Independent Midwife, Ms B

General Practitioner, Dr C

A Report by the

Health and Disability Commissioner

(Case 03HDC11948)

Health and Disability Commissioner
Te Toihau Hauora, Hauātanga

Parties involved

Mrs A	Consumer
Mr A	Consumer's husband
Baby A	Consumer's son (deceased)
Ms B	Provider / Independent Midwife
Dr C	Provider / General Practitioner
Dr D	Obstetrician on Call
Dr E	Pediatrician at the first public hospital
Dr F	Pediatrician at the second public hospital
Dr G	Consultant Obstetrician at the first public hospital
The First Public Hospital	Provider, public hospital
The Second Public Hospital	Second public hospital

Complaint

On 18 June 2003 Mr and Mrs A complained to the Health and Disability Commissioner about the standard of maternity care provided to Mrs A by Ms B, independent midwife, and Dr C, general practitioner. The following issues were identified for investigation:

Dr C
Whether Dr C, general practitioner, provided services of an appropriate standard to Mrs A, including whether Dr C:

- *provided adequate antenatal care for Mrs A between 5 January and 15 August 2000*
- *adequately managed Mrs A's labour.*

Ms B
Whether Ms B, independent midwife, provided services of an appropriate standard to Mrs A, including whether Ms B:

- *provided adequate antenatal care for Mrs A between 11 July and 11 August 2000*
- *adequately managed Mrs A's labour.*

An investigation was commenced on 11 November 2003.

Information reviewed

- Information from:
  - Mrs A
  - Mr A
  - Dr C
  - Ms B
  - Dr D, obstetrician
- Mrs A 's clinical records

Independent expert advice was obtained from Ms Elaine Gray, an independent midwife, and Dr William Fergusson, a general practitioner specialising in obstetrics.

Information gathered during investigation

Overview

Mr and Mrs A had two girls, aged five years and three years, when Mrs A became pregnant for the third time in 2000. Mrs A engaged Ms B, midwife, and Dr C, general practitioner, to provide her care for this pregnancy in a shared care arrangement. When Mrs A was in the 26th week of her pregnancy the baby was identified as being large, in the 97th percentile. Ms B and Dr C discussed with Mrs A the options for delivery in these circumstances, which included an induction of labour before term.

Mrs A was admitted to the first public hospital for her induction. Dr C administered prostaglandin at 9.20am. The labour progressed normally and Mrs A was fully dilated at 2.55pm. At 3.10pm the foetal heart rate dipped but recovered. Dr C was called in and delivered a baby boy, Baby A, at 3.32pm. Baby A was motionless on delivery with no heartbeat or respiratory effort. Dr E, paediatrician, was called immediately to resuscitate Baby A, who was later transferred to the second public hospital's Neonatal Intensive Care Unit. Mr and Mrs A were counselled by Dr F, paediatrician, at the second public hospital, and advised that Baby A had no chance of survival. Life support was turned off at 5.30pm.

Mr and Mrs A did not initially notify the Commissioner of their concerns about the care provided by Ms B and Dr C because they did not know they were able to. After Baby A's death, Mr A became very ill and Mrs A had to take over management of the family business. It was only after talking to a health professional following the birth of their fourth child, in October 2002, that they decided to contact the Health and Disability Commissioner.

Background

Mrs A's obstetric history
Dr C, general practitioner, cared for Mrs A in her first two pregnancies in 1994 and 1997. Ms B, independent midwife, had been Mrs A's midwife for her second pregnancy in 1997.

Mrs A's oldest child weighed 3205g (7lbs 1oz) at birth. She was born not breathing and required resuscitation. Her second child was born after a short, normal labour and weighed 3785g (8lbs 5oz).

Antenatal care – 2000

Dr C
During her third pregnancy in 2000, Mrs A was cared for by Dr C and Ms B in a shared care arrangement. Mrs A's first antenatal visit in 2000 was to Dr C on 5 January when she was in the 6th week of her pregnancy. Dr C discussed food safety and routine screening, and ordered an antenatal blood screen and urine test, the results of which were normal.

Mrs A elected to have a scan in the 12th week of her pregnancy and again at 20 weeks to check the development of the foetus. The results of these examinations were normal.

Dr C saw Mrs A routinely during the first and second trimesters of her pregnancy. The pregnancy progressed normally.

On 25 May, at 26 weeks' gestation, Mrs A reported to Dr C that she had experienced a small vaginal bleed. Dr C examined Mrs A and found that her uterus was not tender and there were no uterine contractions. She ordered an ultrasound scan to check for possible causes of the bleeding. The scan was performed that day. The result was normal and showed no apparent cause for the bleeding. However, the scan identified that the baby was large, in the 97th percentile, and the radiologist suggested that Dr C explore the possibility that Mrs A had developed gestational diabetes.

To exclude additional causes for the bleeding, Dr C performed vaginal swabs. The swabs identified a Candida infection, which was treated. Mrs A had no further episodes of bleeding.

On 8 June Dr C repeated Mrs A's blood tests, including a diabetes check. Mrs A was found to have a post-polycose glucose level in the low normal range, which did not require treatment.

On 24 July, when Mrs A was 34.5 weeks into her pregnancy, Dr C examined her and found that the uterine fundus (top of the uterus) was higher than normal, indicating that the foetus was large. Dr C gave Mrs A a further referral for an ultrasound and discussed the management of a large baby at delivery.

Dr C informed me:

> "During the pregnancy [Mrs A] had expressed a wish to have a home birth as she was anxious about having enough time to get to the hospital (the previous labour being only 3 hours' duration in total).
>
> Pregnancy and labour care were being shared with a very experienced midwife, [Ms B], and [Ms B] and I have delivered many babies at home successfully over the past fifteen years. However, I informed [Mrs A] it was <u>not</u> safe for her to have a home delivery

> with a large baby and that I would only be prepared to deliver at [the first public hospital].
>
> I discussed the complications of delivering a large baby, the increased risk of a Caesarean Section if the head did not descend, and shoulder dystocia [when the baby's shoulder becomes trapped under the rim of the pelvis and prevents the baby's progress]. I discussed the management of shoulder dystocia and how in the past I have successfully delivered babies with shoulder dystocia by placing the woman in an upright position with her legs wide apart. I explained that if the baby did not deliver promptly in this position the baby's clavicles would have to be fractured to expedite delivery and prevent birth asphyxia."

Mrs A disputes that the above information was provided by Dr C. There is also a discrepancy in the information about Mrs A's preference of the location for the delivery. Mrs A informed me that she did not want a home birth.

She recalled:

> "I'm far too scared for that. I always thought that it's just too risky to do a home birth. I didn't want to be too far from the hospital, especially after our first daughter, when she was born and she had to be taken over to [the second public hospital] with pneumonia, and it was a difficult birth."

Ms B

Ms B met Mrs A for the first time on 11 July when she was in the 32nd week of her pregnancy. Ms B informed me that from reading Dr C's notes on Mrs A's pregnancy and noting the scan report, she was aware that the baby was big. Ms B stated: "This was something to be aware of rather than an abnormality." She said that she and Dr C were both mindful of the need to monitor the size of the baby closely and to check Mrs A for any signs of gestational diabetes.

Decision to induce labour

Ms B next saw Mrs A on 11 August. The report on her scan of 8 August estimated the baby's weight at 4500gm (9lbs 15oz). The radiologist concluded his report with the words "Big Babe!!!!" Ms B noted that Dr C had made an appointment with Mrs A on 15 August to discuss the possible induction of labour. Ms B stated:

> "I remember discussing the possibility of an induction of labour with [Mrs A] and the complications or risks of induction. [Mrs A] had expressed a desire to have a water birth. I spent some time explaining to [Mrs A] the risks of induction, the need for close monitoring and my concerns that birthing in the pool might not be an option as the baby's shoulders might be a 'tight fit' and therefore best to birth out of the pool. After some discussion we decided together that she would be in the pool for the first stage but she would come out of the pool for the second stage of labour."

Mrs A recalled that she discussed with Ms B the possibility of using the birthing pools at the first public hospital and asked whether the pools provided effective pain relief. Ms B replied

that it was something they could try, but she was not happy about delivering the baby in the pool.

Dr C saw Mrs A on 15 August, as arranged, to discuss the result of the scan. Dr C explained the risks of delivering a large baby in relation to the risks associated with an induction. Dr C suggested, and Mrs A agreed, that Dr C contact an obstetrician and request an induction of labour before term. (Mrs A's estimated date of delivery was 30 August.) Dr C telephoned Dr G, the consultant on call at the first public hospital, who authorised an induction at 38 weeks and 6 days' gestation. Dr C told Mrs A that she would be seen by an obstetrician on admission to the first public hospital for her induction, and that the obstetrician would be involved in the management of the procedure, and would assist if any problems occurred during the labour or delivery.

August 2000 – delivery

Ms B admitted Mrs A to the first public hospital delivery suite at 7.30am, as planned. Ms B recorded in the clinical records that Mrs A's baby was big and underscored the note to ensure that the hospital staff were aware. Ms B again went through the proposed birth plan with Mrs A and reminded her of the need to get out of the pool in good time in second stage labour. The admission assessment did not indicate any abnormality with either Mrs A or the foetus. Mrs A's recordings were all within normal range. Her temperature was 36.1°C, pulse 72 beats per minute (bpm), and her blood pressure 110/78. Mrs A's urine tested negative for protein and glucose. Ms B performed a cardiotocograph (CTG) to monitor the foetal heart and uterine contractions. The CTG was normal with a baseline foetal heart rate of 145 bpm.

The obstetrician on call, Dr D, assessed Mrs A, recorded that he agreed with an induction of labour, and ordered Prostin E2 1mg to induce the labour.

Mrs A informed me that when Dr D assessed her he expressed his concern about her size in comparison to the size of the baby, and said: "Don't be surprised if this ends up as a Caesarean." She said that Dr C and Ms B disagreed with him and "hustled him out of the room and complained about him after he left". Mrs A said that Dr D, on behalf of the first public hospital, should have over-ridden Dr C and Ms B, and recommended a Caesarean section. She said that the first public hospital should have in place a protocol for any disagreement between its staff and independent practitioners, and a protocol for the delivery of large babies.

Ms B stated:

> "[Dr D] was in the room for approximately ten minutes making his assessment and during this time there was some light hearted banter between him and I. He made the comment about not being surprised if this one ended up as a LSCS [Caesarean section], and from memory I think I laughed and made comment back to him. This was merely light hearted banter. [Dr D] did not indicate to me that he was concerned about this labour and agreed that the right course ahead was the induction. [Mrs and Mr A] were present throughout this conversation."

Dr D confirmed that he authorised the induction. He stated that his involvement was brief and "the arrangements to be induced had been made and decisions made prior to my seeing her". Dr D did not comment on whether he talked about the possibility of a Caesarean section.

Dr C examined Mrs A at 9.20am and found that her cervix was dilated 2cm, which is normal for the cervical os (opening) of a woman who has had a number of pregnancies. The baby was at station 0 and Mrs A's Bishop Score was 6. (The Bishop score relates to the estimated responsiveness of the cervix to chemical induction of labour. A score over 5 in women who have had more than one pregnancy indicates that the labour will be easy to stimulate.)

'Station' refers to the relationship of the presenting part of the foetus to the level of the ischial spines (outlet) of the mother's pelvis. When the presenting part is at the level of the ischial spines, it is at 0 station (synonymous with engagement). If the presenting part is above the spines, the distance is measured and described as minus stations, which range from –1cm to –4cm. If the presenting part is below the ischial spines, the distance is stated as plus stations (+1cm to +4cm). At a +3 or +4 station, the presenting part is at the perineum (synonymous with crowning).

Dr C inserted 1mg of Prostin gel into Mrs A's cervix at 9.20am to induce the onset of labour.

A post-Prostin CTG was performed and showed that the foetal heart rate baseline was 145 to 150 bpm and there was mild irregular uterine activity. However, Mrs A was not able to feel the contractions.

Dr C left the first public hospital delivery suite when she was assured that the labour was progressing normally. She planned to return in six hours if labour was not established, or earlier if notified by Ms B that labour had commenced.

At 10am, Ms B satisfied herself that Mrs A (who was not in established labour) was comfortable before handing her over to the hospital midwives. Ms B told Mrs A that if she wanted her to return she only had to tell the hospital staff and they would contact her by telephone. Ms B stated that the arrangements she made for Mrs A's labour to be monitored by the hospital midwives was in accordance with usual practice at the first public hospital.

The hospital midwives took two CTG readings while Ms B was away, at 11am and 12.53pm. Both readings were within normal parameters.

Mrs A informed me:

> "Contractions started quickly after the gel was inserted. [Dr C] went back to work and said she'd be back by 2pm. [Ms B] left to go to [her work place]. A trainee midwife sat with me as contractions were monitored by a belt around my stomach for a while. A staff midwife also checked on me periodically (asking if I was okay). I asked her to ring [Ms B] to come back when the contractions got closer together."

Mrs A believes that she was left alone for too long when Ms B left the hospital, and not enough monitoring was done; more frequent monitoring may have picked up problems early in the labour and given time for an emergency Caesarean section.

Ms B stated that her plan had been to return to review Mrs A at 3pm. However, she was contacted by hospital staff at 12.50pm and informed that Mrs A was experiencing frequent contractions.

At 1.15pm Ms B arrived to find that Mrs A was coping well, the uterine membrane was intact, and her contractions were occurring every two to three minutes, lasting 35 seconds, and mild to moderate in strength. Mrs A asked if she could use the pool and entered it at 1.45pm. Ms B monitored the foetal heart half-hourly while Mrs A was in the pool and documented the recordings on the partogram, which is a record of the progress of the labour.

At 2.30pm the contractions were stronger and lasting for about 50 seconds. At 2.55pm Mrs A's cervix was fully dilated and she started to experience involuntary pushing sensations. Ms B contacted Dr C to inform her of the status of the labour. Dr C asked Ms B to assist Mrs A back to bed.

When Mrs A was back on her bed, Ms B encouraged her to push with her contractions. To assist progress Mrs A assumed a kneeling position supporting herself on her hands, and at 3.15pm the uterine membrane spontaneously ruptured. The liquor that drained was pink and clear. At this time Ms B noted that there was a dip in the foetal heart rate to 110bpm, but there was no other indication of foetal distress.

Dr C arrived to review Mrs A at 3.15pm. At that time, the foetal heart rate dipped to between 80 and 110bpm. Dr C and Ms B decided to re-position Mrs A and helped her to turn over.

Ms B stated:

> "We did this quickly because when contractions are only two to three minutes apart you have very little time in which the woman will co-operate with you before being consumed by another contraction. The foetal heart recovered quickly to 120bpm with the change in position. When we asked [Mrs A] to turn over we also got her to abduct her legs to widen the pelvic outlet. She was now in the sitting position with her legs widely abducted."

Mrs A recalled that at this time Ms B performed a procedure by inserting her fingers into Mrs A's vagina. Mrs A said that she was not given an explanation for this procedure, which was painful. Mrs A stated:

> "[W]e don't know why this was done – was she moving his shoulder around? Was she breaking his collarbone? Nothing was explained or described to us about what was happening, only that they needed to get the baby out urgently."

Mrs A thought that Ms B had performed a McRoberts' manoeuvre, which is a procedure to free a baby caught in the birth canal by shoulder dystocia.

Ms B informed me that she did not consider using the McRoberts' manoeuvre. She said that only the baby's head was on view, and that it continued to descend throughout the second stage of the labour. Ms B and Dr C continued to listen to the baby's heartbeats and, although there were two further dips to 80 bpm, the foetal heart rate recovered quickly on each occasion. The baby was making good progress and the birth was imminent. Ms B said that she inserted two fingers into Mrs A's vagina to stretch and ease the perineum, and to guide the pushing and delivery of the head, which is a common procedure.

Mrs A recalled that Ms B and Dr C were both shouting at her to push and looking alarmed. However, Ms B denied that they had any feeling of urgency.

A baby boy, Baby A, was born at 3.32pm. Dr C informed me that the delivery of his shoulders was not difficult and occurred with the contraction following the delivery of his head. The cord was not around his neck. At birth the baby weighed 4560gm (10lb 1 oz).

Ms B recalled:

> "[I]t was a shock to have [Baby A] in such a poor condition. He was very flat and his Apgars were assessed at 1 at one minute, 4 at five minutes and 4 at ten minutes. He did not take a spontaneous breath and did not have a heart rate. [Dr C] quickly administered oxygen whilst I clamped and cut the cord. [Baby A] was taken out of the room by [Dr C] to the resuscitation area and I remained with [Mrs A]."

(An Apgar score is used to ascertain and record the condition of the baby, looking at colour, respiratory effort, heart rate, muscle tone and reflex response, with a maximum/optimal score of 10.)

The paediatrician on call, Dr E, arrived when the baby was approximately six minutes old. Dr E ventilated Baby A to prepare him for transfer to the second public hospital's Neonatal Intensive Care Unit (NICU).

Mr and Mrs A recalled that when Dr E and Dr C were working on their baby in the resuscitation room, the first public hospital's manager came into the delivery room and said: "I need you to understand that it wasn't anything to do with this hospital that this happened. You were under the care of an independent GP and midwife. I need you to agree that we did everything that we could and that we had the emergency team on hand straightaway." Mr and Mrs A said that they thought the manager's approach to them at the time, when they were frantic with worry for their baby, was inappropriate and very insensitive.

Their baby was transported to the second public hospital. When he was 17 hours old, Dr F, the paediatrician, informed Mr and Mrs A that he had sustained brain damage that was not consistent with survival. They made the decision to turn off the life support system and Baby A died at 5.30pm, when he was 26 hours old.

A post-mortem revealed that Baby A had died as a result of peri-partum asphyxia. He was also found to have suffered a fracture of his clavicle during birth.

Mrs A's concerns

Mrs A stated:

> "During the pregnancy we were not informed of the risks of delivering a large baby naturally, such as shoulder dystocia, brachial plexus injury, clavicle fracture, and birth asphyxia. I discussed my worries on many occasions with both LMCs as I was concerned about tearing during the birth even more than I had with my previous two children's births. I was unaware of any possible risk to the baby and they could have easily have mentioned this during discussions about the birth. Instead my concerns were dismissed and I was told by both [Dr C] and [Ms B] 'we deliver big babies with no problems all the time'.
>
> We believe the care received during labour, delivery and afterwards from [Dr C] and [Ms B] was substandard."

Dr C's response

Dr C stated:

> "The USS [ultrasound scan] at 26 weeks determined that the baby was large and I continued to inform [Mrs A] at subsequent antenatal visits that clinically the baby was large. … In view of the large size of the baby an induction for labour was planned at [the first public hospital] at 38 weeks 6 days gestation, following the [the first public hospital] guidelines. [Mrs A] wished to have a normal delivery with hydrotherapy for analgesia.
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> …
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> I informed [Mrs A] that [Dr D] was the obstetrician on-call at [the first public hospital] and that he would be called in the event of any problems in the labour. [Dr D] came and discussed this with [Ms A] immediately before the induction commenced. No problems were encountered during the labour so [Dr D] was not called again.
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> …
>
> I was not informed that there was a problem with [Mrs A's] labour as no signs of a problem were evident until the birth of the baby (and I was present at the birth). There were no signs of foetal distress during the labour, which was normal length. Frequency and intensity of contractions were normal. Liquor was clear. No prolonged late decelerations of the foetal heart were evident. [Mrs A's] baby was delivered by normal vaginal delivery. The first sign of a problem was when the baby was delivered and was motionless and the paediatrician, [Dr E], was immediately called. To this day I cannot understand why [Baby A] was born with Apgars of 1 and 4 and found on post-mortem to have suffered peripartum asphyxia."

Ms B's response

Ms B stated:

> "I am a firm believer in midwifery and the midwifery partnership model – that the decisions are made together, between the woman and her family and the team of carers. … I never hesitate to refer to secondary care if this is required. I do my best to ensure that the birth is as close to what the woman wishes, however not all births are without problem and when problems occur I take the time to explain what is happening, why it is happening and discuss the options available.
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> …
>
> I do not remember everything I discussed with [Mrs A]. I do however clearly remember talking to her about the risks and complications associated with induced labour. … I do not think I would have used the words such as brachial plexus, shoulder dystocia, birth asphyxia and clavicle fracture as these are medical terms and potentially fear-inducing but it is my usual practice to talk generally about some of these complications using lay-person terms. It is possible that I did inform [Mrs A] that we deliver big babies with no problems all the time as this was true, however this comment would not have been meant in a flippant or dismissive way. I am sure if I said it I would have meant it as reassurance.
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> …
>
> It was a shock to see [Baby A] come out flat and once I had completed seeing to the placenta and the laceration [Mrs A] had, I took [Mrs A] in a wheelchair to see her baby and explain as best I could about what was happening. [Dr E] had come and explained to both [Mrs and Mrs A] that the baby was very sick and would need to be transferred to the Neonatal Unit at [the second public hospital]. I had to quickly finish writing up my notes – regarding the placenta and the tear – as I knew the retrieval team was on its way to pick up baby [Baby A]. The baby was taken to [the second public hospital] and [Mr A] followed the ambulance to be with [Baby A]. I stayed with [Mrs A] for support as I knew that she did not have anyone else close by for comfort. I helped her get up for a shower and ensured that she had food and was comfortable, and then took her in my car over to [the second public hospital] to see [Baby A]. I settled her into [the ward] and went with her to the Neonatal Intensive Care Unit. The paediatrician … wanted to talk to both [Mr and Mrs] about the baby … he gave a very grave picture and I stayed for several hours while we discussed [Baby A's] condition and went over and over the questions they were asking."

Mr A's comments

Mr A stated:

> "[T]he only thing I wanted to tell you is that it's taken us a while to get to this point. Partly because we didn't know [about the Commissioner's office] but also partly

because life's actually very, very hard after you lose a child. It's people expecting you to move on after a year or something like that, or everyone seems to have a time, you know, after six months or after a year or after two years or whatever. But you know, all you learn to do is put a brave face on and not show your pain to other people. That's really all that happens. It doesn't heal, it doesn't get better. It just gets to the point where you are not showing other people just how hurt you are. And when you cry you do it on your own – rather than where other people might see.

…

When we were holding [our new baby] we realised this is how it should have been and started thinking more you know, why not? Who missed what? What happened and why wasn't it like that. That's why it has taken us so long. … It's just knowing that someone will look at [what happened]. If he says that was a reasonable standard and bad luck guys, well we'll accept that. And if there were key things that shouldn't have happened, you know, then you can write that too."

Independent advice to Commissioner

Midwifery advice
The following expert advice was obtained from Mrs Elaine Gray, an independent midwife:

"**Midwifery Independent Advice**

Background midwifery practice and qualifications of Elaine Gray, independent midwifery advisor

Qualifications: Registered Midwife, Registered Nurse. Clinical Teaching Certificate, College of Education.

I have been a practising midwife since 1985 and have practised in a variety of settings both here in New Zealand and overseas in England. My current position is as Midwifery Educator based at Christchurch Women's Hospital, Canterbury District Health Board, which I have held for the last 6 years.

Prior to my current position I practised as a 'core' midwife on the Labour ward at Christchurch Women's Hospital for three years and provided midwifery support to women from primary to secondary/tertiary care. In my role as Midwifery Educator I provide and facilitate education and professional development in relation to midwifery practice.

I am currently studying with Otago Polytechnic towards my Masters of Midwifery and I am a member of the New Zealand College of Midwives. I have read and agreed to

follow the guidelines for independent advisors from the office of the Health and Disability Commissioner.

Referral instructions

I have been asked to review the following complaint:

Whether [Ms B], independent midwife, provided services of an appropriate standard to [Mrs A], including whether [Ms B]:

- Provided adequate antenatal care for [Mrs A] between 11 July and 11 August 2000
- Adequately managed [Mrs A's] labour …

And to advise the Commissioner whether in my opinion:

- [Ms B] provided [Mrs A] with services of an appropriate standard.

In particular:

- Was [Ms B's] assessment and management of [Mrs A's] pregnancy, in relation to the 97th percentile large baby, appropriate?
- Should [Mrs A] been referred to an obstetrician for further assessment?
- Was [Ms B's] plan for the labour and delivery appropriate?
- Should [Mrs A] have been given the option of an elective Caesarean section?
- Was [Ms B's] management of Mrs [A's] labour and delivery reasonable in the circumstances?

In addition:

- Are there any other professional, ethical and other relevant standards that apply and, in your opinion, were they complied with?
- Any other comments you consider relevant that may be of assistance?

I have reviewed the following supporting information sent to me by HDC:

- [Mr and Mrs A's] letter of complaint to the Commissioner, dated 12 August 2003, (Pages 1-18)
- Transcript of interview with [Mr and Mrs A] conducted 16 January 2004, (Pages 19-114)
- Letter of response and accompanying clinical documentation (inclusive of antenatal, labour and birth) from Midwife [Ms B] to the Commissioner, dated 8 December 2003, (Pages 115-149)
- Letter of response from [Dr D], Obstetric Consultant, dated 12 January 2004. (Page 150)
- Histopathology Report, [second public hospital], dated 26 October 2000.

In addition to these records I have reviewed literature pertinent to this report which I have referenced in relation to the midwifery practice and management. I have referred to the New Zealand College of Midwives (NZCOM) Handbook of Practice 2002 and the NZCOM consensus statements where appropriate. I have undertaken a literature search in relation to issues relevant to this review, which have been referenced in this report.

Background information summary from HDC

[Ms B] provided midwifery care to [Mrs A] for her second pregnancy in 1996/97 in a shared care arrangement with [Dr C], general practitioner. When [Mrs A] became pregnant for the third time in 2000 she chose the same care arrangement.

The pregnancy was healthy, but the ultrasound scan at 26 weeks showed that the foetus was large; in the 97th percentile. [Mrs A] was checked for gestational diabetes with a normal result.

[Ms B] saw [Mrs A] for the first time on 11 July 2000 when [Mrs A] was in the 32nd week of her pregnancy.

When [Mrs A] was 37 weeks, [Dr C] suggested to her that she should have an induction of labour due to the large size of the baby.

[Ms B] saw [Mrs A] three days after the scan and discussed with her the possible need for an induction of labour. [Mrs A] and [Ms B] talked about water birth, and [Ms B] explained to [Mrs A] that her labour would need to be closely monitored and that birthing in the pool would not be an option due to the baby's size.

On 15 August [Dr C] contacted [Dr G], obstetric consultant, and he authorised the induction for [Mrs A] for the following week (when [Mrs A] would be 38 weeks and 6 days).

[Ms B] admitted [Mrs A] to [the first public hospital] Maternity Unit for her induction as planned at 7.30am … [Mrs A's] vital signs were satisfactory on assessment. [Dr D], obstetric consultant, also assessed [Mrs A] and agreed that there was no contraindication for the induction.

[Dr C] inserted 1mg of Prostin gel at 9.20am. At 10am [Ms B] handed over the monitoring of [Mrs A] to the hospital staff and arranged to return at 3pm to review the progress of labour, or earlier if contacted by the hospital midwives.

At 12.50pm [Ms B] was contacted by the hospital midwives as [Mrs A] was experiencing frequent contractions. [Ms B] returned to the maternity unit at 1.15pm and found that [Mrs A] was experiencing mild to moderate contractions lasting 35 seconds and was coping well.

[Mrs A] got into the birthing pool at 1.45pm. [Ms B] monitored the foetal heart rate intermittently and recorded her findings on the Partogram. When [Mrs A] experienced

involuntary pushing sensations at 2.55pm Ms B assisted her back to her room and notified [Dr C].

At 3.10pm the uterine membrane spontaneously ruptured, the liquor was clear but a foetal heart dip to 110bpm was noted at that time.

[Dr C] arrived at 3.15pm. At that time the foetal heart rate dipped to 80-100 bpm. [Dr C] and [Ms B] turned [Mrs A] on to her side to assist the baby. The foetal heart rate recovered to 120bpm.

[Ms B] and [Dr C] asked [Mrs A] to turn over on to her back, sit up and adduct her legs to facilitate the birth by widening the pelvic outlet.

The foetal heart rate was monitored with each contraction and was noted to dip to 80 bpm on two occasions. At 3.30pm the foetal heart rate was recorded as being between 100 and 110 bpm. The baby was making good progress through the birth canal and [Ms B] and [Dr C] believed the birth to be imminent.

[Mrs A's] baby was born at 3.32pm in a poor condition. His Apgar was assessed at 1 at one minute and 4 at five minutes. He had no spontaneous respiratory effort or heartbeat. [Dr C] administered oxygen while [Ms B] clamped and cut the cord. [Dr C] took the baby to the resuscitation room while [Ms B] remained with [Mrs A].

[Mrs A] and the baby were transferred to [the second public hospital]. The baby was assessed by the neonatal paediatric consultant and found to have brain damage not consistent with survival. When the baby was [17 hours] old the decision was made to turn off the life support.

Discussion Points

1. Large for dates baby and shoulder dystocia

Babies vary in size and there is considerable debate surrounding the prediction of estimated fetal weight and as to whether shoulder dystocia can be predicted before labour. A paper published by Sriemevan *et al* (2000) explores many of the issues and clinical indicators for both midwives and obstetricians in relation to the possibility of shoulder dystocia. It has been discussed in this paper that according to Greary *et al* (1997) shoulder dystocia could not be predicted accurately antepartum whereas O'Leary & Leonetti (1990) maintain that many cases of shoulder dystocia are predictable with the correct identification of risk factors.

According to a study by Olugibile & Mascarenhas (2000) such risk factors include maternal diabetes, maternal weight gain greater than 12 kgs, previous large baby but the greatest single predictor is macrosomia (a larger than average baby). It is interesting to note however that most cases of shoulder dystocia still occur in infants of average weight and one in five cases of shoulder dystocia have none of the classical predictive

factors. The majority of women with macrosomic babies will have normal vaginal births (Benedetti and Babbe, 1987).

There are various definitions of shoulder dystocia but all agree that there is a mechanical problem when the anterior shoulder becomes impacted above the woman's symphysis pubis instead of rotating under it. Midwives are educated in the clinical emergency of such an event occurring.

With regards to evidence to support offering women an elective Caesarean section if the baby is expected to be large, once again there are differences of opinion. Bahar (1998) suggests that as an estimation of fetal weight by ultrasound examination is only accurate to 10% and a policy to offer elective Caesarean sections to women as suggested by Acker (1985) for babies more than 4.5 kgs would result in many unnecessary Caesarean sections being performed.

2. McRoberts' manoeuvre

The McRoberts' manoeuvre is one of a number of manoeuvres that have been developed to reduce shoulder dystocia and thereby help with the birth of the baby if there are difficulties. They have been designed to enlarge the potential space within the pelvis (Soutter, 2002). This manoeuvre involves hyperflexion of the woman's legs against her abdomen, resulting in a straightening of the sacrum thus leading to an increase in the pelvic inlet. All midwives and obstetricians are educated with the manoeuvres in the event of a baby with shoulder dystocia. It is an obstetric emergency and a very stressful situation for practitioners to be presented with at births and even more so for the woman. Midwives may utilise one or more of the manoeuvres, due to numerous factors as each woman's labour and birth can be different and midwives may try different manoeuvres according to the situation. These manoeuvres however would only be utilised if there were concerns of shoulder dystocia of the baby.

3. Fetal heart monitoring and indications of fetal compromise

The purpose of midwives monitoring the fetus heart rate in labour is to identify possible fetal hypoxia (lack of oxygen) of the baby during the labour. Monitoring can occur by two methods either intermittent auscultation (hand-held doppler ultrasound device or Pinnard stethoscope) or by continuous electronic fetal monitoring (EFM). Continuous electronic fetal heart rate monitoring compared with intermittent auscultation has not been shown to improve fetal or neonatal outcomes as measured by a decrease in morbidity or mortality for women with uncomplicated pregnancies (NZCOM Fetal Monitoring in Labour consensus statement, ratified July 2002).

Following either spontaneous or artificial rupture of the membranes midwives observe the colour of the liquor. This is one of many observations during the labour and birth that midwives constantly assess. According to Enkin *et al* (2000), amniotic fluid that is sparse or contains meconium is associated with an increased risk of perinatal mortality and morbidity.

4. Plan of care and informed consent

Under Standard five of the NZCOM Standards of Practice (2002) midwifery care is planned with the woman and the midwife provides information from her knowledge and experience. Standard Two refers to the midwife upholding each woman's right to free and informed choice and consent throughout the childbirth experience.

Advice to Commissioner

1. *Was midwife [Ms B's] assessment and management of [Mrs A's] pregnancy, in relation to the 97th percentile large baby appropriate?*

This was [Mrs A's] third pregnancy. She had a shared care arrangement with both midwife [Ms B] and [Dr C] for her last pregnancy and had chosen to continue with both practitioners this pregnancy. Care was primarily provided by [Dr C] and midwife [Ms B] first met [Mrs A] on 11-7-00 when [Mrs A] was 32 weeks pregnant.

Prior to this time [Mrs A] had been relatively well except for a small vaginal bleed at 25 weeks. [Mrs A] had an ultrasound scan to determine the possible cause of the bleeding and to ensure her baby was well. The placental site could be a possible area for a bleed during the pregnancy and it is common practice for women to have an ultrasound scan after this has occurred. According to the scan report dated 25-5-00, there was no apparent reason for the bleeding and the placenta appeared normal. No further bleeding was documented. It was noted at this time that [Mrs A's] baby was growing well and was on the 97th percentile and [Dr C] arranged for [Mrs A] to have a polycose blood test to exclude the possibility of gestational diabetes (diabetes occurring during the pregnancy). Throughout her pregnancy [Mrs A] did not have any positive glucose in her urine when it was tested and her polycose test was within normal limits. [Mrs A's] daughter's birth weight in 1997 was 3785 grams which is an average size.

At the visit on 11-7-00 midwife [Ms B] has commented that [Mrs A] had experienced some right sided pain which had subsided but with no bleeding per vagina. Midwife [Ms B] has documented that [Mrs A] had contacted [Dr C] in relation to this pain and that if [Mrs A] was concerned and the pain reoccur then for her to contact either midwife [Ms B] or [Dr C]. There is no further reference to abdominal pain in the pregnancy.

The only other clinical issue noted during [Mrs A's] antenatal period was that she had a recurrent candida albicans infection, which was appropriately treated.

Midwife [Ms B] next saw [Mrs A] on 11-8-00 when [Mrs A] was 37 weeks pregnant. It appears from the antenatal notes that both midwife [Ms B] and [Dr C] have documented that [Mrs A's] baby was larger than expected when abdominal palpation was performed. [Ms B] noted that [Mrs A] had been for an ultrasound scan on 8-8-00 which confirmed that her baby was still growing well and was thought to have an estimated weight of 4500 gms.

[Mrs A] had arranged for a visit with [Dr C] to discuss the possibility of an induction of labour and it appears that [Dr C] consulted by phone with [Dr G], Consultant Obstetrician. This is usual practice as neither midwife [Ms B] or [Dr C] are able to make the decision of induction of labour procedure as this is an obstetric clinical decision. This is reasonable midwifery practice.

At the visit on 11-8-00 midwife [Ms B] discussed all the possible complications and risks of the induction of labour (IOL) which is reasonable expected midwifery practice. At this point the discussion surrounding water births appears to have taken place according to midwife [Ms B's] clinical notes. [Ms B] has written in her antenatal notes birth plan:

'Wishes to use water in labour, ecbolic only if necessary, for vit K, keep placenta.'

Birth plans are made after discussion with women during their antenatal period of their own expectations and wishes for their labour (NZCOM Standard two). Midwives discuss any issues that are relevant to the woman as an individual and it is an ideal opportunity for both women and midwives to discuss any concerns or requests for the labour period. Continuity of midwifery care supports the opportunity for the birth plan being used to be reviewed according to the outcomes of the pregnancy.

During this meeting with [Mrs A], [Ms B] has documented that she discussed the possibility of the baby's shoulders being a 'tight fit' and that [Ms B] recommended that [Mrs A] did not birth in the labour pool. This is reasonable midwifery practice as midwives use their own clinical judgement and experience in their decision making in conjunction with the woman. Any women who wish to birth in water would be advised that if there are any concerns then they would be asked to leave the water. I note that this was discussed with [Mrs A] at the interview on 16-1-04.

[Ms B] was aware of the possible complications of the baby being a good size and the possibility of problems at the birth. It is my opinion that [Ms B] discussed her concerns with [Mrs A] appropriately and was aware that there could possibly be a problem with the baby's shoulders. However as discussed earlier this can occur at any birth and midwives are prepared for these events occurring but in this instance midwife [Ms B] was making appropriate reasonable clinical decisions surrounding the labour and birth.

2. Should [Mrs A] have been referred to an obstetrician for further assessment?

Once [Dr C] had confirmed with ultrasound that [Mrs A's] baby was growing well she appropriately followed up her concerns for the possibility of [Mrs A] having gestational diabetes with a polycose blood test. [Ms B] has documented in her letter written to HDC dated 8-12-03 that she was aware of both the blood test and the result. Throughout her pregnancy [Mrs A] did not have any positive glucose in her urine when it was tested, which is a non-invasive test midwives perform on women's urine [that] highlights any possible kidney complications. All these tests were negative.

When [Ms B] next visited [Mrs A] at 37 weeks she commented that [Mrs A's] baby was larger on abdominal palpation but noted that Mrs A had had an ultrasound scan 3 days earlier which confirmed that [Mrs A's] baby was approx. 4500 gms. I note that midwife [Ms B] has written in her antenatal notes that [Mrs A] was to see [Dr C] later that week. Once all this information had been confirmed [Dr C] contacted [Dr G], Consultant Obstetrician who authorised the process of the induction of labour.

The clinical history of [Mrs A] must have been discussed between [Dr C] and [Dr G] for [Dr G] to make the decision that [Mrs A] could have an induction of labour (IOL). IOL at 38 weeks is not a common occurrence as there are risks to the woman and baby as discussed by [Ms B] with [Mrs A], and are only usually commenced if there is an obstetric clinical indication.

Once at [the first public hospital] [Mrs A] was seen by another obstetrician [Dr D] who according to midwife [Ms B's] letter to HDC was in [Mrs A's] room for approx. 10mins whilst he made his decision. It would be unusual for any medical personnel to prescribe a drug without being aware of the clinical picture. [Dr D] has written in the clinical notes that he agreed with the IOL and has charted prostin gel 1mg (common drug used in IOL to ripen the woman's cervix). There is no written documentation that [Dr D] did not feel that it was inappropriate for [Mrs A] not to proceed with the IOL procedure. [Ms Gray later clarified this statement as follows: There was nothing written by [Dr D] to state that the IOL should not occur.] There is no reference to the possibility of a Caesarean section being a more appropriate choice for the birth.

Shared care decisions are usually between both parties i.e. the GP and the midwife, but it would appear that [Dr C] initiated the initial consultation for [Mrs A's] induction of labour and the midwifery care was appropriately provided. In my opinion [Mrs A] did have appropriate consultation, once after referral by [Dr C] with [Dr G] over the phone and then directly in person with Dr D whilst on the labour ward at [the first public hospital] prior to the IOL procedure. As the care of Mrs A was shared care Dr C had taken the responsibility of the referrals which appropriately occurred.

3. Was midwife [Ms B's] plan for the labour and birth appropriate?

[Mrs A] was admitted to [the first public hospital] for an induction of her labour. All IOL procedures are commenced at a base hospital such as [the first public hospital] due to possible complications of the IOL and the need for medical involvement. Midwife [Ms B] had discussed the risks of the IOL procedure with [Mrs A] and had discussed a plan of care of the labour period. Decisions had been made in relation to the possibility of any problems with the baby being thought to be bigger such as [Mrs A] to birth out of the water. It is my opinion that midwife [Ms B] was prepared for the possibility of shoulder dystocia even though this did not occur. [Mrs A] was in base hospital with staff on hand to help should anything unexpected have arisen. This is reasonable expected midwifery practice.

4. Should [Mrs A] have been given the opportunity of an elective Caesarean section?

The decision of whether [Mrs A] should have been offered an elective Caesarean section is not within the scope of the midwife. The role of the midwife is to support the woman's decisions and provide midwifery care. [Mrs A] would have had to be seen by an obstetrician to make this decision. [Dr D], an obstetrician at [the first public hospital] saw [Mrs A]. A discussion surrounding the possibility of [Mrs A] requiring a Caesarean section has not been documented by [Dr D] and there is no written documentation by [Dr D] that the process of the IOL should not be continued.

I acknowledge that [Mrs A's] baby was on the 97th percentile but apart from this there were no other concerns as any other clinical findings were appropriately managed. [Mrs A's] blood and urine tests for gestational diabetes were within normal parameters. Dr C referred [Mrs A] to [Dr G], obstetrician, for an IOL due to the possible size of a larger baby and it appears that there was no suggestion at this point that [Mrs A] should have seen an obstetrician for further assessment.

5. *Was midwife [Ms B's] management of [Mrs A's] labour and birth reasonable in the circumstances?*

Midwife [Ms B] was present and ensured that both [Mrs A] and her baby were well prior to the induction procedure. This was by monitoring of maternal observations and the use of the electronic fetal heart monitor (CTG) producing a reading of [Mrs A's] baby's heart pattern. This is expected reasonable midwifery practice.

Prior to the induction procedure the use of the continuous electronic fetal heart rate monitor (CTG) is normal practice. This reading provides clinicians with a visual recording of the baby's heart rate and any deviations from the norm can be identified prior to the commencement of the prostin drug vaginally. Midwives are educated in the interpretation of the CTG readings. All maternal and fetal heart observations at this time were within normal parameters. The CTG reading commenced at 0808 hrs was within normal parameters and showed no fetal compromise. Once the prostin gel has been inserted in the woman's vagina the CTG recording is continued to ensure that there are no adverse outcomes from the prostin gel. From the times on the CTG recording midwife [Ms B] continued with the continuous CTG trace from 0927-0950 hrs. On reviewing of this CTG recording it is my opinion that the fetal heart rate pattern was within normal parameters and there was no indication of fetal compromise. The baseline fetal heart rate (FHR) was between 110-160 bpm with normal baseline variability. Following the insertion of the prostin gel the FHR continued to be within normal parameters with accelerations noted and no decelerations (RCOG Guidelines May 2001).

Midwife [Ms B] then left [Mrs A] under the midwifery care of the hospital midwives. This is practised throughout New Zealand and each individual midwife makes the autonomous decision to either stay or return later. This practice is recognised within many hospitals, as it may be some time before the woman is in established labour and many women require further doses of the drug prostin. Midwife [Ms B] had made an appropriate midwifery care plan and it is documented in her clinical notes that she would return to see [Mrs A] at 1500 hrs or if the labour progressed or the hospital midwives

felt the need to consult with midwife [Ms B] who would return urgently. This is reasonable expected midwifery practice.

Documentation is written in the clinical notes by the hospital midwife. There is no written documentation about any concerns relating to the labour. There are two further CTG readings noted at 1100 hrs and again at 1253 hrs, both within normal parameters.

Midwife [Ms B] returned to see [Mrs A] at 1315 hrs after being contacted by the hospital midwife. At this point midwife [Ms B] has documented that [Mrs A] was contracting well and that at 1345 hrs [Mrs A] wished to use the pool for analgesia.

[Mrs A] was in the pool from 1400 hrs to 1455 hrs when she had 'some urges to push' and as previously planned and discussed with [Mrs A] was asked to leave the pool and return to her room. Shortly after this point [Mrs A's] membranes spontaneously ruptured and clear liquor was noted. There was no sign of any meconium liquor, which could be indicative of fetal compromise. Midwife [Ms B] listened to the fetal heart which is documented at 110 bpm. [Dr C] was contacted to come in for the birth. At 1530 hrs there is written documentation by midwife [Ms B] that the fetal heart rate was between 100-110 bpm, this has also been documented on the partogram (a tool used by midwives to document observations). This is reasonable expected midwifery practice.

As labour is advancing and birth is becoming more imminent early decelerations of the fetal heart can occur with contractions and are associated with head compression. From the clinical documentation there was no concern with over stimulation of the uterine activity and contractions were noted to be every 2-3 minutes. There was no mention of any meconium liquor. At 1515 hrs [Dr C] was present and [Mrs A] was actively pushing in the all fours position. Midwife [Ms B] noted that the baby's fetal heart dropped to 80 bpm and [Mrs A] was asked to change position. This is reasonable midwifery practice as each birth is different and changes in the woman's position can help if there are any concerns for the fetal heart rate. [Mrs A] was asked to change from all fours to the sitting position. I note that after the change in [Mrs A's] position the fetal heart rate recovered quickly to 120 bpm. This is reasonable expected midwifery practice.

The normal heart rate pattern varies from approx. 110-160 bpm (RCOG Guidelines May 2001). During this time midwife [Ms B] has documented in her letter to HDC that the descent of the baby's head was progressing well. Any concerns with the descent of the baby's head could be indicative of a malposition or a larger diameter of the baby's head.

[Mrs A] has commented during the interview on 16-1-04 that she had felt that midwife [Ms B] had performed the McRoberts' manoeuvre (discussed earlier). By asking the woman to abduct her legs I can understand how easy it would be for [Mrs A] to comment on this position. However with the McRoberts' manoeuvre the woman is usually lying more flat on the bed to facilitate the sacral straightening whereas midwife [Ms A] has commented that [Mrs A] was sitting upright. Many women adopt this position for birth and some women even find that they are able to push more easily as they use their legs for support. I note that [Mr A] was asked to support one of [Mrs A's] legs, this is common midwifery practice.

[Mrs A] has commented that she felt that midwife [Ms B] had her fingers inside her vagina. Midwife [Ms B] has written that she had her fingers on [Mrs A's] perineal floor to aid with the stretching of the perineum. Although I do not use this practice myself, the practice is used by midwives. I note that at this point the baby's head was descending well. I think it important to clarify two other manoeuvres used for shoulder dystocia, the Woods screw and the Rubin manoeuvre. These are both used only once the baby's head has been born and there is no further movement with the baby's head as the shoulders are caught behind the symphysis pubis. Neither of these manoeuvres were necessary as the baby's head and shoulders were born without any problems. There would appear to have been no evidence of shoulder dystocia during the birth.

Midwives continually assess the progress of the labour. I note from the labour and delivery summary that [Mrs A's] first stage of labour was approx. 4 1/2 hours and the second stage of labour was 37 mins. Both these time periods are within normal parameters and there were no delays in the labour. Midwife [Ms B] has documented in her clinical notes that the baby's head was descending throughout and there was no sign of meconium stained liquor. The fetal heart rate was listened to after each contraction according to midwife [Ms B's] clinical notes. The early fetal heart rate changes noted recovered well after the contractions. As the birth of the baby progresses, changes in the fetal heart rate can be noted. According to midwife [Ms B] early decelerations (periodic slowing of the FHR with onset early in the contraction and return to baseline at the end of the contraction) were noted during the end of the labour. There was no evidence of late decelerations or prolonged decelerations, which would have alerted midwife [Ms B] to the possible poor condition of [Baby A] at his birth. Midwife [Ms B] has commented that during [Mrs A's] labour and the birth neither herself nor [Dr C] had any concerns and she was extremely shocked when [Baby A] was born in a poor condition.

In relation to the IOL procedure [Mrs A] only required one dose of prostin gel, and then spontaneously ruptured her membranes and progressed within normal parameters in labour. No further drugs were required to facilitate the labour. There were no signs of fetal distress to concern either midwife [Ms B] or [Dr C], the amniotic fluid liquor remained clear throughout and there was no delay in the descent of the baby through the pelvis.

It would appear from the clinical notes that midwife [Ms B] and [Dr C] appropriately managed the activation of help and the commencement of the resuscitation of [Baby A]. Midwives are educated in the process of neonatal resuscitation as the need for neonatal resuscitation could occur at any birth. This is expected reasonable midwifery practice.

In conclusion whilst I acknowledge the sadness for both [Mr and Mrs A] in the death of their son [Baby A], it is my opinion that midwife [Ms B] provided reasonable expected midwifery care for [Mrs A] throughout the pregnancy inclusive of the antenatal, labour and birth period.

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General practitioner advice

The following expert advice was obtained from Dr William Fergusson, an independent general practitioner specialising in obstetrics:

"**Ref 03/11948/WS**

I have been asked to provide an opinion to the Health and Disability Commissioner on case number 03/11948/WS. I have read and agree to follow the Commissioner's guidelines for independent advisors. I am a Fellow of the Royal New Zealand College of General Practitioners, and have a Diploma in Obstetrics and Medical Gynaecology. I have 22 years' experience in providing obstetric care in general practice and have an honorary academic appointment at National Women's as Examiner for the Diploma of Obstetrics and Gynaecology and senior lecturer. In 1996 I wrote a chapter on the management of normal labour for an international obstetric textbook.

The brief summary of events provided by the investigator is an accurate summary of the events as I understand them having read all of the clinical records and other reports provided. There is however a typing error over the time of delivery. On page 3 of the

investigator's summary it states '[Mrs A's] baby was born at 3.52pm'. The time of delivery has been documented at 3.32pm. The essential details are that [Mrs A] was in her third pregnancy, having had two previous normal vaginal deliveries. It was detected antenatally that she was having a large baby, estimated fetal weight on ultrasound 4500 grams. On account of this a plan was made for induction of labour at just under 39 weeks' gestation. In compliance with normal protocols [Dr C] consulted with obstetric consultant [Dr G] who verbally approved the plan for induction. On the morning of the induction [Mrs A] was also briefly reviewed by the obstetric consultant on call for the day, [Dr D]. Other than the anticipated large baby there were no other obstetric risk factors and baseline electronic fetal monitoring indicated that the baby appeared to be in perfect health.

[Mrs A] progressed normally in the first stage of labour which was of just under 4½ hours' duration. At approximately 3 pm she reached full dilatation, and soon after had a spontaneous rupture of membranes revealing clear amniotic fluid. Shortly after this there was a dip in the fetal heart rate to 110 beats per minute with the baseline previously being around 140. At 3.15pm, as [Dr C] arrived, the fetal heart rate dipped to between 80 and 100 bpm. With repositioning on her side the fetal heart rate recovered to 120 bpm. Over the next 17 minutes, until the time of delivery, the fetal heart seemed variably between 80 and 110 bmp as the baby made good progress towards delivery. In anticipation of the delivery of a big baby [Mrs A] was positioned on her back with her hips well flexed and abducted so as to facilitate the management of any difficulties at the delivery. The delivery however proceeded normally and [Dr C] and [Ms B], the midwife, were both shocked to discover that baby [Baby A] was born in extremely poor condition requiring immediate resuscitation. [Baby A] did not respond to the normal and appropriate resuscitative measures and died when life support was turned off at [the second public hospital] at 26 hours after the birth.

Expert Advice Required

To advise the Commissioner whether in [my] opinion:

- [Dr C] provided [Mrs A] with services of an appropriate standard.

In particular:

- Was [Dr C's] assessment and management of [Mrs A's] pregnancy, in relation to the 97th percentile large baby, appropriate?
- Should [Mrs A] have been referred to an obstetrician for further assessment?
- Was [Dr C's] plan for the labour and delivery appropriate?
- Should [Mrs A] have been given the option of an elective Caesarean section? If so, when did this need become apparent?
- Was [Dr C's] management of [Mrs A's] labour and delivery reasonable in the circumstances?

In addition:

- Are there any other professional, ethical and other relevant standards that apply and, in [my] opinion, were they complied with?

- Any other comments [I] consider relevant that may be of assistance?

Supporting Information

- [Mr and Mrs A's] letter of complaint to the Commissioner, dated 12 August 2003, marked with an 'A'. (Pages 1-18)
- Transcript of interview with [Mr and Mrs A] conducted 16 January 2004, marked with a 'B'. (Pages 19-46)
- Letter of response and accompanying documents from [Dr C] to the Commissioner, received 23 December 2003, marked with a 'C'. (Pages 47-114)
- Letter of response from [Dr D], obstetric consultant, dated 12 January 2004, marked with a 'D'. (Page 150)

Opinion:

Introductory Comments

I have been asked to comment on whether [Dr C] provided [Mrs A] with services of an appropriate standard. Concerns about the appropriateness of [Mrs A's] management have centred upon two issues. Firstly the prospect of attempting the vaginal delivery of a baby that was known to be large, and a suggestion that shoulder dystocia was part of the chain of events that led to [Baby A's] death. The spectre of shoulder dystocia was raised in many people's minds by the events of the birth, particularly the use of the 'McRoberts'' Manoeuvre' and the fact that baby [Baby A] sustained a fractured clavicle at birth. [Mr and Mrs A] make reference to this matter, both in their written complaint and the transcript of the interview. Secondly the issue of the monitoring of the labour, given that [Baby A] clearly suffered a severe asphyxial insult immediately prior to his delivery. Naturally the question of elective Caesarean section has arisen in hindsight and it has been suggested to [Mr and Mrs A] by various obstetric and other advisors following these tragic events that a Caesarean section would have saved [Baby A's] life. It will be necessary to discuss the management of large babies, shoulder dystocia, the predictive value of fetal monitoring in detecting fetal asphyxia, and obstetric risks generally to provide some context within which to understand this case before attempting to answer the questions posed by the Commissioner.

i) <u>The Delivery of Large Babies and the Risks of Shoulder Dystocia</u>

This discussion is relevant because an antenatal ultrasound had given an estimated fetal weight of some 4500 grams, which proved to be an unusually accurate estimate of [Baby A's] birth weight of 4560 grams. This seems to imply that fetal weight estimation by ultrasound scanning is a precise art. Gherman[(1)] in his evidence-based review of the literature summarises the reality. 'When used to detect macrosomia (i.e. large babies), ultrasound has been shown to have a sensitivity of only 22%-44% and a positive predictive value of 30%-44%. Among 86 women delivering within 3 days of ultrasound examination, estimated fetal weight exceeded birth weight in 77% of cases; in only 48% were the estimated fetal weights even within the corresponding 500g category of birth

weight. Moreover, when the fetal weight estimation exceeded 4500 grams, the accuracy decreased to only 22%.'

However large babies definitely present a situation of increased risk in many respects. This includes unexplained still birth, post maturity, failure to progress in labour and traumatic events at delivery both for mother and baby, the most notable of which being shoulder dystocia. Whilst the risk of shoulder dystocia for all babies over 2.5 kg is approximately 0.5%, the risks for babies over 4.0 kg is 3.3%[(2)]. Shoulder dystocia occurs when, following the delivery of the baby's head, the shoulders become stuck in the inlet to the maternal pelvis. The ensuing delay as the birth attendants desperately attempt to free the impacted shoulders leads to asphyxia, as the baby is neither able to breathe nor receive blood from the umbilical cord, which is most probably compressed during the birth process.

Should a large baby such as [Baby A] be delivered by elective Caesarean section in order to prevent the consequences of the delivery, of which the most feared and significant is shoulder dystocia? Numerous reviews have come up with the same clear answer. Shoulder dystocia remains a largely unavoidable and unforeseen obstetric emergency. How could this be possibly true? Although various risk factors are well documented, the predictive value of these is too low to be useful in planning the management of delivery i.e. Caesarean versus a 'trial of labour'. Morrison[(3)] looked at 44,000 deliveries over 10 years and found that 89% of cases of shoulder dystocia occurred in infants that weighed less than 4.0 kg. Conversely Geary[(2)] found a positive predictive value of only 3.3% for the occurrence of shoulder dystocia in infants whose birth weight was over 4.0 kg. Gross[(4)] looked at a series of women delivering babies over 4.0 kg and even with the addition of the two most important additional risk factors of delayed transition from first to second stage and delayed second stage, were only able to predict 16% of the cases that suffered significant birth trauma.

The culmination of these difficulties in accurately predicting the problematic delivery has been well illustrated by theoretical models based upon clinical data. A decision analysis model that compared policies of management using ultrasound and elective Caesarean delivery for estimated fetal weights of more than 4500 grams found that approximately 2,345 Caesarean deliveries would need to be performed to prevent one permanent brachial plexus injury (nerve damage to the baby's arm resulting from shoulder dystocia) among non-diabetic women.[(21)] Even a study raising the bar of intervention to 4,700 grams for non-diabetic mothers had such poor sensitivity and positive predictive value, that the policy could not be justified.[(5)]

A review of the problem of shoulder dystocia published in the 'Australian and New Zealand Journal of Obstetrics and Gynaecology' in 1995 concluded 'Prevention of shoulder dystocia by prophylactic Caesarean section for all patients at risk does not appear to be practical or advisable'.[(6)]

ii) Did Shoulder Dystocia Actually Occur at [Baby A's] Birth?

In a normal delivery the shoulders are delivered with the next contraction after the delivery of the baby's head (other than in more precipitate deliveries when head, shoulders and entire baby are born in one fluid expulsive movement). As the uterine contractions in the second stage of labour generally come at just over 2 minute intervals, this then is the usual limit of the pause after the delivery of the head, before the baby is safely born. Analysis of the delay in delivery in cases of shoulder dystocia where the baby endured some degree of permanent brain damage reveals that in a previously healthy baby this outcome could be expected when the delay is approximately 10 minutes or greater.(7) This would generally mean that at least 4 contractions had elapsed following the delivery of the head, without the shoulders being successfully freed.

Given the difficulties in objectively assessing the presence or degree of shoulder dystocia researchers have used time delay after the delivery of the head ('prolonged head to body intervals') plus the necessitated use of various obstetric manoeuvres to generate an objective definition of shoulder dystocia.(8) By this standard shoulder dystocia did not occur at the birth of [Baby A], as it has been documented that he was delivered with the next contraction after the delivery of the head.

When managing the delivery of a large baby it is prudent to position the mother in a manner that will optimise the chances of an unobstructed delivery, and also facilitate any manoeuvres that may be required to effect delivery. [Mrs A] was in my view wisely positioned with her hips hyper-flexed and abducted ('the McRoberts' Manoeuvre'), but as the baby delivered with the next contraction and no other obstetric manoeuvre was necessitated, then shoulder dystocia may have been prevented, but certainly did not occur.

[Baby A] was found postnatally to have suffered a fracture of his clavicle. This is a known complication of normal delivery. The incidence of clavicular fracture increases with both birth weight and the incidence of shoulder dystocia (occurring in 8.5% of cases in one series), but it has also been reported in the absence of any recognised shoulder dystocia.(9,10) Deliberate fracture of the clavicle is a well known albeit extreme measure for managing severe shoulder dystocia. It is difficult to perform, rarely done, and not taught to my knowledge in New Zealand primary maternity care. There is no evidence that the clavicular fracture was performed as an extreme measure to facilitate a difficult delivery, rather it was a consequence of the delivery of a large baby.

iii) Monitoring of Labour and Detection of Fetal Asphyxia

In addressing the issue of fetal monitoring and the detection of fetal asphyxia three issues arise:

1. Was [Mrs A's] labour appropriately monitored by utilising a method of intermittent auscultation of the fetal heart as opposed to continuous electronic fetal monitoring?
2. What was the significance of the fetal heart rate decelerations in the second stage of labour?
3. Can fetal asphyxia always be predicted from abnormalities of the fetal heart rate?

[Baby A] appeared in every respect to be in good health at the onset of labour, as evidenced by abundantly good growth antenatally, a perfectly normal CTG recording, (which was repeated intermittently throughout the morning for short periods of time), and a normal volume of clear liquor that was apparent at the time of spontaneous rupture of the membranes. The labour was correctly identified as low risk with respect to monitoring requirements for signs of fetal distress in labour. Many seem to have responded to this tragic outcome by implying that more intensive monitoring would surely have picked up a problem and led to interventions that would have prevented the tragedy. However the guidelines for responsible obstetric practice in terms of monitoring [Mrs A's] labour have been clearly defined by two landmark studies in the mid 1980s that have significantly influenced mainstream obstetric practice.

First came the Dublin randomised controlled trial of intrapartum fetal heart rate monitoring, which involved over 12,000 women.(11) The women were randomly assigned in labour to either continuous electronic intrapartum fetal heart monitoring, or a policy of intermittent auscultation as was used in [Mrs A's] labour. Remarkably the outcomes were almost identical in the two groups, other than a slightly increased intervention rate in the continuously monitored group. There were 14 stillbirths and neonatal deaths in each group, with a similar distribution of causes. The overall risk of intrapartum and neonatal death in normally formed infants was 2.1 per 1000, and the timing of deaths in relation to labour was also similar. This study was followed by a prospective comparison of 'selective' vs universal electronic fetal monitoring in over 35,000 pregnancies.(12) Selective monitoring was applied to pregnancies deemed to be at increased risk (such as those with meconium staining of the amniotic fluid), whereas universal meant continuous monitoring of all women admitted to the delivery unit. As in the Dublin study universal monitoring was associated with a small but significant increase in the incidence of Caesarean section, but perinatal outcomes as assessed by intrapartum stillbirths, low apgar scores and neonatal intensive care admissions were not significantly different. Neonatal deaths occurred in 6 per 1000 in each of these study groups.

It cannot therefore be claimed that a policy of continuous electronic fetal monitoring would either have been more advisable in this case, nor that it would have changed the outcome.

What was the significance of the fetal heart rate decelerations in the second stage of labour? The fetal heart irregularities were detected initially at 3.15pm with a deceleration from the base line of 140 beats per minute to approximately 80-100 beats per minute. This was followed soon after by a recovery of the heart rate to 120 which would have been considered as normal, with the repositioning of [Mrs A.] The fetal heart was recorded at approximately 80 bpm on two occasions and then recovered to between 100 and 110 bpm at 3.30pm, just two minutes prior to delivery. Given the condition that [Baby A] was born in just two minutes later it is always possible that this last recording may have been a maternal pulsation. However the recognition or otherwise of this would not have materially changed events, perhaps other than prompting an episiotomy. Fetal heart rate decelerations are common in the second stage

of labour. It is important to distinguish between patterns that are benign, or well tolerated by a healthy fetus, and those that are indicative of progressive fetal asphyxia and require urgent delivery. Stewart[13] analysed the second stage CTGs of babies born in excellent condition and found decelerations in response to 70% of the recorded contractions, although in all cases there was a return to a normal base line. Fetal heart rate patterns are irregular in the second stage because of a combination of decreasing utero-placental perfusion, direct pressure on the fetal head and the effects of any accumulating fetal hypoxia. Sometimes the fetal heart rate can drop dramatically in the minutes leading up to delivery. Although it appears ominous, in most cases the newborn is delivered in excellent condition. Katz[14] looked at the incidence of asphyxia in 55 patients with so-called 'end stage decelerations' with an average drop of 45 beats per minute (approximately the drop from [Baby A's] base line of 140 to 95 beats per minute). Provided the fetal heart rate was normal and the baby healthy prior to the end stage deceleration there was no correlation between fetal asphyxia and the depth of the drop, or the duration of the end stage deceleration, until more than 15 minutes had elapsed. Thus even if the fetal heart rate was persisting at 80-100 from 3.15pm until delivery, the expectation would have been the normal outcome of a healthy baby. Had a problem been identified at say, 3.20pm and an emergency forceps delivery embarked upon, then [Baby A's] spontaneous delivery 12 minutes later would most probably still have beaten the application of the forceps, given the time it usually takes to organise this procedure.

Could it have been anticipated that severe asphyxia was developing in the second stage of [Mrs A's] labour? The diagnosis of intrapartum fetal asphyxia can be made with blood gas and acid-base assessment of fetal blood during labour. This can be achieved by taking a sample of blood from the fetal scalp. It would not have been appropriate to initiate this test at 3.15pm because of the subsequent recovery of the fetal heart to a rate of 120, and because of the rapid progress of the second stage. At any point after this the result of the test would probably have arrived after the delivery of the baby and would not have changed the outcome. At the current state of our obstetric knowledge and in the best maternity services a small number of babies (approximately 1 per 1000) will still die of asphyxia, despite the best standards of care. We have no way of identifying all of these babies in advance. The difficulties are well illustrated in a review by Low[17] of infants that died of fetal asphyxia. 50% occurred in pregnancies with no risk factors. Even with a combination of 20 different antenatal and intrapartum risk factors the positive predictive value for intrapartum fetal asphyxia was only 3%. Rosen[18] reviewed the CTG recordings of 55 infants who were known to have neurological impairment or who had died during the neonatal period; all cases involved in malpractice litigation reviews. Nine of these infants (16%) had no significant abnormality throughout the time they were monitored prior to delivery.

Would delivery at a tertiary (level 3) obstetric unit […] have improved the outcome? Research has shown that for low and moderate risk women there is no statistically significant difference in neonatal mortality at level 1, 2, or 3 hospitals.[15] Other studies have focused on term infants over 2500 grams and again found either no benefit from

the more technology intense level 3 units, or indeed a marginal benefit for a lower technology level 1 setting.[16]

Conclusions

Given the short duration of labour, especially the second stage and the clear normality of the previous CTG trace I am also baffled by the terrible outcome of this delivery, but can see no obvious point where a responsible practitioner would under normal circumstances have done anything differently. Presumably at some point around or just after 3.15pm the umbilical cord became occluded as the second stage progressed. Baby [Baby A's] general vigour and lack of stress prior to this meant that his heart rate changes did not initially reflect the calamitous nature of his circumstances. However the continuing total absence of utero-placental blood flow, plus his large size meant that time for him would be very short.

EXPERT ADVICE REQUIRED

Was [Dr C's] assessment and management of [Mrs A's] pregnancy, in relation to the 97th percentile large baby, appropriate? Should [Mrs A] have been referred to an obstetrician for further assessment?

Responsible obstetric practice in the absence of other specific risk factors, as evidenced in the literature reviewed above, would be to have allowed a trial of labour. [Dr G] and [Dr D], both very experienced obstetricians, were aware of the indications for induction and the estimated fetal weight on ultrasound. Their approval of the induction confirmed that this was normal obstetric practice. There is no further clinical or other assessment that would have in any way better predicted the safety or otherwise of attempted vaginal delivery.

Was [Dr C's] plan for the labour and delivery appropriate?

Induction of labour for suspected macrosomia (large baby) has not been shown to alter the incidence of shoulder dystocia among non-diabetic patients.[19] Most studies addressing this issue have shown a slightly increased Caesarean rate as a consequence of induction with no significant improvement in perinatal outcomes. Despite this [Mrs A's] status as a multiparous woman having had two previous normal vaginal deliveries greatly reduced any risks inherent in the process of induction. Furthermore there is often merit in planning a delivery so that it may occur during the day when specialist staff may be on site in the circumstances of an unexpected emergency.

I have already addressed the issue of the appropriateness of intermittent monitoring and could find no risk factor that required continuous electronic fetal monitoring, as it must be accepted that in low risk women this is normal management. The presence of meconium in the amniotic fluid at the time of membrane rupture would have been an indication for continuous electronic fetal monitoring, and in this context any irregularities in the fetal heart would have routinely been subject to closer investigation, such as fetal scalp pH sampling. The amniotic fluid however was clear.

When managing a labour when a large baby is expected the possibility of shoulder dystocia should be foremost in the minds of an experienced obstetrician. Given that standard obstetric practice in the absence of other risk factors is to allow a trial of normal labour, what are the hallmarks of a labour that is headed for trouble, and what constraints should be put upon that trial of labour? Was [Mrs A's] management kept strictly within those indicators of further risk? An important predictor of good outcome is normal progress, both in the first and second stages of labour. A baby that is too large for the maternal pelvis will often declare itself with abnormal slow progress, especially in the second stage. Benedetti[(20)] determined that an important risk factor to emerge in labour for subsequent shoulder dystocia was a prolonged second stage and need for instrumental delivery. These two risk factors combine to confer a 28-fold increase in the risk of shoulder dystocia. A prolonged second stage of labour is defined as more than an hour for a multiparous woman. A normal second stage of labour in a multipara is approximately 30 minutes, and this was exactly the duration of [Mrs A's] second stage. Thus an important indication for recourse to an emergency Caesarean section did not arise.

Should [Mrs A] have been given the option of an elective Caesarean section? If so when did this need become apparent?

As outlined above numerous reviews of the vexed question of managing the large baby have all concluded that it is not responsible obstetric practice to offer elective Caesarean section in normal circumstances. At no point in the brief events of this labour did circumstances suggest that this plan should be deviated from, as the labour proceeded normally in every respect. Even abnormally aggressive intervention, and again this would not have been responsible obstetric practice, at the first possible indication that something may have been amiss, arguably at 3.20pm, would not have necessarily allowed time to change the outcome. I have explained that given the rapid sequence of events even a decision to perform a fetal scalp pH assessment, or a forceps delivery would have been beaten in its implementation by the ensuing delivery.

Was [Dr C's] management of [Mrs A's] labour and delivery reasonable in the circumstances?

Having examined the hospital records and the accounts of both [Dr C] and [Mr and Mrs A] I can find no fault in the management of [Mrs A's] labour, nor variance from current standard obstetric practice.

Are there any other professional, ethical and other relevant standards that apply and, in your opinion were they complied with?

There are no other issues that arise in the context of [Dr C's] management of [Mrs A]. I do not believe that the tensions alluded to between the hospital and independent practitioners had any bearing on the management or outcome of this case. It does appear that feedback from other professionals has had a corrosive effect on what initially appeared to be a sound relationship between [Dr C] and [Mr and Mrs A] following the tragedy. It is very difficult however to see how in the light of evidenced based practice

at what point this case could have been managed any differently. It is very easy to make assumptions about how this case could have been better managed, either in the absence of all of the details of the case, or with the benefit of hindsight. In this regard the independent review of the case by the Health and Disability Commissioner is of value to all concerned.

The early spectacular gains in neonatal outcomes over the last 30 years have not led ultimately to the elimination of all risk. Bigger and more specialised centres, more intensive monitoring, and extensive application of protocols to identify patients at increased risk have all failed to completely protect a small number of babies that die of asphyxia during or just after labour. I believe that this tragic case is an example of that one in a thousand event that will continue to recur in the perinatal mortality statistics of even the most conscientious and experienced practitioners.

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Response to Provisional Opinion

In response to my provisional opinion, Mr and Mrs A made the following general comments:

> "On reading the report and the findings, we came to the conclusion that there are three levels of maternity care in New Zealand. No one tells you this when you are pregnant and perhaps you are expected to work it out for yourself. Top level care is with a private obstetrician, second level care is with a GP, and the lowest level is with a midwife. The focus in the bottom 2 levels is on cost-cutting and letting labour take its 'natural' course, without telling parents too much about the realities and dangers of birth so that they don't get too 'worried' (and demand caesareans perhaps). It is obviously widely accepted that a certain percentage of babies will die using these standards of care. I wish we had known this, and we believe expectant parents should be made aware of this, just as the risks of immunisation are explained to parents.
>
> We will be paying for our daughters to have private obstetricians when the time comes years from now.
>
> We also still strongly believe that it would be much safer to offer a consultation with an obstetrician to women who are predicted by scan and abdominal size to be having large babies. That is still only a small percentage of total pregnancies in New Zealand, and seems entirely reasonable. We do not think that any of you realise what it is like to be the 'one in a thousand' event, and to have your lives destroyed in the space of a few minutes."

Code of Health and Disability Services Consumers' Rights

The following Rights in the Code of Health and Disability Services Consumers' Rights are applicable to this complaint:

RIGHT 4
Right to Services of an Appropriate Standard

1) *Every consumer has the right to have services provided with reasonable care and skill.*

2) *Every consumer has the right to have services provided that comply with legal, professional, ethical, and other relevant standards.*

RIGHT 6
Right to be Fully Informed

1) *Every consumer has the right to the information that a reasonable consumer, in that consumer's circumstances, would expect to receive, including –*
   (a) An explanation of his or her condition; and
   (b) An explanation of the options available, including an assessment of the expected risks, side effects, benefits, and costs of each option; …

Opinion: No breach – Dr C

The Code of Health and Disability Services Consumers' Rights (the Code) states that every consumer has the right to have services provided with reasonable care and skill and that comply with professional standards. A consumer also has the right to be provided with an explanation of her condition and an assessment of expected risks.

Mr and Mrs A were concerned that the death of their baby occurred as a result of Dr C's inappropriate management of Mrs A's antenatal period, labour and delivery. They were also concerned that Dr C did not adequately inform them of the risks of having a large baby. For the reasons that follow, I consider that Dr C provided appropriate care and information and did not breach the Code.

Antenatal care
On 5 January 2000 Mrs A consulted Dr C for confirmation of her third pregnancy. The pregnancy progressed normally until 25 May 2000 when Mrs A reported to Dr C that she had experienced a small vaginal bleed. Dr C referred Mrs A for an ultrasound scan, which was performed that day. The scan report gave no reason for the bleeding, but identified that the baby was large, in the 97th percentile. Dr C ordered further tests to identify the cause of

the bleeding, but all tests were normal (except a vaginal swab indicating Candida, which was treated appropriately). Mrs A had no further bleeding episodes. On 8 June Dr C tested Mrs A for possible gestational diabetes, which can cause large babies, but this test was also normal. I am satisfied that the provision of these tests constituted an appropriate standard of care.

On 24 July when Mrs A was 34.5 weeks pregnant, Dr C performed a further examination that verified the large size of the baby. Dr C gave Mrs A a second referral for an ultrasound and discussed management of the delivery of a big baby. Dr C's delivery plan was to arrange with Dr G, a consultant obstetrician, to assess Mrs A's suitability for an induction of labour prior to term. Dr G approved Dr C's plan and Mrs A was admitted to the first public hospital's Maternity Unit at 38 weeks 6 days. In line with standard induction of labour practice, continuous CTG monitoring of the foetal heart rate was conducted before Mrs A was checked by the on-duty obstetrician, Dr D, who prescribed Prostin to induce labour. I am satisfied that each of these steps was taken in accordance with standard obstetric practice. The question I must consider is whether more should have been done and, in particular, whether Dr C should have offered Mrs A an elective Caesarean section given that her baby was known to be large.

My independent expert general practitioner advisor, who specialises in obstetrics, noted that large babies definitely present a situation of increased risk. Although the risk factors are well documented – for example, the risk of shoulder dystocia for babies over 4.0kg is 3.3% – the predictive value of these factors is too low to be useful in planning the management of the delivery (Caesarean sections versus a trial of labour). My expert noted that the main difficulty in planning the delivery management is accurately predicting a problematic delivery, and quoted the following statement from the *Australian and New Zealand Journal of Obstetrics and Gynaecology* (1995): "Prevention of shoulder dystocia by prophylactic Caesarean section for all patients at risk does not appear to be practical or advisable."

I accept my expert advice that there was no further clinical assessment that Dr C could have conducted in the antenatal period that would have more accurately assessed the safety of an attempted vaginal delivery for Baby A. Dr G and Dr D were aware of the indications for the induction of Mrs A's labour and their approval of her proposed trial of labour confirmed that it was in line with normal obstetric practice. An elective Caesarean section in such circumstances would not be standard obstetric practice. Accordingly, in my opinion Dr C's antenatal care did not breach Right 4(1) of the Code.

Provision of information

There is a difference in the recollection of information Dr C provided to Mrs A regarding the complications associated with delivering a large baby. Dr C believes that she informed Mrs A that there was an increased risk of Caesarean section if the head did not descend or if shoulder dystocia occurred. However, Mrs A does not recall being told about any possible risk to the baby such as shoulder dystocia, clavicular fracture, brachial plexus injury or birth asphyxia.

On balance, I am satisfied that Mrs A was informed that her baby was larger than normal, and that there was appropriate discussion about management of the delivery. When she

expressed interest in using the birthing pool, she was advised to use the pool for pain relief only and told that delivery in the pool was not an option due to Baby A's size. Mrs A knew that Dr C had arranged for Dr G, obstetrician, to assess her as a candidate for induction of labour. I am inclined to believe Mrs A's statement that she was not told about shoulder dystocia or the specific birth complications that can occur during the delivery of a large baby. However, as previously discussed, the risk of shoulder dystocia was statistically low. The clinician must consider whether to inform the mother of a rare risk, which may cause undue fear. Dr C was monitoring the size of the baby, had arranged to induce the labour before term to minimise the risk, and had an obstetrician review Mrs A. Dr C had successfully delivered large babies previously and was confident that she would do so in Mrs A's case. The pregnancy was progressing well and there were no concerns for the baby, apart from his size. In these circumstances, there was no specific clinical reason for Dr C to discuss shoulder dystocia as a potential obstetric complication, or the associated complications of clavicular fracture, nerve injury and asphyxia.

Accordingly, in my opinion, Dr C gave Mrs A the information that would be reasonably expected in the circumstances and therefore did not breach Right 6(1)(a) of the Code.

Management of labour and delivery
Mrs A was admitted to the first public hospital at 7.30am, as planned, for induction of labour. She was assessed by Dr D, who ordered Prostin, and Dr C before the Prostin was administered. My expert advised that the CTG recording, which was repeated for short periods intermittently throughout the morning, was "perfectly normal". There was every indication that the labour was progressing normally.

At 3.15pm the foetal heart rate dipped to 80-110 bpm but recovered well. Dr C and Ms B assisted Mrs A to a position that would improve the oxygen flow to the baby, and the foetal heart rate was monitored continuously. The baby was making good progress through the birth canal and the birth was imminent when two further dips to 80 bpm were seen on the CTG trace. Ms B and Dr C positioned Mrs A to expedite Baby A's delivery, and he was delivered at 3.32pm.

My independent expert advised that there were no obstetric risk factors for Baby A other than his size, and the baseline electronic foetal monitoring indicated that he was in perfect health prior to delivery. Accordingly there was no clinical need for more intensive monitoring during Mrs A's labour. My expert referred to two large studies of over 47,000 women comparing the outcome of labours monitored by intermittent auscultation with those assessed by continuous electronic intrapartum foetal heart monitoring. The studies showed no significant difference in the perinatal outcomes. Dr Fergusson stated:

> "It cannot therefore be claimed that a policy of continuous electronic foetal monitoring would either have been more advisable in this case, nor that it would have changed the outcome."

My expert noted that Mrs A progressed normally through the first stage of labour, which was just under four-and-a-half hours' duration, and that she reached full dilatation at approximately 3pm. There was no indication of foetal distress until Baby A's heartbeat

dipped three times around 3.15pm, but when Mrs A was repositioned the baby's heart rate recovered to 120 bpm. I am advised that when managing the delivery of a large baby it is good practice to position the mother so that the chances of an unobstructed delivery are minimised and the carers can effect delivery unimpeded. My expert stated that, in his view, Mrs A was "very wisely positioned".

My expert noted that over the next 17 minutes Baby A made good progress towards delivery although his heart rate was causing concern. I accept my expert advice that foetal heart rate decelerations are common in the second stage of labour. In addition, the circumstances did not suggest that the original plan should be deviated from, as the labour proceeded normally in every other respect.

I accept my expert advice that, at the time of the first indication that anything was amiss (around 3.20pm), aggressive intervention would not have been responsible obstetric practice because by then there was insufficient time to take other intervention options – proceeding to such options would have worsened the situation.

My expert advised that uterine contractions during the second stage of labour come at just over two-minute intervals. In a normal delivery the baby's shoulders are delivered with the next contraction after the delivery of the baby's head. In the case of shoulder dystocia, some degree of permanent brain damage could be expected when at least four contractions had elapsed following the delivery of the head (about ten minutes) before the shoulders are delivered. I accept my expert advice that standard shoulder dystocia did not occur at the birth of Baby A, as he was delivered with the next contraction after his head was born.

Dr Fergusson stated:

> "Having examined the hospital records and the accounts of both [Dr C] and [Mr and Mrs A] I can find no fault in the management of [Mrs A's] labour, nor variance from current standard obstetric practice.
>
> …
>
> Given the short duration of the labour, especially the second stage and the clear normality of the previous CTG trace I am also baffled by the terrible outcome of this delivery, but can see no obvious point where a responsible practitioner would under normal circumstances have done anything differently. Presumably at some point around or just after 3.15pm the umbilical cord became occluded as the second stage progressed. [Baby A's] general vigour and lack of stress prior to this meant that his heart rate changes did not initially reflect the calamitous nature of his circumstances."

Accordingly, in my opinion, in her management of Mrs A's labour and delivery, Dr C provided appropriate care and did not breach Right 4(1) of the Code.

Opinion: No breach – Ms B

Mr and Mrs A also complained that their independent midwife, Ms B, did not adequately inform them of the risks of having a large baby. They were concerned that the death of their baby was a result of Ms B's inappropriate management of Mrs A during the antenatal period, labour and delivery. For the reasons that follow, I consider that Ms B provided appropriate care and information and did not breach the Code.

Antenatal care
Ms B, together with Dr C, had cared for Mrs A during her pregnancy in 1997. When Mrs A became pregnant for the third time in 2000 Ms B agreed to provide care with Dr C as in the previous shared care arrangement. In this situation, the two health practitioners reach decisions together regarding their client's care, after discussion about the presenting picture.

Ms B met with Mrs A on 11 July 2000, when she was 32 weeks pregnant. Ms B was aware, from reading the clinical records, that Mrs A had already had an ultrasound scan at 25 weeks (ordered by Dr C), which identified that the baby was large. Ms B noted that Dr C had discussed the options for delivery of a large baby, including an induction of labour before term, and had arranged for Mrs A to have a routine antenatal blood screen, including a test for gestational diabetes. All the test results were normal.

My independent midwifery expert noted that Dr C consulted with an obstetrician about the induction of Mrs A's labour. This was usual practice, since neither Ms B nor Dr C could make the decision to induce labour, as it is an obstetric procedure.

During the six weeks of Ms B's involvement in Mrs A's antenatal care, the pregnancy progressed normally. Ms B prepared a birthing plan, which involved using the birthing pool for pain relief. She discussed with Dr C the implications of closely monitoring the progress of the pregnancy, taking into account the large baby and the decision to induce the labour before term. I accept my expert advice that Ms B provided appropriate supportive midwifery care in relation to the planned induction of labour.

In my opinion, throughout the antenatal period, Ms B provided appropriate care in compliance with standard midwifery practice, and therefore did not breach Right 4(1) or 4(2) of the Code.

Provision of information
When Ms B saw Mrs A on 8 August, she discussed the complications and risks of an induction of labour. There is a discrepancy in the information provided about discussions regarding the appropriateness of a home birth. I am unable to conclude whose recollections on this matter are accurate, but both parties agree that they discussed using the birthing pool for analgesia only. Ms B advised Mrs A that use of the pool as a method of delivery is contraindicated when the baby is large. In the circumstances it was important that Ms B inform Mrs A of this, and it was appropriate that she did so.

My expert noted that birth plans are made with the woman during the antenatal period after discussion about her expectations and wishes for labour and delivery. The midwife is

expected to discuss any issues relevant to the woman and provide an opportunity for the woman to discuss any requests. There is scope during the antenatal period for the issues in the birth plan to be reviewed by both parties. I am satisfied that this process was followed with Mrs A.

Ms B was aware that the baby was a good size and she documented the possibility of problems during the delivery, and the baby's shoulders being a "tight fit". My expert advised that Ms B made reasonable clinical decisions about the forthcoming labour and birth and discussed her concerns appropriately with Mrs A.

Mrs A knew that her baby was bigger than average, and consideration was given to planning for the birth in the circumstances. There was discussion about the advantages and disadvantages of a home delivery and whether it was appropriate to deliver a large baby in the birthing pool. Ms B stated that she would not have used words such as "shoulder dystocia", "brachial plexus" and "birth asphyxia" when discussing the labour and delivery with Mrs A as these medical terms can create unfounded anxiety for the mother when there is no clinical basis for discussing them. However, she is sure that she talked to Mrs A about the risks and complications associated with induced labour. Mrs A was anxious about the birth, knowing that Baby A was big, and was concerned about sustaining a perineal/vaginal tear. She recalled: "I discussed my worries on many occasions with both LMCs."

In my view Ms B took Mrs A's concerns seriously, provided her with the opportunity to fully discuss her concerns and gave her the information that would be reasonably expected in the circumstances. Accordingly, in my opinion Ms B did not breach Right 6(1)(a) of the Code.

Management of labour

My expert stated that all induction of labour procedures are conducted at a base hospital, such as the first public hospital, because of the risks associated with induction and the need for medical involvement. Ms B was present when Mrs A was admitted to the first public hospital at 7.30am for the induction. She ensured that Mrs A and the baby were well prior to the procedure by monitoring the maternal vital signs and taking a reading of the baby's heart pattern, which was in accordance with reasonable midwifery practice.

Ms Gray advised that the use of the CTG or continuous foetal heart monitor prior to induction is common practice. It provides the obstetrician with information about the status of the baby and any deviations from normal patterns can easily be seen. The CTG recording is continued after the administration of Prostin to ensure that there are no adverse reactions to the drug by the mother or foetus. In Mrs A's case all maternal and foetal observations were within normal parameters.

Ms B assured herself that Mrs A was comfortable and knew how to call her back before she left her in the care of the hospital midwives at 10am. My expert stated that Ms B made an appropriate midwifery care plan, which was documented in the notes, and that her plan to leave Mrs A at that time was in accordance with normal practice throughout New Zealand. Each midwife makes the autonomous decision to stay with the mother in the early stages of an induction, or return at a later time. This is reasonable midwifery practice.

Ms B returned to the hospital at 1.15pm and shortly after assisted Mrs A, at her request, into the birthing pool for pain relief. About 50 minutes later Mrs A experienced a need to push with her contractions, and Ms B telephoned Dr C to update her on Mrs A's progress. Mrs A's uterine membrane then spontaneously ruptured. The draining liquor was clear. Ms B listened to the foetal heart rate and recorded it between 100 and 110 bpm. Mrs A's contractions had strengthened and become more frequent but there was no obvious sign of foetal distress. My expert advised that Ms B provided appropriate care to Mrs A at this time.

Dr C arrived at 3.15pm and shortly afterwards the baby's heartbeat was noted to dip to 80 bpm. Ms B and Dr C repositioned Mrs A, which can help if there are any concerns about the foetal heart rate. The baby's heart rate quickly recovered to 120 bpm.

Mrs A was concerned that Ms B performed a McRoberts' manoeuvre at this stage. Ms B denies that she did so. My midwifery expert commented that it is understandable that Mrs A made this assumption, as Ms B and Dr C had positioned her sitting upright with her legs widely abducted to open up the pelvic outlet for ease of passage of the baby's head. My expert advised that in a McRoberts' manoeuvre the woman is usually lying flatter on the bed to facilitate sacral straightening. I accept that the steps taken by Ms B at this stage were appropriate in the circumstances.

Mrs A was also concerned that Ms B placed her fingers inside her vagina without explaining what she was doing, and hurt her. Ms B informed me that she had her fingers on Mrs A's perineal floor to assist the stretching of the perineum to aid delivery of the baby's head. My expert commented that this practice is used by some midwives. It appears that Mrs A 's primary concern about not being informed about this procedure is associated with her belief that Ms B was performing a McRoberts' manoeuvre, rather than not being told that the perineum was being stretched to facilitate the delivery of the baby's head. Ideally Ms B should have explained to Mrs A why this procedure was to be performed, but at the time there was some concern about the baby's well-being, and the focus was on delivering Baby A without delay. In these circumstances, the lack of an explanation is excusable.

My expert advised that Ms B listened to the foetal heart rate after each contraction and noted the heart rate in the clinical records. At the end of the labour, early decelerations (periodic slowing of the foetal heart rate with onset early in the contraction and returning to the baseline at the end of the contraction) were observed and documented, but there was no evidence of late or prolonged decelerations, which would have alerted Ms B to the possibility of the baby being distressed. Mrs A's first stage of labour lasted four-and- a-half hours and the second stage 37 minutes. These times were within normal parameters and there was no delay in the labour. There was no indication of meconium in the liquor, which can be a sign of foetal distress. The baby's head was descending throughout the labour, and there was no evidence of shoulder dystocia. Accordingly, the circumstances did not at any stage dictate a different approach to the delivery.

Ms Gray advised:

> "It would appear from the clinical notes that midwife [Ms B] and [Dr C] appropriately managed the activation of help and commencement of the resuscitation of [Baby A]. It is my opinion that Ms B provided reasonable expected midwifery care for [Mrs A] throughout the pregnancy inclusive of antenatal, labour and birth period."

I accept my expert's advice. Accordingly, in my opinion, Ms B provided appropriate care in compliance with professional standards and did not breach Right 4(1) or 4(2) of the Code.

Other comments

The first public hospital management
Mr and Mrs A expressed their distress at comments made by a member of the first public hospital's management team, who spoke to them in the delivery room when Baby A was being prepared for transfer to the second public hospital.

The manager reassured Mr and Mrs A that the first public hospital's involvement in the birth events was appropriate. He allegedly informed Mr and Mrs A that the hospital had provided the necessary secondary care services, and were not responsible for the outcome of Mrs A 's labour and delivery.

Mr and Mrs A stated that they were frantic with worry about their son, and considered that the manager's approach at that time was inappropriate and insensitive.

I agree that the comments were unfortunate. In response to my provisional opinion, in which I referred to this issue, the General Manager of the first public hospital advised me that the manager concerned no longer works for the first public hospital, and stated:

> "I can only offer my sincere condolences to the family and assure them our current practice is different to that outlined in your report. In the event of an unexpected adverse event for a mother and her baby we would support the family at the time of the incident. This would be provided by our paediatric and/or obstetric service depending on the circumstances. Regardless of the LMC status we would also ensure appropriate examination of the adverse event and determine if there are any issues that indicate the need for formal review."

Follow-up actions

- A copy of my final report will be sent to the Medical Council, the Nursing Council, the Midwifery Council, the Royal New Zealand College of General Practitioners and the New Zealand College of Midwives.

- A copy of my final report, with identifying details removed, will be sent to the Maternity Services Consumer Council and placed on the Health and Disability Commissioner website, www.hdc.org.nz, for educational purposes.