difference of professional opinion. What is clear, however, is that midwives and obstetricians working as lead maternity carers should spell out to women their own philosophy of care in the event of delay or difficulties during labour.

The "Statement on Stand-alone Primary Childbirth Units" (23 July 2007)" issued by the Royal Australian and New Zealand College of Obstetricians and Gynaecologists (RNZCOG) notes that, where, by virtue of a unit's remote location, onsite obstetric services are not available, patients should be informed of the limitations of services available and the implications for intrapartum and postpartum care. In my view, the New Zealand College of Midwives (NZCOM) should consider developing a consensus statement to cover the same issues. At least that way women may be better informed about possibilities and more empowered to ask for intervention at an earlier point.

In conclusion, although the baby suffered a treatment injury that may have been avoided by an earlier transfer, I do not consider that a legal finding is justified that Mrs B failed to provide services of an appropriate standard under the Code.

5. Given my conclusion that Mrs B did not breach the Code, it follows that her employer, the private hospital, is not vicariously liable for her conduct.

6. I endorse Dr Ngan Kee's comment that, for women labouring in small rural maternity units under midwifery care, "risk assessment, risk management and clearly defined transfer protocols will be needed to ensure patients safety". I recommend that the RANZCOG and NZCOM develop a joint statement

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covering these issues and that the Ministry of Health ensure that appropriate transfer protocols are in place.

Follow-up actions

- A copy of this report will be sent to the Accident Compensation Corporation, the Midwifery Council of New Zealand, the New Zealand College of Midwives, the Royal Australian and New Zealand College of Obstetricians and Gynaecologists and the Ministry of Health.
- An anonymised copy of this report will be sent to the Maternity Services Consumer Council, and the Federation of Women's Health Councils Aotearoa, and placed on the Commissioner's website, www.hdc.org.nz, for educational purposes.

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Appendix 1 — Independent advice to Commissioner

The following expert advice was obtained from midwife Chris Stanbridge:

> "I have read the supporting information and believe, overall, [Mrs B] provided reasonable midwifery care with the following proviso.
>
> It appears the notes 'D' are a hand written copy of the [private maternity hospital] facility notes, and the MMPO notes 'E' were written in retrospect based on the facility notes. Neither have been annotated as such, although [Mrs B] explains the copying involved in her letter of 22.10.07. … It is unfortunate the original notes were not included. However, I make the assumption the facility notes have been accurately copied, and have treated them as contemporaneous notes. … I received no notes of [Ms A's] antenatal period. While [Mrs B's] notes are adequate, fuller notes could have documented her rationale for actions and decisions made, and how she included [Ms A] and her family in decision making.
>
> The main standard that is applicable is that of the New Zealand College of Midwives 'Midwives Handbook for Practice', standard six, which states:
>
>> *'Midwifery actions are prioritised and implemented appropriately with no midwifery action or omission placing the woman at risk' (the word 'woman' includes her baby).'*
>
> The possibility of transfer is always present when caring for women in outlying areas. The majority of women do not, in fact, need transfer, either through pregnancy, labour, or postnatally.
>
> Brow presentation of the baby is an unusual phenomenon occurring only in one in fifteen hundred births. Brow presentation is where the baby's head is partially extended rather than the normal full flexion – ie the baby's forehead is leading its descent rather than the top back part of its head.
>
> It is more likely to occur in a woman who has had previous babies (and with other disorders, none of which [Ms A] had).
>
> The indicators present on vaginal examination (being able to feel the larger anterior fontanelle (meeting place of the bony plates that make up the baby's skull; and possibly the ridge of the eye brow)) are difficult to detect because of the swelling that forms.
>
> This swelling (like bruising; called caput) is commonly present in many births, particularly first births, and especially with 'OP' (occipito-posterior; baby facing the front of the mother rather than the normal back facing position).

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Babies presenting by a persistent brow position are not able to birth vaginally (unless they are very small eg premature).

The current New Zealand midwifery text, 'Midwifery, Preparation for Practice' explains what experienced midwives are aware of, and research has demonstrated. The medicalised approach of trying to fit all women in to a set time framework for any stage of labour can end in unnecessary intervention, and at times causes harm. The role of the midwife is to support the normal physiological process of birth, while monitoring both mother and baby for signs of deviation from the normal that might require appropriate intervention.

In the past there was a two hour time limit set on second stage of labour for a first birth. This is no longer the universally accepted imperative. Of more relevance is the consideration given to progress, and the well being of mother and baby.

Where progress appears to be slow, or has slowed, there are a number of options which can facilitate a normal birth. These include the woman:

- changing position (squatting; standing; kneeling; sitting on chair, toilet or birthing stool)
- moving around
- being upright (also maximises blood / oxygen availability to baby)
- emptying her bladder
- emptying her bowel
- being encouraged and supported by family and midwife
- being in a familiar environment
- use of water – pool / bath or shower
- ensuring adequate hydration.

Also of account is the frequency and length of contractions. Pushing is usually most effective at the peak of a contraction. If the contractions are short there is often slow progress as there is minimal effective pushing time in each contraction. Similarly, if contractions are widely spaced, the overall time taken to progress is longer than when the contractions are more frequent. In the early time of pushing, the pushing urge may not be strong, nor throughout the contraction, and this time may see minimal, if any, progress. Further into the second stage the urge is much stronger and pushing generally more effective.

When considering transfer there are a number of aspects to be considered. There is a need to be familiar with the usual processes needed to instigate

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transfer. This varies within different institutions and regions, depending on the circumstances of that institution. It includes knowledge of:

- who to consult with about the transfer (eg local base hospital and the appropriate obstetric and midwifery staff within that)
- criteria for alternative forms of transport (eg is it appropriate to use car, ambulance, helicopter)
- processes for calling the ambulance
- time expected for it to arrive
- expected skill levels of staffing of the ambulance
- time it takes to reach base hospital
- factors that may influence travel time (eg weather, roading).

There is the decision making process — what is happening that the midwife is considering transfer:

- this needs to be discussed with the woman and her family
- informed consent needs to be given
- discussion would then need to take place with the receiving agency, and this may include advice on form of transport and management for the transfer.

Relevant information needs to be shared with the receiving agency:

- this is generally a verbal outline before transfer occurs
- this is normally accompanied by written referral, and usually the woman's notes, on actual transfer.
- includes the woman's clinical details, medical and obstetric history, test results, progress of pregnancy or labour to date, and reason for transfer

Preparation for transfer includes:

- ongoing assessment of the woman and baby
- ongoing care and support for the woman and her family
- probable insertion of an intravenous (IV) line and attaching tubing for administration of IV fluids
- possible insertion of a urinary catheter
- equipment to continue to monitor the woman and her baby en route

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- preparing equipment and medications to accompany the woman in case birth occurs en route
- ensuring the family are aware of where to go when they arrive at the base hospital
- arrangements for the return of the LMC who accompanies the woman.

Once the ambulance arrives:

- introducing the woman and sharing of information with the ambulance crew
- the woman continues to need care and observation while moving into the vehicle
- the gear needs to be transferred.

Transfer takes place with ongoing support

- assessment
- management of care.

On arrival at the base facility:

- introduction of the woman to the receiving staff
- physical handover of the woman
- handover of her documentation.

[Mrs B] has met the criteria of standard six of the NZCOM Standards of Midwifery Practice that apply in this situation. This included:

- ongoing assessment and modifying the midwifery plan accordingly
- identifying deviations from the normal
- discussion with the woman
- consulting and referring appropriately
- working collaboratively with other health professionals
- referring when she had reached the limit of her expertise.

[Mrs B] appears to have given close and appropriate care to [Ms A] during her labour. This includes working with the support and collaboration of her midwifery colleague [Ms C], documented as arriving (presumably at [the rural maternity

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hospital]) between 4am and 5am, … and present (presumably in the room with [Ms A] and her family, and [Mrs B]) from 6.50am. …

[Mrs B] documents seeing [Ms A] in early, non-established labour. She monitored the baby with a CTG (cardiotocograph — used to record a tracing of baby's heart rate running parallel to the recording of contractions). … She settled [Ms A] for the night with a small dose of pethidine (pain relief) and stemetil (to prevent nausea and with some sedative effect). … In the morning she was further assessed, including a CTG, before going home. …

[Ms A] returned at 4am the following morning 'in good labour'. … She commenced using entonox — nitrous oxide and oxygen — a pain relieving gas. … Her membranes appear to have ruptured spontaneously at this stage. The fluid was clear to slight meconium stained. …

[Mrs B] performed a vaginal examination which showed bulging forewaters, and the cervix opened 8–9cms (fully opened at 10cms). D page 13. She does not record the level of the presenting part, or if she assessed what the presenting part was.

[Ms A's] labour appears to be progressive at this stage with strong contractions lasting 45 seconds recorded. … By 6.30am [Mrs B] has recorded [Ms A] feeling 'some pressure'. The baby's heart has been monitored. … [Mrs B] records [Ms A] being 'fully dilated' at 6.45. She does not say if this was assessed by vaginal examination or by the characteristics of [Ms A's] labour and her response. … Baby's head was first thought to be seen at 6.50am. … There was a further loss of 'good amount' of thin meconium stained liquor noted at 7.03am. … Meconium stained liquor (fluid around baby) can be indicative of a baby that has or is experiencing some element of stress. It can also occur in a mature baby without necessarily indicating stress. Thin watery meconium liquor is seen as less of an indication of stress than thick meconium. It is generally seen as an indication to monitor the baby's heart rate frequently.

[Mrs B] clarifies it was not baby's head seen earlier, but bulging membranes. ... This is not an uncommon occurrence. [Mrs B] acknowledges the 'great pushing' [Ms A] was doing. … [Mrs B] continues to record baby's heart rate frequently. … She records changes of position and [Ms A] moving around. … At 7.30am she comments 'no further advance of head'.

[Mrs B] notes a slight drop in the heart rate with good recovery at 7.40am, and subsequently documents the baby's heart rate more frequently. … She does not record how she was listening to baby (whether intermittently or continuously). No CTG recordings were included in the notes I received.

[Mrs B] continues to document 5 minutely how [Ms A] is moving around (staying active and upright), and the baby's heart rate. At 8.15 she notes 'descent slow? face to pubes'. … Five minutes later she records 'starting to bulge' (a sign of progress)

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and 'caput' (common 'bruising' seen on the presenting part of babies). … Being able to see caput further suggests progress.

[Ms A] continues to move around, trying different positions. [Mrs B] continues to record frequent heart rates. … At 9.45am, [Mrs B] notes a blister on baby's head. This suggests there is sufficient of baby's head on view to be able to see the blister. Although blisters are not commonly seen, they can be present with nothing untoward happening.

At 9.55am [Mrs B] catheterises (passes a fine tube into [Ms A's] bladder) and measures and checks her urinalysis (urine test) and blood pressure. … All are acceptable for the stage of labour. It would seem that at this stage, [Mrs B] is beginning to think she needs to be more actively assessing what is happening with [Ms A's] labour.

By 10.15 [Mrs B] has recorded discussing transfer with [Ms A]. … The assumption is this is acceptable to [Ms A] as the next entry, at 10.55am, records [Ms A] now having an IV line with fluids running, and in the ambulance. …

[Mrs B] writes [in response to HDC] that the decision to transfer was made in conjunction with her colleague ([Ms C]) and the [public hospital] registrar. The hospital notes support this with an entry by the (presumably) registrar at 10.35am summarising progress to date, and noting 'for ambulance Xfer' (transfer). … Half hourly recordings during transfer show [Ms A] continued to push, with the support of entonox, and baby's heart rate was within the normal range. …

[Mrs B] appears to have:

- monitored [Ms A] and her baby closely throughout her labour
- made notes acknowledging slow progress in labour
- supported [Ms A] to mobilise to enhance progress
- worked closely with her midwifery colleague
- acted on the stalling of progress by referring
- arranged transfer
- prepared [Ms A] for transfer
- provided entonox to help [Ms A] cope with her labour
- accompanied [Ms A] to base hospital.

The midwife who received [Ms A] at [the public hospital], records her being distressed and pushing with three contractions in ten minutes. Her CTG had a baseline of 145 and was reactive ie was reassuring. At this stage it is recorded [Ms A] is draining clear liquor. Her recordings are normal. … It appears [Ms A] and her

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baby were in good condition on admission to [the public hospital]. It is to be expected [Ms A] would be finding it difficult to cope at this stage.

The registrar records (in retrospect but shortly after delivery) there was still some of baby's head palpable above the pelvic brim abdominally, and that, on internal examination, s/he could not define baby's presenting part because of caput. … There appears to have been some difficulty in commencing a spinal anaesthetic (to provide pain relief, to enable a better assessment of [Ms A's] progress, and to enable assisted delivery). … Forty minutes after admission to [the public hospital], late decelerations (a sign of baby distress) are noted on the CTG. … An internal examination (under spinal which allows more extensive examination) at 2.42pm ascertained a brow presentation, and a repeat spinal anaesthetic needed to be administered … to enable them to progress to a Caesarean section an hour and 25 minutes after admission. …

In retrospect one could question whether too long was taken to decide on transfer for [Ms A]. Documentation shows there was spurious progress through the time of 7am to 10am with 'great pushing', 'descent slow', 'starting to bulge' and baby's head on view, implying progress. While progress (albeit slow) is being made, and maternal and baby well being is being demonstrated, it is appropriate to continue to work towards a normal birth.

Involved in the considerations through this time is the time taken to transfer. [Mrs B] notes the average transfer time is 2½ to 3 hours. ... If progress is being made, and the mother and baby are coping, it would be unwise to transfer with the possibility of delivering en route. This would expose the birth to sub-optimal conditions. The mother is exposed to greater risk with less freedom to adopt a comfortable and progressive position; more difficulty assessing both the mother and baby, both before and after birth; less opportunity for the midwife to facilitate the birth easily. A second midwife is not available in the ambulance to assist if the need arises. For the baby the ideal is to have warm, static surroundings with full resuscitation gear that may be needed easily to hand.

Weighed against this is the time it takes to transfer being added to what has already become a longer second stage. It appears [Mrs B] and [Ms C] made reasonable decisions for [Ms A's] care in this situation, and both mother (although understandably distressed) and baby appear to have been in good condition on admission to [the public hospital].

Transfer method was discussed with the base hospital registrar … who appears to have been supportive of road transfer. As [Mrs B] points out, in some regions it can be almost as time consuming to transfer by air. In this region it would appear road transfer is the normal form of transfer unless mother or baby are unwell. ... This is also the situation in some other areas of New Zealand.

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Overall [Mrs B] (and Ms C) appears to have provided appropriate care of a reasonable standard to [Ms A]."

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Appendix 2

Additional advice
Mrs Stanbridge provided additional advice in light of ACC's treatment injury decision:

> "Thank you for asking me to review the advice I gave in December 2007 on the midwifery care given by midwife [Mrs B] to [Ms A] early in 2007, following the advice given by Dr Ngan Kee to ACC.
>
> It is obvious [the baby's] outcome will have been influenced by the length of [Ms A's] second stage of labour, and by the subsequent mode of delivery. I also agree 8 hours is a long time for second stage of labour.
>
> However, as in my original opinion, [Mrs B]
>
> - gave appropriate care to [Ms A] during labour, monitoring her and her baby, recording slow but ongoing progress once pushing (the presenting part reached +3, which is close to birthing), considered reasons for the rate of progress (?face to pubes), supported [Ms A] to be active to encourage progress, and worked in conjunction with her midwifery colleague.
> - consulted appropriately with her medical colleague in [the public hospital] when it became clear birth was not going to happen in the immediate future.
> - appropriately managed the preparation for, and transfer.
>
> The mode of transfer decision was made in conjunction with, or by, the [public hospital] registrar.
>
> Mother and baby were in a satisfactory condition on arrival at [the public hospital]. More than an hour and a half passed at [the public hospital] before [the baby] was delivered — if there was concern for either, him or his mother (given the length of second stage), delivery could have been expedited by a general anaesthetic and Caesarean Section, given there were issues with establishing an effective spinal anaesthetic. Presumably [the public hospital] staff felt they could take the extra time to get an effective spinal anaesthetic working for delivery.
>
> It is easy to make retrospective criticism of care of another practitioner who works in a totally different work environment. My opinion is based on experience in remote rural primary care, and in the context of what was recorded as happening at the time.
>
> In retrospect [Ms A's] second stage of labour was unexpectedly prolonged. In the remote rural setting there is a constant awareness by the practitioner (in this case two practitioners) of the progress in labour and ongoing consideration of

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the possibility of the need to transfer. Transfer in itself has the potential for difficulties, so the decision needs to be balanced against the risk of not moving.

I believe [Mrs B] and [Ms C] appear to have been aware of this, worked with [Ms A] to achieve what looked as if it would be a slow but progressing birth, and instigated transfer when it became clear progress had stalled.

I have discussed this case with my colleague, Juliet Thorpe, another expert midwife advisor who has experience in rural primary maternity care. She attaches her comments.

My original report was full, and explains the issues involved. I am happy to address any further questions if there are unclear points, or points you would like to clarify further."

Mrs Stanbridge sought additional advice from an experienced colleague, midwife Juliet Thorpe. Ms Thorpe stated:

"I am on the NZCOM expert advisors list for the Commissioner and am a Registered Midwife who has been in independent practice for 16 years. I work predominantly with women planning to birth at home birth, living within both urban and rural settings.

The only documents I have read with regard to this case are

- Chris Stanbridge's original opinion.
- Your letter to Chris with regard to reviewing her original opinion
- Dr Digby Ngan Kee's opinion
- Chris Stanbridge's subsequent review of her original opinion.

With the beauty of hindsight one can see how the length of second stage is of concern. There is no doubt that if the baby was born by caesarean section he may not have suffered the injuries that he did.

A more thorough vaginal examination earlier into the second stage may have diagnosed the brow presentation but it can be very difficult to assess when there is swelling on the baby's head and without the aid of effective analgesia i.e. spinal anaesthetic.

An abdominal palpation performed during the second stage may also have helped in diagnosing a brow presentation. If there is head palpable above the pelvis (as was found once admitted to [the public hospital]) and head on view at the introitus (vaginal opening) this may indicate malpresentation. This could mean a brow or a posterior ('face to pubes') position. [Mrs B] did state that she thought the baby may be in a posterior position.

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However, as Chris has already stated, both mother and baby were well during the labour with the baby only getting into difficulty after some time at [the public hospital]. [Mrs B] had liaised appropriately with medical staff at [the public hospital] and if they had had concerns with regard to the well being of mother and baby (knowing that [Ms A] had been in second stage for 3 hours) they would not have recommended ambulance transfer.

From the information I have read, I would have to concur with Chris that reasonable care was provided. Within the context of a rural setting where there is considerable time required for transfer, the decision to make that trip is always a difficult one. Chris outlined clearly (in her original opinion) the factors to consider before the decision is made and it appears the midwives involved acted professionally within the Standards of the NZCOM and within the environment that they were working."

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