Obstetrician, Dr B

Midwife, Mrs C

A Public Hospital

A Report by the

Health and Disability Commissioner

(Case 01HDC05155)

Health and Disability Commissioner
Te Toihau Hauora, Hauātanga

Parties involved

Ms A	Consumer
Mr A	Consumer's partner
Dr B	Provider / Obstetrician
Mrs C	Provider / Independent Midwife
Ms D	Public Hospital Midwife
Mrs E	Midwife at the Public Hospital

Complaint

On 11 May 2001 the Commissioner received a complaint from a barrister, about the standard of service Ms A received from Dr B, obstetrician, and Mrs C, independent midwife. Ms A confirmed on 30 May 2001 that she supported the barrister's complaint against Dr B and Mrs C. The complaint is summarised as follows:

- *Mrs C, independent midwife, failed to recognise the significance of the abnormalities in the foetal heart rate during Ms A's labour on 21 September 1999.*
- *Mrs C did not document her request for formal hand-over of care to secondary services.*
- *Mrs C did not keep Dr B, obstetrician, fully informed of the status of Ms A's labour.*
- *Mrs C encouraged Ms A to push with her contractions when she was fully dilated, without first checking with Dr B and despite concerning CTG tracings.*
- *Dr B failed to recognise the signs of intrauterine infection.*
- *Dr B instructed Mrs C to administer Syntocinon infusion to augment labour when maternal pyrexia and foetal tachycardia were noted.*
- *Dr B failed to recognise the significance of the abnormalities in the foetal heart rate during Ms A's labour.*
- *There was no formal request for forceps delivery or Caesarean section.*
- *Dr B and Mrs C failed to communicate effectively and plan the management of Ms A's labour and delivery.*
- *Baby died four-and-a-half months later as a result of the injury she received during her birth.*

An investigation was commenced on 30 May 2001.

Information reviewed

- Ms A's clinical records from the public hospital
- ACC Medical Misadventure Unit file relating to Ms A
- The public hospital's policies and procedures relating to the management of pre-labour rupture of membranes
- Guidelines for Referral to Obstetric and Related Specialist Medical Services
- New Zealand College of Midwives *Code of Ethics*
- Independent advice from Dr Jenny Westgate, consultant obstetrician, and Ms Sue Lennox, midwife

Overview

In 1999 Ms A, a 25-year-old woman in her first pregnancy, booked Mrs C, independent midwife, as her Lead Maternity Carer (LMC). The term "Lead Maternity Carer" refers to a general practitioner, midwife or obstetric specialist who has been selected by a woman to provide her with comprehensive maternity care including the management of her labour and birth.

On 19 September 1999 Ms A, who had had an uneventful pregnancy, was admitted to a public hospital Delivery Suite for assessment following the spontaneous rupture of her membranes. Mrs C assessed Ms A's labour to be progressing normally. She arranged to reassess Ms A the following day if active labour had not started.

Ms A returned to the Delivery Suite on 20 September and was reassessed by Mrs C. Mrs C consulted Dr B, obstetrician, about Ms A's labour. Dr B advised Mrs C to check the foetal heart rate and, if all was well, Ms A could wait a further 24 hours. Ms A was sent home overnight.

Ms A was admitted to the Delivery Suite at 7.30am on 21 September. At the time she had an elevated temperature and her blood tests indicated that she had an infection. The foetal heart rate was more rapid than normal. Mrs C notified Dr B, who ordered an antibiotic for Ms A, and Syntocinon (a synthetic oxytocin), to augment her labour. He noted his plan to progress to lower segment Caesarean section (LSCS) if there was no significant progress in Ms A's labour. At 10.45am the foetal heart rate dipped indicating that the foetus was distressed. Mrs C notified Dr B, who ordered an epidural anaesthetic and reassessed Ms A. Over the following two hours Mrs C became increasingly concerned about the foetal heart rate and called Dr B three more times. Dr B reassessed the situation and continued with his plan to augment the labour and monitor progress.

At 3.25pm Mrs C conveyed a message to Dr B that the foetal heart rate was severely abnormal and Ms A was about to deliver. Dr B arrived in Delivery Suite at 4.05pm to discover that the situation was grave. The foetal heart recordings indicated severe foetal distress. Dr B delivered Ms A's baby by forceps at 4.18pm, in very poor condition. The

baby died on 7 February 2000, aged four and a half months, from complications associated with cerebral palsy as a result of birth asphyxia.

Definitions

In the course of outlining the background facts relating to Ms A's labour a number of medical terms are referred to. They are defined as follows:

Chorioamnionitis
Inflammation of the foetal membranes, most commonly due to bacterial or viral infection. It is usually the result of upward spread of vaginal organisms. Rupture of the amniotic membranes for over 24 hours before birth, and prolonged labour, are major predisposing factors.

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

'Dips' or decelerations
Early decelerations are periodic decreases in the foetal heart rate resulting from pressure on the foetal head during contractions. The deceleration follows the pattern of the contraction, beginning when the contraction begins and ending when the contraction ends. The tracing of the deceleration wave shows the lowest point of the deceleration occurring at the peak of the contraction. The rate rarely falls below 100 bpm (beats per minute) and returns quickly to between 120 and 160 beats at the end of the contraction.

Late decelerations are those that are delayed until 30 to 40 seconds after the onset of the contraction and continue beyond the end of the contraction. This is an ominous pattern in labour because it suggests uteroplacental insufficiency or decreased blood flow through the intervillous spaces of the uterus during contractions. The lowest point of the deceleration occurs near the end of the contraction (instead of at the peak). This pattern may occur with abnormal uterine tone caused by the administration of oxytocin. If oxytocin is being used, when this occurs the rate of administration should be stopped or slowed.

Foetal heart variability
Foetal heart rate variability is considered to be one of the most reliable indicators of foetal well-being. Baseline variability (the normal variation of the foetal heart rate within the normal range) increases when the foetus is stimulated and slows when the foetus sleeps. If no variability is present, it indicates that the natural pacemaker activity of the foetal heart has been affected. The cause may be a response to narcotics or barbiturates administered to the woman in labour, but the possibility of foetal hypoxia and acidosis must be investigated. Decreasing variability indicates the development of foetal distress. Absent variability is considered a severe sign, indicating foetal compromise.

Foetal tachycardia
A normal foetal heart rate is between 105 and 155 beats per minute (bpm). The rate fluctuates slightly (5 to 15 bpm) when the foetus moves or sleeps. Foetal tachycardia occurs when the rate is 160 beats or more a minute (for a 10 minute period). Moderate tachycardia is 161 to 180 bpm. Marked tachycardia is more that 180 bpm. Marked foetal tachycardia may be due to foetal hypoxia (lack of oxygen), maternal fever, drugs, foetal arrhythmia, or maternal anaemia.

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 an O 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).

Information gathered during investigation

Background

19 September 1999
At 9am on 19 September 1999 Ms A, who was 38½ weeks into her pregnancy, experienced the spontaneous rupture of her uterine membranes (ie, her waters broke).

At 2pm Ms A was admitted to the Delivery Suite at a public hospital's Maternity Unit, by Mrs C. Mrs C performed a cardiotocograph (CTG). Ms A's temperature was 37.0°C, and her pulse was 88 bpm. Mrs C also assessed the position of the baby and recorded the baby's heart rate at 145 bpm. As Ms A's labour was not established and all recordings were within normal limits, she was sent home to rest.

At 7.30pm on the same day Ms A returned to the Maternity Unit and was reviewed again by Mrs C. Mrs C recorded that Ms A was experiencing uterine tightenings and that the CTG was normal with a baseline foetal heartbeat of 130 bpm. Ms A's temperature was recorded as 37.2°C. Ms A was sent home and instructed to return when labour was established or in the morning, whichever happened first.

20 September 1999
Ms A returned to the hospital at 9am on 20 September for further monitoring. She did not have an elevated temperature at that time, the draining uterine liquor was clear, the baby was moving well and the CTG baseline was 140 bpm. Mrs C discussed Ms A's progress with Dr B, the obstetrician who was in Delivery Suite that morning but not on duty. Dr B advised that Ms A could wait a further 24 hours for the onset of contractions provided that a further CTG later in the day proved to be normal. Dr B advised Mrs C to consult further with the duty obstetrician if any problems arose. Mrs C recorded that the repeat CTG was

performed, and was normal, but did not record the time of this examination. Ms A's temperature at that time was 37.2°C. Mrs C discussed with Ms A the risk of infection following early rupture of membranes and instructed her to keep a check on her temperature and to report any increase. Ms A returned home with a further appointment for 8am the next day. Ms A recalled that her contractions started at home at 9pm and continued through the night.

Labour – 21 September 1999
By 3.30am Ms A was unwell and "feeling horrible", with flu-like symptoms and no breaks between labour pains. She recalled that she telephoned Mrs C at that time to describe her condition. Ms A asked her partner, Mr A, to drive her in to the hospital early the next morning. Ms A was admitted to the Delivery Suite at 7.30am.

Mrs C examined Ms A at 8am. Ms A was in early labour and her temperature had risen to 37.6°C. (Mrs C informed me that Ms A had recorded her own temperature at home at 5am as 36.4°C.) Mrs C performed a vaginal examination on Ms A and recorded that Ms A's cervix was 1cm dilated and 50% effaced, and the foetus was in the vertex (head down) position at station -2. The baby's heartbeat was recorded as 170 bpm. Ms A's blood test results showed a raised white blood cell count, which is indicative of an infection. Mrs C notified Dr B.

Dr B advised me that he recognised the potential for intrauterine infection due to prolonged rupture of membranes, and therefore instructed antibiotic cover to be repeated at appropriate times. He noted that Ms A was allergic to penicillin and instructed Mrs C to start an intravenous infusion of Rocephin, an alternative antibiotic. Dr B suggested that Ms A should have an intravenous infusion of Syntocinon to augment the labour. He asked Mrs C to closely monitor the labour and discussed the possibility of Caesarean section.

Dr B recorded his review of Ms A in the notes, and that he had been informed about her raised temperature, allergy to penicillin, and the foetal tachycardia. He noted his plan for a one-off dose of Rocephin, blood tests and Syntocinon. He also noted: "May need LSCS [Caesarean section] if FTP [failure to progress]."

Mrs C recalled that she discussed the implications of the need for a Caesarean section with Ms A and Mr A. Mrs C informed me that it was busy at this time. She stated:

> "I was with [Ms A] as I organised the antibiotics, got the intravenous line in, put up the antibiotics and started the CTG. My plan had been to consult and refer and follow the advice of the obstetrician which I did. I clearly remember talking to [Ms A] about the possibility of infection and that was probably why the baby's heart was faster. I also remember saying that while we hoped she could have her baby normally there would be a greater chance she would need a Caesarean. I know however, that if [Ms A] cannot recall these conversations, the lack of documentation means that I cannot prove they happened."

Ms A cannot recall this conversation. She said that she and Mr A were not informed "at all on the labour progress" and were not told about the implications of the need for a

Caesarean section, although they overheard Mrs C and Dr B discussing this possibility. She said that they knew that it was "a little different from Antenatal classes. All the decisions were made either by [Mrs C] or Dr B between themselves."

Ms A recalled that Mrs C did not stay with her for long periods of time. She said that a second midwife who she did not know relieved Mrs C at intervals.

10am–11am
At about 10.30am Mrs C reassessed the progress of labour by a second vaginal examination to check that Ms A had not quickly dilated and that it was safe to administer an analgesic. At 10.45am Ms A was given an intramuscular injection of pethidine 100mg for pain. At this time Mrs C noted that the CTG showed two 'Type II Dips' or late decelerations which went down to 100 bpm. Mrs C was concerned by the decelerations and contacted Dr B. She informed him of the continuing pattern of tachycardia and deceleration, and asked him to see the CTG.

The records show that Dr B assessed Ms A, reviewed the CTG, and ordered an epidural anaesthetic and a reassessment of Ms A once she was comfortable. Mrs C notified the anaesthetist at 11am that Ms A required an epidural.

11am–12pm
Mrs C noted at 11.15am that the CTG trace showed early decelerations. The anaesthetist arrived at 11.20am and proceeded to insert the epidural. Ms A stated that she did not know why this was done.

Mrs C informed me that she asked Dr B to assess Ms A again at 11.50am because she was concerned about the CTG tracing, which showed continuing decelerations.

Dr B recorded that Mrs C had asked him to see Ms A at 11.58am. He noted:

> "Pt SROM [spontaneous rupture of membranes] for 48hrs. Temp 36.8°C. WBC [white blood cell count] 20.7. [Normal WBC is 4.0-11.0.]
>
> VE: [vaginal examination] Vx [vertex] presenting. O station.
> Cx [cervix] effaced, well applied to the head.
> Os stretched, 3 cm.
> FSE [foetal scalp electrode] attached.
> Epidural in situ.
> Syntocinon infusion."

Dr B informed me that he was aware that Ms A had prolonged rupture of membranes and was showing signs of uterine infection. He said that when he recommended the administration of a Syntocinon infusion to augment labour there was no indication to carry out a Caesarean section immediately. He was confident that augmenting the labour was a reasonable plan because he thought Ms A's labour would be short.
Mrs C recorded that the Syntocinon infusion, 1mμ in 3ml over an hour, was started at midday.

12pm–1pm
At 12.20pm the epidural anaesthetic was commenced and the Syntocinon was increased to 2mμ in 6ml over an hour. Mrs C noted that Ms A was comfortable and sleeping and that there were further Type I decelerations. Mrs C telephoned Dr B and told him that she was concerned about the 'dips'.

Dr B arrived at 12.45pm in response to Mrs C and reviewed the CTG. He noted:

> "Concern about CTG tracing. Pt in established labour. Decelerations seem to indicate head compression – mainly Type I. Pt c/o feeling pressure behind the pubic arch and slight urge like feeling of bowel motion.
>
> VE: Vx at +1 station
> Cx: Effaced – 6cm dilated
>
> Allow to progress. Seems like she will have a SVD [spontaneous vertex delivery] in relatively short time."

Dr B informed ACC that he went to see Ms A at 12.45pm "with a view to carrying out a Caesarean section if the findings were unfavourable". He said that Ms A had made significant progress within 55 minutes. He believed that a vaginal delivery was likely within a short period of time and the decelerations due to head compression only. Dr B stated that he did not consider that Ms A needed a Caesarean section but did need careful monitoring. Dr B said that he planned to carry out an instrumental delivery as soon as the cervix was fully dilated but did not record this in the notes.

Mrs C informed me that she learnt later that Dr B had decided at this point against a Caesarean section and planned to carry out an instrumental delivery once the cervix reached full dilatation. She said that he did not tell her of his intention to perform an instrumental delivery, and did not discuss this with Ms A or write his plan in the notes. Mrs C stated that she was aware that Dr B might have to assist the birth but at 12.45pm she was thinking about a Caesarean section rather than an assisted delivery.

1pm–2pm
Mrs C recorded at 1.15pm that she had noted Type II or late decelerations on the foetal heart monitor. (Mrs C did not record in the clinical records what the heart rate dipped to, but the CTG tracing shows that at 1.05pm the foetal heart rate dipped to 65 bpm, recovered briefly to 125 and then hovered between 60 and 95 for about five minutes before slowly climbing to 160 bpm.) Mrs C performed her third vaginal examination on Ms A to check for cord prolapse and assess how imminent the birth was. (This was Ms A's fifth vaginal examination as Dr B had performed vaginal examinations at 11.45am and 12.45pm.) Mrs C noted that Ms A's cervix was 8cm dilated. Mrs C turned off the Syntocinon infusion and placed Ms A on to her left side to improve the oxygen flow to the baby.

Between 1.20pm and 1.30pm the CTG tracing showed nine late decelerations dipping from 160/170 bpm to 70 bpm.

Mrs C contacted Dr B at 1.30pm. She did not detail her conversation with Dr B, but she recorded that he advised her to wait and restart the Syntocinon infusion if the recordings improved. At 1.40pm Mrs C recorded that the foetal heart had "settled". She restarted the Syntocinon at "1mμ".

The CTG tracing between 1.30pm and 2pm recorded that the foetal heart rate stabilised between 145 and 175 bpm.

2pm–3pm
At 2pm Mrs C increased the Syntocinon to 2mμ. She recorded the foetal heart rate at 173 bpm and noted that Ms A was sleeping. (Ms A believes that she did not sleep at all throughout the labour.)

At 2.10pm Mrs C again noted decelerations on the foetal heart rate tracing and notified Dr B. (Mrs C did not record the degree of the 'dip' but the CTG tracing showed that the foetal heart rate dipped to 80 bpm at 2.10pm.) Dr B visited and reviewed the tracing. Mrs C recalled that Dr B instructed her to perform a further vaginal examination on Ms A "soon". Dr B did not record his observations at this time. Shortly after this Mrs C was called to attend another patient and arranged for Ms D, the public hospital midwife, to sit with Ms A.

Ms D stated:

> "I relieved [Mrs C] about 2.15pm and sat with [Ms A] by her bed watching the CTG monitor which was on continuously. There had been some decelerations when I took over, but there was a period when I was there without any serious ones – but they began again about 2.40pm. I was concerned and informed [Mrs C] and asked her to come back. [Mrs C] checked [Ms A's] dilatation – she was fully dilated. I returned to the office as it was 'hand-over' time."

Mrs C performed her fourth vaginal examination of Ms A at 2.45pm and found that her cervix was fully dilated and the baby's head well down into the birth canal. Ms A started to push at 3.00pm. Mrs C informed me that she notified the paediatric house surgeon to advise that Ms A's baby was about to be delivered and might require resuscitation. Mrs C informed the house surgeon that foetal heart rate decelerations had been recorded.

At 3.15pm Mrs C recorded that the CTG was showing further Type II decelerations dipping to between 60 and 70 bpm and that she had seen meconium (foetal faeces) stained liquor when Ms A pushed with her contractions. Meconium stained liquor can be an indicator of foetal distress. Mrs C later informed ACC that the meconium staining was "light … more a yellow tinged 'show' but not fresh meconium".

Dr B informed ACC that he contacted Delivery Suite at about 2.45pm. He said:

> "I had not heard any more about [Ms A's] progress and assumed that perhaps she had delivered. One of the [hospital] midwives, [Mrs E], answered the phone and I asked her to find out from [Mrs C] about the state of affairs with [Ms A]. [Mrs C] relayed a message to me through [Mrs E] that [Ms A's] cervix was fully dilated and she was

> pushing and that she could see a portion of the foetal head at the perineum. I was not asked to come and assist with the delivery of the baby."

Mrs C disagreed with Dr B's recollection of the time he spoke with Mrs E. Mrs C stated:

> "[Mrs E] took a call from [Dr B] around 3.25pm. He 'phoned' in to check [Ms A's] progress. [Mrs E] relayed to him that [Ms A] was pushing, there was a 'peep' visible on pushing and Type II decelerations were continuing. I fully expected [Dr B] to attend as in any other similar situations where I worked with him he would have immediately done so.
>
> …
>
> Thin meconium presented at 3.15pm … it would have been unusual for me not to relay this to [Mrs E] to tell [Dr B] that there was meconium.
> …
>
> What I clearly remember is my concern about the decelerations and relaying to [Mrs E] to tell [Dr B] that deep decelerations were continuing. They had been the reason that I kept getting [Dr B] back all day and in such a situation I expected he would promptly attend.
>
> …"

Ms D recalled Mrs E, midwife, taking a telephone call from Dr B at about 3.15pm and reporting to him the concern about the decelerations and that Ms A was fully dilated.

Mrs C stated:

> "We waited for [Dr B] and he did not arrive. The CTG continued to show late decelerations. After a particularly deep and prolonged deceleration at around 3.55pm, I rang the buzzer and asked [Mrs E] to find out where [Dr B] was and ask him urgently to attend. We got [Ms A] on her side and gave her oxygen.
>
> …
>
> [Dr B] came shortly after 4.05pm."

Dr B informed me that at the time that Ms A was in labour he had "other things going on", and one patient in particular was causing him anxiety. He said that this patient required close supervision and seemed at the time to be at more high risk than Ms A. This baby was born at 3.22pm.

Delivery

When Dr B arrived he found that Ms A's baby had prolonged and severe foetal bradycardia (slowing of the heart rate below 50 bpm). Mrs E turned on the resuscitaire (paediatric resuscitation unit) and called the paediatric senior house officer (SHO). Dr B assessed Ms A and decided to deliver the baby by Neville Barnes forceps. The baby girl was born in

very poor condition at 4.16pm. She was suctioned and transferred to the resuscitaire. At 4.18pm an urgent call was made for a consultant paediatrician.

Ms A informed me that when her baby was born she was not moving or crying. Ms A said that she asked if her baby had died, but no one answered her, or came to her or Mr A to offer an explanation or comfort.

Baby A was transferred to the Special Care Baby Unit and later to the Neonatal Unit at another public hospital for ongoing support and ventilation (assistance with breathing). The baby was diagnosed with cerebral palsy, which was thought to be caused by birth asphyxia.

The baby was transferred back to the public hospital from the Neonatal Unit of the second public hospital. She died on 7 February 2000, aged four-and-a-half months, from complications associated with cerebral palsy as a result of birth asphyxia.

Further information
Dr B informed me:

> "I was concerned about the foetal tachycardia and decelerations, though of short duration and good recovery with variability.
>
> …
>
> My decision about not performing a Caesarean section at that time [Dr B did not specify when he made that decision] was influenced by the following factors:
>
> 1. The patient was 25 years old, healthy primigravida
>
> 2. She had an uncomplicated pregnancy until she went into labour except that she had ruptured membranes for 48 hours.
>
> 3. There was no evidence of vaginal infection.
>
> 4. There was no significant maternal pyrexia or abdominal tenderness suggesting Chorioamnionitis [uterine infection].
>
> 5. There was no meconium stained amniotic fluid.
>
> 6. There was rapid progress in labour with expectation of reaching second stage fairly soon.
>
> …
>
> I have to say that since the introduction of Section 51 of the Maternity Act, my practice and management of patients in labour has been inadvertently altered. (I am sure this is true of my colleagues around the country.) This is because of the shared nature of case management and a feeling of not being in total control of the patient's management at times.

I have to make a few pertinent comments.

1. I should have been called by [Mrs C] at 1445 hours when the cervix was found to be fully dilated. I could have expedited the delivery by using the forceps in view of abnormal foetal heart tracing.

2. I should have been called at 1500 hours when late decelerations were noted and the Paediatric SHO was called. I could have expedited the delivery then.

3. Meconium stained amniotic fluid was noted at 1515 hours. I should have been called as per protocol because this was the first time meconium was noted and indicated further foetal distress. I could have expedited delivery at that point.

[It is unclear what protocol Dr B is referring to, ie, whether his reference is to the Section 51, 'Guidelines for Referral', or the public hospital's Maternity Unit policies.]

4. I should have been asked to see the patient at 1525 hours when I called to find out whether or not [Ms A] had delivered her baby.

It has been extremely difficult for me to come to terms with this catastrophic event and once again I would like to express my sincere sympathy to the [A] family."

In his response to specific questions posed during this investigation, Dr B stated:

"1. I had not failed to recognize the signs of intrauterine infection. I was aware of the fact that [Ms A] had prolonged ruptured membranes and there was a possibility of chorioamnionitis and this was suggested by slightly raised maternal temperature and foetal tachycardia. I therefore instructed [Ms A] to receive intravenous antibiotics in order to treat or prevent intrauterine infection.

2. When I recommended administration of Syntocinon infusion to augment labour there was no indication to carry out a Caesarean section straight away. When I assessed the progress of labour I was reasonably confident that the labour would be rather short and expediting labour was a reasonable thing to do.

3. I was aware of the foetal heart rate abnormality during [Ms A's] labour and therefore recommended close supervision and had made comments that a Caesarean section may have to be carried out.

…

Looking at the foetal heart rate tracing retrospectively it is clear that the foetus did not respond well to labour and in my opinion the behaviour seemed to be disproportionate to the clinical condition of the patient and given the fact that she had a totally uncomplicated pregnancy."

Mrs C informed me:

> "I was aware of the significance of the foetal heart rate having monitored [Ms A] over the period prior to labour.
>
> …
>
> As a midwife LMC at [the public hospital] there has never been an expectation or a need to formally document hand-over of care in labour to an Obstetrician. We tend not to do this as there are no registrars and even when a labour results in a Caesarean section, most LMC midwives continue to provide the midwifery care and follow the Obstetrician's plan and instructions, and work alongside the obstetrician who is providing the secondary medical care. Obstetricians are not involved in primary care. Once the first contact is made the Obstetrician oversees and directs the management of the labour.
>
> I contacted [Dr B] six times about my concerns and he came twice of his own volition during the labour.
>
> …
>
> I have never had to request an Obstetrician to do a LSCS or forceps delivery. That is a secondary care medical decision which is made by the Obstetrician following an assessment of the labour and care following discussion with the woman. I did anticipate an assisted delivery and prepared for this.
>
> At the time I really thought that I had communicated effectively with [Dr B]. He knew I was worried and that is why I kept getting him back. I carried out all his instructions during the labour and fully implemented his management plan. It does appear that he was also busy with other clients but I was not aware of that. The only possible difficulty with communication was when he spoke with [Mrs E], when [Ms A] was fully dilated, having deep decelerations and starting pushing.
>
> …
>
> [Dr B's] later statement that he was 'not asked to come and assist' is completely out of step with our usual practice and the expected level of obstetric involvement in [the public hospital] where the specialist is more likely to be 'sitting at your shoulder' throughout the labour and birth."

Internal review

On 4 January 2000 the Clinical Director, the Head of the Department of Obstetrics, Dr B and Mrs C met with four members of the family to discuss the events surrounding Ms A's labour and delivery.

The Head of the Department of Obstetrics informed me on 13 August 2002:

"We held several case reviews regarding the management of this labour and each practitioner involved was well aware of their involvement and where their management had deviated from an expected norm.

…

I feel that the communication issues that occurred within this labour were a result of changes to the maternity system such that individual practitioners were not comfortable with the changes because of confusing and poorly understood directions from the section 51 document."

ACC
Ms A lodged a claim with the Medical Misadventure Unit of Accident Compensation Corporation (ACC) in January 2000. The claim was accepted on the basis of medical error. The claim was reviewed for ACC by an independent advisor, also an obstetrician.

The Public Hospital Health Policies and Procedures

"CLIENT/PATIENT MANAGEMENT **PROTOCOL** Issue Date: 15 August 1996

DOCUMENT NO: OBMGMT–P.R02

TITLE: **RUPTURED MEMBRANES – PROLONGED**

1 PURPOSE/DESCRIPTION/SCOPE:

Prolonged >than 24 hours

In the absence of Sepsis, IUGR etc, it is probably advisable to be conservative until 34 WEEKS GESTATION. There is a lot of controversy that prolonged PPROM should have the pregnancy terminated at 36 weeks gestation.

At gestations near to term – if labour has not started spontaneously within 24–36 hours of spontaneous rupture of membranes – consideration should be given to Induction of Labour, to avoid ascending infection. Discuss with Duty Obstetrician.

2 ASSESSMENTS:

Confirm rupture of membranes.

Confirm dates, foetal heart and movements.

CTG for uterine activity.

Liquor – volume, amount, colour, odour.

Rule out Sepsis – eg. 'Strep B'.

3 MANAGEMENT:

Vaginal Examinations per vagina or speculum should be kept to a minimum and only used where the information to be obtained cannot be obtained by any other means.

Regular observations of pulse, temperature, and foetal heart rate.

Biophysical profile for foetal well-being.

?Induction with Specialist after 48 hours.

4 POINTS TO NOTE:

Duration of ruptured membranes before action taken is ?48 hours (open for discussion)."

Independent advice to Commissioner

Midwifery advice
Ms Sue Lennox, independent midwife, provided the following expert advice:

"**Questions**

1. **Whether, in your professional opinion, Ms A was provided with services with reasonable care and skill by Mrs C.**

I will address this question by referring to the process of the labour and the care that [Mrs C] provided.

The deviation from an average labour began with prelabour rupture of membranes that occurred at [9.00am] on the 19th September. [Mrs C] followed normal hospital practices of monitoring by cardiotocography and recording maternal temperature once or twice daily on the 19th and 20th September. She discussed management on the 20th with [Dr B] and he was happy to wait a further 24 hours for labour to occur spontaneously. In the light of the evidence as known in 1999 that was a reasonable plan (Enkin, Keirse et al 1995). The risk of prelabour ruptured membranes is infection and since there was no evidence of infection at this stage expectant management was considered appropriate.

It is interesting for me to note that there is no comment at all about how [Ms A] felt about such plans – did she really want to wait or was she keen to be induced? A discussion should have taken place stating that the risk of waiting was one of infection but that the benefits of not intervening could be less intrusion and the gains of experiencing a normal birth. Such a discussion of the pros and cons of active versus

expectant care of prelabour rupture of membranes may have taken place but it should have been recorded – and it was not.

[Ms A] came into spontaneous labour at [3.30am] on the 21st September some 42.5 hours after her membranes spontaneously ruptured. She was admitted at [8.00am] with a fairly normal level of progress, for a first baby. At this point there was evidence of maternal infection with a raised maternal temperature about which [Mrs C] appropriately contacted the obstetrician.

[Dr B] mentioned the baby's raised pulse rate and ordered fluids to be given intravenously with a dose of antibiotic added and Syntocinon via a pump to accelerate the labour. His plan for a Caesarean section if [Ms A] failed to progress in labour was clearly written (note probably made at about [8.10am] on 21/09/99).

I think the focus of this plan is one key to understanding what happened in this labour. The obstetrician's concern was that [Ms A] should be delivered as soon as was possible but a Caesarean section would only be performed if Ms A did not dilate. The possibility of infection seems to have been omitted from the future spectrum of possibilities. Although he ordered the antibiotic and a white blood cell count, from that point on the possibility of chorioamnionitis seems to have been dismissed by both carers.

Infection detection and prevention ought to be a major concern when a mother has had ruptured membranes for this long. Some useful practices are regular pulse and temperature measurement, reducing vaginal examinations to a minimum and ensuring the woman is well hydrated.

[Mrs C] examined [Ms A] vaginally twice in one and a half hours at [8.00am and 9.30am]. This is an odd thing to do when she was so little dilated at 0800 hours. With a history of ruptured membranes the risk of infection from the examinations is higher than the likelihood of detecting any great progress in dilatation. [Mrs C] says she did this to assess for pain relief and she gave [Ms A] Pethidine 100mgs intramuscularly at [10.45am]. I do not think this is an adequate reason to have carried out the second examination. I note that in total [Ms A] had six internal examinations in eight hours and I believe this was excessive.

When Pethidine was given there were two foetal heart decelerations, one dropping as low as 65 beats per minute. [Mrs C] noted on the tracing that [Ms A] had changed position onto her back and this is a commonly accepted explanation for an isolated foetal bradycardia (low heart rate).

What is difficult to understand is lack of attention to the ongoing foetal tachycardia (rapid heart rate) with a very high baseline reading of 170–190 beats per minute from the time of admission (normal range is 105–155 bpm). This was noted in [Dr B's] comments when he first saw [Ms A]. It continued pretty much unabated throughout the labour and is a classical sign of foetal distress whatever the cause. [Mrs C] did not register concern for the higher than normal baseline (though she was very worried by the decelerations), the raised white cells from the full blood count or the episode of

raised maternal temperature. These were signs of infection in a woman with pre-labour rupture of membranes but they did not register in her comments. I understand how busy and worried she must have been looking after [Ms A]. I cannot understand her seeming reliance on the obstetrician to put the signs together. [Mrs C] should herself have questioned whether Ms A had a chorioamnionitis.

The midwife is the Lead Maternity Carer and she must refer to an obstetrician when she is concerned. [Mrs C] did this and continually reported aberrant signs but was reassured by an obstetrician whom she trusted and had worked with for some time. She is experienced and demonstrated her concerns as evidenced by calling the obstetrician unusually frequently. He appeared very conscientious and responded to her calls at [8.00am, 10.45am, 11.50am, 12.45pm, 1.30pm, 2.15pm and 4.05pm]. His focus was seemingly on [Ms A] delivering her baby and all his efforts were directed towards encouraging dilatation.

The calls of concern to him about decelerations were met with advice to temporarily rest the Syntocinon and come back to it as soon as possible [1.30pm–1.40pm]. The tracing from about [1.10pm] until [1.30pm] shows consistent late decelerations (Type II dips), which [Mrs C] accurately identified. She appropriately contacted [Dr B] about these changes and had already turned off the Syntocinon. [Dr B] advised her to restart the Syntocinon when the foetal heart had returned to previous levels and she did that at [1.40pm]. I do not think this was appropriate given the seriousness of the previous decelerations and the persistent underlying tachycardia and reduced beat-to-beat variability. In my opinion [Mrs C], acting as an independent practitioner should have more strongly expressed her concerns in discussion with the obstetrician. This does not appear to have been done.

The tracing from [2.20pm] until the birth is very obviously abnormal: the baseline is 170 bpm and the decelerations are late (type 2) and as low as 70 bpm. In the notes [Mrs C] writes at [2.10pm], 'Type2 decels to 120–100' and later at [3.00pm], 'F.H. late decelerations. Paed. SHO notified'. These notes do not adequately address the seriousness of the situation. Why did [Mrs C] call only the paediatrician when the foetal heart rate was so obviously compromised? She knew this picture was not good and should have also called the obstetrician again at this time.

In fact, in my opinion, despite the six previous calls, the midwife needed to phone the consultant again at or shortly after [2.30pm] since the tracing was very poor. I find it hard to explain that she failed to do so.

In my opinion, [Mrs C] failed to provide services with reasonable care and skill on three occasions.

a) failing to adequately recognise and act on the signs of infection in a labouring woman who had prolonged rupture of membranes.

b) failing to adequately express her concerns to the obstetrician about the seriousness of the decelerations she noted at [1.30pm] and restarting the Syntocinon on his advice.

c) failing to call the obstetrician again soon after [2.20pm] when very serious decelerations were seen on the foetal monitor.

Below I will answer the specific complaints relating to [Mrs C].

2. Did [Mrs C] fail to recognise the significance of the abnormalities in the foetal heart rate?

[Mrs C] failed to recognise the significance of the ongoing foetal tachycardia and the decreased beat-to-beat variability. She did correctly identify the type II decelerations at [1.30 and 2.10pm] and called the specialist on both occasions. She failed to act at [2.20pm] when the most serious decelerations occurred and continued.

3. [Mrs C] did not document her request for formal handover of care to secondary services.

This is a matter of local practice and convention. [Mrs C] states (letter marked 'B') that, once the first contact is made, the obstetrician oversees and directs the management of the case. She certainly behaved in this case as if she were not in charge of decision making.

4. [Mrs C] did not keep [Dr B] fully informed of the status of [Ms A's] labour.

Up until [2.20pm] it appears that [Mrs C] fully informed [Dr B] of the changes in [Ms A's] labour. After [2.20pm] she failed to contact him urgently as discussed above.

5. [Mrs C] encouraged [Ms A] to push with her contractions.

There is no evidence on this point. However, the foetal decelerations indicate that the baby was already severely compromised and even without pushing a vaginal birth was dangerous.

6. [Dr B] and [Mrs C] failed to communicate effectively and plan the management of [Ms A's] labour and delivery.

The plan for the labour does not seem to have adequately taken account of signs of infection with prolonged labour. [Mrs C] does not seem to have noted or commented on these signs and seems to have taken little part in developing the plan.

There does appear to have been a failure in communication during the transition and second stage of labour when the worst signs of foetal distress were evident.

7. Any other relevant comments.

The midwife only attended to some of the usual physical parameters of care. She does not appear to have reflected on the possible causes of a foetal tachycardia. She recorded the maternal pulse only once (80 bpm at [1.00pm]) in labour despite a raised maternal temperature at [8.00am]. Maternal pulse is an easy and direct way of checking how the mother is coping physiologically. She only recorded the results of

one urine sample, which showed moderate ketones at [1.30pm]. This is a sign that the body is running short of ready stores of glycogen and begins to break down fat stores for energy. She should have retested for ketones or commented on the lack of urine. In my opinion this is inadequate monitoring especially in a situation where the labour was already abnormal.

Reference

Enkin, M., M, Keirse, et al. (1995). A guide to effective care in pregnancy and childbirth. Oxford, Oxford University Press."

Obstetric advice
Dr Jenny Westgate, independent obstetrician, provided the following expert advice:

"**1. The events surrounding delivery.**

In 1999, [Ms A] was a 25-year-old woman in her first pregnancy. She booked under the care of an independent midwife, [Mrs C] and had an uneventful pregnancy.

On 19.9.99, at 38 weeks of gestation, [Ms A] ruptured her membranes spontaneously at [9.00am]. She was seen by her midwife at [2.00pm] in Delivery Suite, had a normal CTG and was sent home. At [7.30pm] she was reviewed again in Delivery Suite. She was not yet in labour, her temperature was 37.2°C. A CTG was normal.

On 20.9.99, she was reviewed again by her midwife who also consulted [Dr B] about a management plan. [Dr B] advised that she could wait a further 24 hours for the onset of contractions as along as 'all was well'. A CTG at [10.30am] was normal. A repeat CTG done at [6.00pm] was also normal. Her temperature was 37.2°C.

21.9.99, day of delivery.

[8.00am] [Ms A] was admitted to Delivery Suite. She had been contracting since [3.30pm]. Her temperature was 37.6°C and a CTG showed a foetal tachycardia of 160 or so, with accelerations. She was seen by [Dr B] who noted the maternal pyrexia and foetal tachycardia. He started her on intravenous antibiotics, suggested she start Syntocinon augmentation and discussed the possibility of Caesarean section if she did not progress.

[10.45am] The midwife noted two 'type 2' dips. [Dr B] reviewed the CTG and suggested an epidural be inserted. This was done at [11.20pm].

[11.50am] [Dr B] reviewed [Ms A]. He noted that her temperature was now 36.8, her white cell count was 20.7 and she was only 3 cm dilated. He asked that Syntocinon be commenced. It was started at [12.00 midday].

[12.45pm] [Dr B] came to review the CTG at the midwife's request. He decided that the decelerations seen were consistent with 'head compression' and were mainly 'type l'. He noted the cervix was now 6 cm dilated.

[1.15pm] The midwife noted 'type 2' dips and turned the Syntocinon off.

[1.20pm] [Dr B] was telephoned about the CTG and his advice was to wait and see – restart the Syntocinon if the CTG improves.

[1.40pm] Syntocinon restarted.

[2.10pm] The midwife again noted 'type 2' decelerations and [Dr B] was called.

[2.15pm] [Dr B] reviewed the CTG. He did not write in the notes. He suggested that a vaginal examination be done soon.

[2.45pm] [Ms A] was fully dilated.

[3.15pm] Pushing commenced.

[3.15pm] The midwife noted light meconium stained liquor and continued 'type 2' decelerations to 60–70.

[3.20pm] [Dr B] rang Delivery Suite to find out about progress. He was told that [Ms A] was pushing, the head was on view and there were 'type 2' decelerations.

[3.55pm] The foetal heart rate fell to 60, [Dr B] and the paediatric house surgeon were called.

[4.05pm] [Dr B] arrived, found that there was a prolonged and severe foetal bradycardia and delivered the baby by forceps at [4.16pm]. The baby was unresponsive and required resuscitation. Apgar scores were l, 4, 6 and 7 at 1, 5, 7 and 28 minutes respectively. The first neonatal venous pH was 6.63. [Baby] developed seizures at 6 hours of age. She was transferred to [another public hospital] and developed severe HIE [hypoxic ischaemic encephalopathy].

2. Comments on the CTGs.

The CTGs done on the 19th and 20th are normal with baseline rates between 120 to 140.

CTGs on 21.9.99.

There is a hand-written note on the CTG record which says that the CTG machine time clock was wrong. I have used the amended times written on the CTG record by hand on 4.1.00. These times are one hour earlier than that recorded on the CTG.

Initially, the CTG showed a mild tachycardia of 160 or so, with accelerations. Over the next 2 hours or so the baseline rose to 180 with mild variable decelerations. At [10.42am] there was a prolonged deceleration with poor contact and then loss of contact again at [10.55am]. The toco record was inadequate to assess uterine activity.

[Dr B] saw the CTG early on at around [8.30am] or so and again at [10.45am]. By [10.45am] there was a significant tachycardia and there had been variable decelerations for 30 min or so.

There are really only three explanations for this CTG pattern.

1. The foetus could have been infected – I can't find any evidence in the notes that I have that the baby had a significant infection treated immediately after delivery.

2. The foetus may have already been hypoxic and was compensating with an increased heart rate.

3. Or the foetus may simply have been tachycardic because the mother was febrile. However, in order to keep its heart rate at 180/min, the foetus would have used far more oxygen than if its heart was beating at 140/min. This would have placed a great strain on the foetus and increased the likelihood of it becoming hypoxic as the labour progressed.

If delivery was very likely to occur in the next hour or so, it may have been satisfactory to carefully watch for signs of further deterioration while awaiting imminent delivery. However, at this point, [Ms A] was very early in her first labour and delivery was likely to be some hours away. In my view there were only two possible management options – deliver the foetus by Caesarean section for foetal tachycardia or perform a foetal scalp blood sampling to get more information about the foetus and, if it were normal, to repeat it hourly.

Following the epidural at [11.20am], the baseline was around 170, with reduced heart rate variability. There was loss of contact from [11.42am] until [11.48am] which I presume was the time a vaginal examination was done and a foetal scalp electrode applied. Once contact was made with the foetus again there were 3 large severe variable decelerations which resolved and were followed by a baseline tachycardia of 180 and moderate variable decelerations. [Ms A] was only 3 cm dilated, the CTG was very abnormal but no action was taken.

By [12.20pm] the CTG was more abnormal – the decelerations were moderate to severe variables with a baseline heart rate of 180 and reduced variability. [Dr B's] assessment that these were consistent with head compression and that they were 'type l' decelerations was simply wishful thinking.

At [1.05pm] there was a prolonged deceleration to less than 80 for about 6 minutes. Following this the CTG was even worse with tachycardia, absent variability and large severe variable decelerations. The recording of uterine contractions was finally adequate and showed that contractions were occurring every 2 minutes, which is too frequent. The Syntocinon was turned off and the decelerations reduced to mild and moderate variables, the Syntocinon was restarted at [1.45pm].

At [2.15pm] [Dr B] saw the CTG but did not write in the notes. According to the midwife, he did not specify any intervention other than a further vaginal examination.

At [2.20pm] the severe variable decelerations reappeared and continued until there was a terminal fall in foetal heart rate at [3.55pm]. By the time of delivery at 1616, the foetus was severely hypoxic, acidotic and nearly dead.

In summary, the CTG was abnormal from [8.31am] and became progressively worse over the course of the day. [Dr B] failed to recognise the significance of the changes and thus did not expedite delivery. In my view a Caesarean section was justified from [10.30am] and was mandatory by [12.45pm].

3. Comments on management of pre-labour, prolonged ruptured membranes at term.

The main risk of prolonged rupture of the membranes before labour is ascending infection, particularly with Group B strep. Most obstetric units have a formal group B strep prevention policy to deal with this situation. Some protocols are more aggressive than others and involve routine antenatal high vaginal swabs to detect the presence of Group B strep in the vagina. However, a standard element of all protocols is to offer antibiotic prophylaxis to all women once membranes have been ruptured for more than 18 hours.

The question of when to induce labour in these circumstances is unclear. There has been a general trend to wait up to 24 hours before offering induction. In my experience of New Zealand practice, it would be unusual to wait longer than 24 hours without discussing the pros and cons with the patient and without offering antibiotics. [Dr B's] decision to allow [Ms A] to wait 48 hours before offering induction and antibiotics is not consistent with standard practice. It would be interesting to know if the public hospital does have a protocol for the management of pre-labour rupture of the membranes at term.

[Ms A] had a temperature of 37.6°C and an elevated white cell count of over 20 x 10^9 in early labour. It is difficult to attribute this to anything other than a degree of chorioamnionitis but without obvious foetal infection (from the neonatal notes which I have seen). This could have contributed to her rapid progress in labour. The important fact is that an infection probably made [Ms A] febrile, which in turn increased foetal temperature and heart rate and increased foetal oxygen requirements. I suspect that this is likely to be the reason [baby's] condition deteriorated so rapidly during the labour.

4. Summary: Factors which contributed to this tragedy.

4.1 Probable maternal infection secondary to prolonged rupture of membranes.

4.2 Sub-standard CTG terminology and interpretation. Neither [Dr B] nor the midwife correctly described the CTG changes at any point. Constant references to 'type l' and 'type 2' decelerations were both incorrect and inadequate to detail the progressive deterioration of the foetal heart rate pattern. Neither seemed to appreciate the significance of the changes they were observing.

4.3 Probable additional hyperstimulation of the uterus with Syntocinon. Where uterine activity can be assessed, contractions were occurring every 2 minutes or so with Syntocinon. This is too frequent and would have placed an additional hypoxic stress on the foetus.

4.4 [Dr B] appeared to be pre-occupied with other activities. He mentions that he was supervising the labour of one other high risk woman in Delivery Suite at the same time. The midwife reports that this woman delivered around [3.20pm] – at least one hour before [Ms A] and [Dr B] was not present for delivery. He appeared to ring from outside the hospital at [3.20pm] or so. Both the midwife and the Head of Department have commented that it was very unusual for [Dr B] not to have responded to such an abnormal CTG and intervened much earlier. I can only assume that there were additional events occurring which distracted [Dr B] from [Ms A's] care.

4.5 Poor communication between the midwife and [Dr B] during labour. I agree with the previous reviewers that the midwife should have clearly asked him to come in at [3.15pm] when the CTG deteriorated again or at [3.20pm] when he rang. However, she was using the same terminology as him (even if it was incorrect) and the report of 'type 2 dips' should have alarmed him sufficiently to cause him to want to assess the CTG himself. In my view [Dr B] had accepted responsibility for management of [Ms A's] labour by virtue of the fact that he saw her in labour 5 times before delivery and even telephoned to check on her progress. He knew the CTG was abnormal. It is simply not good enough for [Dr B] to say that the midwife didn't tell him the trace was as bad as it was.

5. Additional comments.

The CTGs in this case are grossly abnormal, there was nothing subtle about the events and I would expect any competent specialist to be able to realise this. Therefore, I am particularly concerned at the very defensive attitude [Dr B] has adopted in his explanations of events. In his letter to the Commissioner dated 11 July 2001 he suggests that he covered the possibility of chorioamnionitis by prescribing intravenous antibiotics but does not appear to appreciate that an infected foetus has an increased oxygen requirement and exposing it to 8 hours more labour with a single dose of antibiotic could not be described as good management. He then makes some most extraordinary comments in the 3rd paragraph of the second page. He wrote 'Looking at the foetal heart rate tracing retrospectively it is clear that the foetus did not respond well to labour and in my opinion the behaviour seemed to be disproportionate to the clinical condition of the patient and given the fact that she had a totally uncomplicated pregnancy.' He appears to suggest that foetal condition can be accurately predicted by the health of the mother and almost blames the baby for hiding the fact that it would not be able to tolerate labour. He then comments that the foetus could have had a pre-labour problem which was responsible for its cerebral palsy and might not have benefited from an earlier delivery. This indicates to me that for whatever reason he still does not appreciate that this foetus was exposed to progressive, severe and nearly fatal hypoxia during labour. If he cannot appreciate this in retrospect, I have grave concerns for his ability to correctly manage a similar situation which may occur in the future.

I hope this information is helpful. Please contact me if you have any questions."

Dr Westgate provided the following additional advice:

"I have reviewed my opinion to you dated 22 October 2001 in order to answer your specific questions.

1. No, [Dr B's] direction to administer Syntocinon to Ms A at 1150 was not appropriate. The CTG was very abnormal showing a tachycardia and severe and moderate variable decelerations. [Ms A] was only 3cm dilated. The CTG pattern had deteriorated over the course of the morning and was consistent with progressive foetal hypoxia. I agree with Dr Peter Dukes that the two appropriate courses of action were either to deliver the baby by LSCS or check foetal acid base status from a scalp blood sample.

2. The risks of administering Syntocinon in this situation are that the foetus will be exposed to more uterine contractions and thus further episodes of hypoxia. During a uterine contraction no fresh oxygenated blood passes through the uterine wall to the placenta and, as a result, foetal oxygen supply is temporarily reduced. A healthy foetus will tolerate this but an already hypoxic foetus will not; adding more contractions will only add to the existing hypoxia and cause a more rapid deterioration in foetal condition."

Independent advice to ACC

ACC obtained the following independent expert advice.

"Thank you very much for asking me to review the labour and delivery background of [baby A] who unfortunately has subsequently died from complications secondary to the interventions required as a result of the asphyxia. This case has already been the subject of an internal review within the public hospital and I will refer to this later in my report.

[Ms A] was a 25 year old primigravid who had apparently had a normal pregnancy and was admitted to Delivery Suite at 1400 hours on 19 September at 38½ weeks gestation with a history of spontaneous rupture of the membranes at 0900 hours that morning. She was then seen at intervals over the next 40 hours for assessment, to review the cardiotocograph tracings and the temperature. There were four tracings over that period of time, the last being at 1800 hours on 20 September, some 33 hours after the membrane rupture. The CTGs over this period of time were all within normal limits and her temperature was not recorded as being above 37.2. The management was discussed with [Dr B] during the day of the 20th, probably around 1400 hours, and it was decided that there should be continuing expectant management for a further 24 hours. However, spontaneous labour ensued starting at around 0330 hours and she was seen again at 0800 hours for further review. At this stage a foetal tachycardia was noted for the first time and the maternal temperature was recorded as being 37.6. The dilatation was only

1 cm with the cervix being 50 percent effaced. At this stage, in view of the maternal fever, Rocephin was ordered and Oxytocin was suggested to augment the labour. It should be noted that the foetal tachycardia noted at 0810 hours persisted throughout the labour but with added abnormalities later.

[Dr B] was contacted by Midwife [Mrs C] again at around 1045 hours as she felt there were some Type II dips present and [Dr B] saw [Ms A] at that stage and ordered an epidural and further reassessment once this was in situ. In the period preceding [Dr B's] assessment at 1045 hours there were clearly some dips but these did seem to improve when the patient's position was altered. However, it should be noted that the foetal tachycardia persisted throughout this period of time, generally in the range of 180 and up to 195 at times. It was difficult to assess the nature of the dips at the time of his assessment as the contractions were inadequately monitored. However, the trace did improve somewhat after his assessment and the maternal position was altered. It should also be noted that the times recorded on the graph by the machine were said to be an hour in advance of the actual time and these times were altered on 4 January 2000. However, it is clear that these changes are probably appropriate as [Dr B] indicated that he applied a scalp electrode at 1150 hours when the cardiotocograph clock was recording 1250 hours.

Following the epidural insertion [Dr B] reassessed [Ms A] as planned at 1150 hours and examined her vaginally and found that the cervix was effaced and well applied to the head and stretched to 3 cm. A scalp electrode was applied at the time and the Oxytocin augmentation started after the assessment at 1200 hours. This had apparently not been started previously as suggested at 0800 hours.

[Dr B] was again asked to see [Ms A] at 1245 hours as there were significant decelerations present which had started shortly after the Oxytocin was commenced. [Dr B] was of the opinion that these related to head compression and were of a Type I nature and vaginal examination at the time revealed [Ms A] to be 6 cm dilated. It would seem, from comments in the notes, that [Dr B] expected she would have a spontaneous vaginal delivery in a relatively short time.

Thereafter the dips continued and the Syntocinon was turned off at 1315 hours when [Ms A] was 8 cm dilated. [Dr B] was contacted at 1230 hours and he suggested that if the foetal heart improved then the Oxytocin be started again and this happened at 1400 hours. [Dr B] was again notified about the decelerations at 1330 hours.

Hereafter there appears to be a slight discrepancy in the accounts of [Mrs C] and [Dr B] in that [Dr B] indicated in his report that he did not see [Ms A] again following his assessment at 1245 hours until he was called at 1605 hours. However, [Mrs C] indicated that [Dr B] saw [Ms A] again at 1415 hours and suggested that she be examined soon to assess the dilatation. It had been noted that when the Oxytocin was discontinued at 1315 hours [Ms A] was 8 cm dilated. The contemporaneous notes made at the time of this assessment would indicate that [Dr B] did review her at 1415 hours.

The requested vaginal examination was carried out by [Mrs C] at 1445 hours and [Ms A] was found to be fully dilated at this stage.

Hereafter the reports once again vary, but it is clear that at some stage between 1445 hours and 1525 hours [Dr B] was made aware of the fact that [Ms A] was fully dilated as he had called the Delivery Suite to inquire about progress. He notes that this was around 1445 hours, ie just at the time when the diagnosis of full dilatation was made, but [Mrs C] suggests that this was nearer 1525 hours. However, she is a little uncertain about the time and 1525 hours seems a little unlikely as the other patient which [Dr B] was involved in the management of delivered at 1522 hours. It seems unlikely that he called three minutes after the delivery of this patient and I suspect this was probably earlier than that. However, be that as it may, there was no further contact between [Mrs C] and [Dr B] until shortly after 1600 hours when the profound deceleration occurred. [Dr B] was called and a forceps delivery was effected, delivering [the baby] as a very flat babe with Apgar scores of 1 at one minute, 4 at five minutes and only 7 at twenty eight minutes. As a result of this severe depression [baby A] was transferred to [another public hospital's] Neonatal Unit.

Comment on Management

In making my comments about the management, I am very mindful of the fact that it is much easier to be wise after the event. However, there are various aspects of the management which give cause for concern.

The management through until 0800 hours on 21 September seemed to be quite appropriate. The management of ruptured membranes in a conservative fashion is now a widely held policy and awaiting the spontaneous onset of labour for 24 to 48 hours, in the presence of normal foetal monitoring and the absence of maternal signs of infection, is quite appropriate. While I may well have considered introducing the Oxytocin on the morning of the 20th, it would appear from the notes that [Dr B] was not consulted about the management of this patient until the membranes had been ruptured for well in excess of 24 hours. At this stage he deemed it appropriate to wait for a further 24 hours. Under the circumstances this was not inappropriate as foetal and maternal monitoring had been satisfactory at the time.

However, at 0800 hours on the morning of the 21st a persisting foetal tachycardia and a maternal temperature of 37.6 were noted. In view of the fever, antibiotic treatment in the form of Rocephin was started. It is difficult to escape the conclusion that by far the most likely cause of the persistent foetal tachycardia at 0800 hours was intrauterine foetal infection. In spite of the absence of maternal signs, other than the fever, a good case could have been made for considering Caesarean section during the morning of the 21st. Given the rapidity with which the foetus and neonate may succumb to infection without treatment, it was clear that vaginal delivery was not imminent with the cervix being only 1 cm dilated and the labour barely established. The administration of antibiotics to the mother is not adequate for the management of foetal infection in this situation. Given the increased metabolic requirements of the foetus as a result of the infection this certainly makes hypoxia in labour much more likely.

At 1150 hours when [Dr B] reassessed the situation there had already been some decelerations, which caused further midwifery anxiety, which had been reviewed by [Dr B] during the morning (1045 hours). Following this there were further decelerations which were probably of a Type II nature. While the foetal heart variation remained

reasonable at this time, the tachycardia was certainly reaching 190 on occasions and although the maternal temperature was normal again the persisting foetal tachycardia was still most likely to be due to foetal infection. However, whatever the cause it had then been present for at least four hours and in combination with the decelerations it was clearly very abnormal and delivery by Caesarean Section should have been considered at that stage. The prospect for a rapid vaginal delivery at 1150 hours, in a primigravid, was not high as she was then only just 3 cm dilated. In view of the complicated tachycardia, a tachycardia in association with decelerations, assessment of the foetal acid base status by scalp sampling would have been appropriate at this stage before subjecting the foetus to a more vigorous labour augmented by Oxytocin.

She was subsequently reviewed at 1245 hours when [Dr B] found her to be 6 cm dilated and at this stage there had been persisting decelerations from the time the Oxytocin was introduced at midday. The cardiotocograph is a little difficult to interpret as the contractions in the half hour prior to the 1245 assessment were not well recorded but the decelerations were quite persistent and some quite marked. [Dr B] was of the opinion that these were Type I decelerations, related to head compression and therefore of lesser significance. There was however, still a persisting baseline tachycardia. It would have been appropriate again at this stage to assess the foetal acid base status by scalp sampling. In his note of 1245 hours he indicated that 'it seems likely she would have a SVD in a relatively short time'. I take this to mean a 'spontaneous vaginal delivery'. There was no indication at that stage or at 1410 hours that he was considering forceps delivery at full dilatation.

In his own report [Dr B] indicates that he rang to inquire about progress at 1445 hours and was told that the patient was fully dilated. He did not offer to undertake forceps delivery at that stage and indicated that he was not asked to be involved in the delivery. There does appear to be some confusion in his mind as to when these telephone calls were made as he refers also to the call at 1525 hours.

[Dr B] also indicates that he was not made aware of the nature of the decelerations having been reassured by the fact that once the Syntocinon was turned off and the patient changed sides the decelerations became less marked. [Mrs C] records in the notes that at 1415 hours Type II decelerations were present and my review of the trace agrees with this. However, they were rather shallower than previously. The notes indicate that [Dr B] reviewed the trace at this stage and was therefore aware of the Type II decelerations as [Ms A] rapidly approached full dilatation. It may well be that the rapidity of the labour exaggerated the effects of the foetal distress.

As second stage progressed the Type II dips became very much more marked but it was not until a gross bradycardia, probably a virtually terminal trace, occurred that any active intervention was undertaken. It is also of note that during the afternoon there was a progressive loss of baseline variability, although in view of the very deep decelerations in the latter part of the labour there was not a great amount of baseline visible.

There was no suggestion throughout this labour that the foetal acid base status might have been assessed. The internal review noted that the continuing foetal heart

abnormality should have prompted the Specialist to assess the foetal acid base status by scalp sampling. This therefore suggests that scalp sampling was available within the institution and it would have been appropriate at least to have assessed the foetal acid base status in the first instance at 1150 hours before subjecting the foetus to Oxytocin stimulation in the presence of a tachycardia with decelerations. Had this been satisfactory then it would have been appropriate to have reviewed the acid base status at 1245 hours and again at 1415 hours if the other two had been satisfactory. [Dr B] indicates that he was reassured with regard to not performing a Caesarean Section at 1245 hours by the fact that there was no meconium stained amniotic fluid. In fact there is no record of the drainage of liquor from the time of admission in labour through until 1415 hours when, what little discharge there was, was slightly stained. The absence of liquor itself may well have been significant in this situation.

He also noted that there was no evidence of vaginal infection or maternal indicators of chorioamnionitis. It should be noted that the swab was taken two months previously and this is no guarantee that there were not Group B Streptococci present at the time. Likewise, the foetus is probably a much better indicator of what is going on within the uterus with regard to infection and by the time there are significant maternal signs, particularly abdominal tenderness, the chorioamnionitis is very well established.

It is very clear that [Dr B] was distracted in his management of this case by the concurrent management of a second high risk case whose labour was running very much in parallel with that of [Ms A]. He considered the other labour to be more at risk and she was in second stage during the period of [Ms A's] second stage making it difficult for him to attend to both appropriately. There should be an appropriate mechanism within the hospital to cover the situation where two significant events are occurring concurrently.

[Dr B] also makes mention of the changes in the Section 51 Agreement which was ultimately instituted in 1997. I would agree with him that the culture of the control of the labour was altered significantly by the introduction of the Lead Maternity Carer who has the sole responsibility of the overall management of the patient. While in the past, under the old arrangement, the Specialist might have deemed himself in charge of the labour from the time that he was first consulted, the new regime places the responsibility squarely on the Lead Maternity Carer for the overall management and to obtain consultation as necessary. This also places upon the Consultant the need to make it clear to the LMC at the time of consultation what his wishes are with regard to the further management. [Dr B] in this instance, probably because of the distraction of the other case, failed to make it clear to [Mrs C] that he had it in mind to deliver her with the forceps at full dilatation. Likewise, the Midwife had a responsibility to formally ask him to attend if there was a problem and this clearly did not happen as she assumed that by reporting to [Dr B] the abnormalities of the foetal heart he would appear to deal with the problem. In this situation [Mrs C] indicated that she was surprised by [Dr B's] lack of response in this regard, but there has clearly been a significant change in culture created by the Section 51 agreement with regard to the management of labour. However, I suspect that had [Dr B] not been distracted by the other case he might well have been in greater attendance.

In summary therefore, I do think there is medical error present in the management of this case.

1. This, in part, relates to the inadequate foetal assessment of a significant foetal heart abnormality during the labour and particularly the failure to use the available technology to assess the foetal acid base status as the labour progressed.

2. There is also the Institutional difficulty of having a Consultant needing to manage two significant events simultaneously and having to decide which one was more significant with regard to risk. In this instance an error of judgement was made as to the risk involved in this particular labour.

3. The matter of communication between Midwife and Specialist needs to be more formally spelt out so that there can be no misunderstandings as to who is in charge of the case and what the responsibilities of each are. The Section 51 Agreement of 1996 does spell out the responsibilities of the Lead Maternity Carer quite clearly, but in this instance the Midwife assumed that the mere reporting of the abnormalities was the request for assistance. However, on [Dr B's] part these were assumed to be reports on the current status.

4. While current practice places the responsibility for the management of the patient in labour squarely on the Lead Maternity Carer, the Institution also has a responsibility to ensure that safe practice is occurring. One wonders whether the Delivery Suite Supervisor of the day was aware, in her supervisory capacity, of the foetal heart abnormality. It seems fairly clear, particularly in the second stage but also the latter part of the first stage, that there was a very significant abnormality present throughout for which no active intervention was undertaken until the trace was virtually terminal.

   From the above it will be seen that the unfortunate outcome for [baby A] was multi-factorial, but was largely due to the inadequate assessment of the foetal status throughout the labour."

Responses to Provisional Opinion

Dr B

In response to my provisional opinion, Dr B stated:

> "I was the only Obstetrician on call. I had to conduct a clinic full of patients, answer telephone calls from GP's and wards and I was also involved in the care of another woman in labour besides [Ms A]. The other patient was causing a great deal of concern and I had considered her to be at a greater risk of developing problems. … [T]here were a lot of distractions.

> We do not have Registrars or experienced SHOs who we can call upon to lend us a hand with procedures like foetal scalp blood sampling, which often needs to be repeated. Ideally, foetal scalp blood sampling would have been useful but under prevailing conditions of work, it was not practical. Mostly for this reason there is minimal use of the machine [supporting statements attached].
>
> I feel that I should have been called to help deliver the baby when the cervix was found to be fully dilated, bearing in mind the abnormal CTG tracing. As can be seen from [Mrs C's] recordings no mention of sinister changes in the CTG tracings were emphasized except to say that there were type II dips. Recording at 1340 hrs states 'FH settled again', at 1410 hrs 'type II decels to 120-100'. At 1445 hrs 'VE to assess – fully dilated st +1 -2 show ++. [Ms A] nauseated, vomited.' At about 1310 hrs there were sinister changes in CTG tracing. I feel I should have been asked to physically review the tracing [copy attached]. I was eventually called to help with the delivery at about 1600 hrs.
>
> I would have certainly carried out a forceps delivery at full dilatation of the cervix with perhaps favourable outcome. There is no provision at [the public hospital] to have a delivery suite coordinator who could alert the Obstetrician under these sorts of circumstances.
>
> Retrospectively and with the benefit of hindsight, a few things could have been done differently with perhaps favourable results. However on that specific day, given all the distractions and lapses of communication, sadly the outcome was most regrettable."

Dr B advised me that he has not worked since October 2001 and retired from the position of obstetrician and gynaecologist at the public hospital in March 2002. The outcome of this case has had a severe impact on him.

Mrs C
In response to my provisional opinion, Mrs C stated:

> "I have read Ms Lennox's comments and her view that the possibility of chorioamnionitis was dismissed by both [Dr B] and myself. I cannot speak for [Dr B] but I was very aware of this risk and that is why I had brought [Ms A] into hospital the day before and checked her recordings and did a CTG. …
>
> When [Ms A] began to feel unwell she came in and the raised temperature, the foetal tachycardia and raised white cell count indicated to me the possibility of infection and I referred [Ms A] to the consultant. Treatment was complicated due to [Ms A] having allergies to penicillin but the ultimate choice of antibiotic was [Dr B's] in consultation with [Ms A] and he charted Rocephin which is a standard alternative.
>
> …
>
> There is a question as to why I did not call [Dr B] at 2.20-30pm but [Dr B] had just been in around 2.10pm, he had seen the tachycardia and late decelerations and knew they were occurring. … [Ms A] progressed well and even at 2.15pm with the

tachy[cardia] and late decelerations, and I asked [Dr B] to come and check the tracing again. It was still 'give it time, check the dilatation soon'. [Ms A] became fully dilated and became pushy at 3pm. I hoped that the baby would come down and be born. … When [Dr B] rang in I just remember being relieved he was on his way but he didn't come. I kept expecting him to walk in at any minute because he knew we needed him.

Observations

A maternal heart rate is usually documented four hourly and I accept that I have not documented an admission heart rate although usually I would do this when checking the temp. I have documented the 1pm heart rate and did a number of blood pressure recordings when the epidural was sited. Urine tests are done as needed. [Ms A] did have ketones but she had an intravenous infusion to increase her fluid intake and this usually assists to reduce ketones. If the labour had persisted, I would have checked the urine again.

Description of the CTG

I think at [the public hospital] we were all guilty of loosely describing the CTG because we knew each other well and understood what was meant when we used terms such as 'type 1' and 'type 2'. Part of this was that I was asking [Dr B] to see the CTG and so I knew that he was aware of the continuing pattern of tachycardia and deceleration. I can see that this description would seem inadequate to any practitioner who now reviews the file, and relies only on the documentation to determine the type communication regarding the CTG.

…"

Mrs C enclosed a heartfelt letter of apology which has been forwarded to Ms A and Mr A.

The District Health Board
In response to my provisional opinion, the District Health Board (DHB) stated in relation to workload issues:

"[The public hospital] does not employ Registrars in its maternity unit. The absence of that level of clinical oversight necessarily places a heavier workload on the on-call obstetricians. It appears that in 1999 there was an inadequate organisational structure at [the public hospital] to ensure the safe management of high risk obstetric patients.

[The] DHB requests that you take the following matters into account when reconsidering these matters.

1.1 [The public hospital] employs 3.2 FTE specialists in obstetrics and gynaecology. One specialist is on call at any one time.
1.2 However, in the event of more than one acute emergency occurring simultaneously, a general call can be made through the Hospital switchboard to contact one of the other obstetricians.

1.3 If contact cannot be made, then the obstetrician on call must use his or her best judgement, and call on the help of senior house officers and other available staff. Senior house officers are on site at all times.

1.4 While it is recognised that this may not represent an ideal situation, the frequency of more than one acute emergency occurring simultaneously is very small in [the hospital] and the system has operated adequately. Call outs to other obstetricians would happen only once or twice a year, and, while it cannot be guaranteed, one of the other obstetricians is generally able to assist. …

In relation to the protocol, the DHB submitted:

"1.5 It is acknowledged that the protocol could have been more clearly worded, and it has been reviewed.

1.6 Having said that, the Board queries whether or not the protocol was inadequate or in breach of Right 4(1) of the Code.

1.7 The timeframes in the protocol are consistent with [the independent advisor's] advice to ACC (in the absence of any infection or abnormal foetal monitoring).

1.8 The protocol did not indicate the course of action to be taken in the event of signs of infection. These were matters for the clinical judgement of the obstetrician.

1.9 All practitioners, in particular experienced obstetricians and midwives, should be aware of the actions required to manage uterine infection and to determine safe time frames, taking into account all of the clinical circumstances.

1.10 It is neither practical nor reasonable to have protocols in place for all clinical judgements that should be within the experience and expertise of the practitioners involved."

In relation to the review of the protocol, the DHB advised that it can ensure that the local New Zealand College of Midwives' members or their representatives are involved in contributing to the review of the protocol; all independent midwives individually receive a copy of the revised protocol once completed; and the revised protocol is presented at a perinatal session in early 2003.

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.*

Professional Standards

Good Medical Practice: A Guide for Doctors (Medical Council of New Zealand, 2000) states:

"**Providing a good standard of practice and care**

1. All patients are entitled to good standards of practice and care from their doctors. Essential elements of this are professional competence; good relationships with patients and colleagues; and observance of professional ethical obligations.

Good clinical care

2. Good clinical care must include

- an adequate assessment of the patient's condition, based on the history and clinical signs and, if necessary, an appropriate examination; …
- taking suitable and prompt action where necessary; …

3. In providing care you must

- … be competent when making diagnoses and when giving or arranging treatment;"

The *Midwives Handbook for Practice* (New Zealand College of Midwives, 1993) describes 'The Scope of Practice of the Midwife' as:

"The Midwife must be able to give the necessary supervision, care and advice to women prior to, and during pregnancy, labour and the post-partum period, to conduct deliveries on her own responsibility and to care for the newborn and the infant.

This care involves preventative measures, detecting complications in mother and child, accessing medical assistance when necessary and carrying out emergency measures …"

The *Handbook*'s 'Code of Ethics', states:

"**Responsibilities to clients**

…

k) Midwives have a professional responsibility to refer to others when they have reached the limit of their expertise."

Transitional Health Authority Maternity Project (Formerly Joint RHA Maternity Project), 'Guidelines for Referral to Obstetric and Related Specialist Medical Services' (July 1997).

"**Timing of Referrals**

Referral to a specialist should occur as soon as a problem is suspected or identified.

The Referral Process

Referral for most of the criteria will be to an Obstetrician and, for those listed under Services Following Birth, to a Paediatrician. However, in some instances, particularly those criteria involving associated medical conditions, a referral to another Specialist such as a Physician, Anaesthetist, Surgeon, Paediatrician, Infectious Diseases Specialist or Psychiatrist, may also be appropriate or be more appropriate. For some situations a multidisciplinary team will be necessary. Many of the criteria under Labour and Birth Services will require both Obstetrician and Paediatrician.

It is recognised that referral to a woman's usual GP may be appropriate in some circumstances. However these guidelines refer specifically to medical Specialists as on the New Zealand Medical Specialist Register.

These Guidelines for Referral define three levels of referral and consequent action

1 = the Lead Maternity Carer **may recommend** to the woman (or parents in the case of a baby) **that a consultation with a specialist is warranted** given that her pregnancy, labour, birth or puerperium (or the baby) is or may be affected by the condition. The specialist will not automatically assume responsibility for ongoing care. This will depend on the clinical situation and the wishes of the individual woman.

2 = the Lead Maternity Carer **must recommend** to the woman (or parents in the case of the baby) **that the responsibility for her care be transferred** to a specialist given that her pregnancy, labour, birth or puerperium (or the baby) is or may be affected by the condition. The specialist will not automatically assume responsibility for ongoing care. This will depend on the clinical situation and the wishes of the individual woman.

3 = the Lead Maternity Carer **must recommend** to the woman (or parents in the case of the baby) **that the responsibility for her care be transferred** to a specialist given that her pregnancy, labour, birth or puerperium (or the baby) is or may be affected by the condition. In most circumstances the specialist will assume ongoing responsibility and the role of the primary practitioner will be agreed between those involved. This should include discussion about timing of transfer back to the primary practitioner."

The Guidelines list 'Level of Action' status (ranging from levels 1 to 3) for a variety of situations occurring in pregnancy and labour to guide the practitioner when deciding the level of referral and consequent action, for example:

Code	Condition Heading	Condition Subheading	Measure of Severity	Level of Action
3002	Abnormal CTG		Refer to RNCOG guidelines for the interpretation of CTGs	3
3014	Foetal Distress		Abnormal Rhythm, Bradycardia, Tachycardia	2
3043	Prolonged Ruptured Membranes		24 hours or more – not in established labour	1
4040	Pyrexia in labour		>37.6°C plus abnormal FH, foetal tachycardia	2

The Nursing Council of New Zealand's *Code of Conduct for Nurses and Midwives* (1995) states:

"**Principle Two**

The nurse or midwife acts ethically and maintains standards of practice.

Criteria

The nurse or midwife:
…
2.4 demonstrates expected competencies in the practice area in which currently engaged; …

Principle Four

The nurse or midwife justifies public trust and confidence.

Criteria

The nurse or midwife:
…
4.6 takes care that a professional act or any omission does not have an adverse effect on the safety or well-being of patients/clients; …"

Opinion: Breach – Dr B

Failure to recognise and respond to the significance of the abnormalities in the foetal heart rate
My obstetric advisor, Dr Westgate, noted:

> "The CTG was abnormal from 8.31am and became progressively worse over the course of the day. [Dr B] failed to recognise the significance of the changes."

Dr B was contacted by Mrs C at 10.45am because she observed Type II dips on the CTG tracing following the administration of pain relief. My obstetric advisor advised that there are only three explanations for the CTG pattern recorded for Ms A's baby between 8.30am and 10.45am. They are that the foetus was tachycardic because Ms A had an infection, was infected itself, or was lacking oxygen and compensating with an increased heart rate. Dr B saw Ms A and ordered an epidural and a further assessment when the epidural had been inserted. At 11.50am, when the epidural had been sited, Dr B re-examined Ms A and found that the cervix had dilated to 3cm and was well applied to the foetal head. He applied a scalp electrode to the foetus to further monitor the heart rate. The trace improved after Dr B assessed Ms A and her position was altered.

By 12.20pm the CTG was more abnormal. It showed moderate to severe decelerations with a baseline heart rate of 180 bpm and reduced variability. Dr B saw Ms A again at 12.45pm and was of the opinion that the CTG pattern was Type I decelerations caused by foetal head compression. My obstetric advisor stated that Dr B's assessment that the foetal head compression was the cause of the decelerations at this time was "wishful thinking", and that if Ms A had been likely to deliver within the next hour or two it would have been satisfactory to monitor the labour for signs of further deterioration, but she was in very early labour and there were only two possible management options available to Dr B: a Caesarean section delivery or a foetal scalp blood sampling to obtain more information about the foetus.

The records show that there were discussions at this time about the possibility of a Caesarean section if the foetal tachycardia persisted, but there is no indication that foetal scalp blood sampling was considered.

My obstetric expert commented that at 1.05pm there was a prolonged deceleration to less than 80 for about six minutes. Following this the CTG was even worse with tachycardia, absent variability and large severe variable decelerations.

At 1.30pm Mrs C again called Dr B as she had observed further concerning decelerations on the foetal monitor. Dr B did not attend but advised Mrs C to monitor Ms A and recommence the Syntocinon (which Mrs C had stopped at 1.15pm when she observed the decelerations) if the recordings improved.

Mrs C notified Dr B of further decelerations at 2.10pm. At 2.20pm the severe variable decelerations reappeared. Dr B reviewed the heart monitor tracing but did not alter his management of Ms A's labour.

At 2.45pm Ms A was fully dilated and started to push with her contractions. At about 3.15pm Dr B telephoned through to Delivery Suite and spoke with a hospital midwife who informed him that Ms A was fully dilated and pushing and that there had been further Type II decelerations. When a deep and prolonged deceleration occurred at 3.55pm Mrs C made an urgent request for Dr B's attendance.

My obstetric advisor stated:

> "Neither [Dr B] nor the midwife correctly described the CTG changes at any point. Constant references to Type I and Type II decelerations were both incorrect and inadequate to detail the progressive deterioration of the foetal heart rate. Neither seemed to appreciate the significance of the changes they were observing."

In the view of my obstetric expert, "any competent specialist would be able to recognise" that the CTGs in this case were grossly abnormal and "there was nothing subtle about the events". Dr B failed to recognise the significance of the changes and failed to take any action to expedite delivery until there was a terminal fall in the foetal heart rate at 3.55pm.

I note that the independent advisor in his advice to ACC commented:

> "It is difficult to escape the conclusion that by far the most likely cause of the persistent foetal tachycardia at 0800hrs was intrauterine foetal infection. … It was clear that vaginal delivery was not imminent with the cervix being only 1cm dilated and the labour barely established.
>
> …
>
> Given the rapidity with which the foetus and neonate may succumb to infection without treatment … a good case could have been made for considering Caesarean section during the morning of the 21st."

I accept my obstetric expert's advice (reinforced by the ACC independent advisor's comments) that in failing to recognise and respond to the abnormal foetal heart rate pattern Dr B did not provide Ms A with services with reasonable care and skill or in compliance with professional standards. Accordingly, in my opinion Dr B breached Rights 4(1) and 4(2) of the Code.

Failure to recognise signs of uterine infection
When Ms A was admitted to the Delivery Suite on 21 September her uterine membranes had been ruptured for 48 hours. Her temperature had risen to 37.6°C and the CTG recorded that the baby had a rapid heartbeat (tachycardia) of 170 bpm. Dr B noted Ms A's elevated temperature and the foetal tachycardia and ordered a "one-off" dose of an intravenous antibiotic, Rocephin, and suggested that she start on Syntocinon, to augment her labour.

I am advised that where there is prolonged rupture of the membranes before labour, the main risk is ascending infection, particularly with Group B streptococcus. My obstetric advisor stated:

> "The standard element of all protocols is to offer antibiotic prophylaxis to all women once the membranes have been ruptured for more than 18 hours. The question of when to induce labour in these circumstances is unclear. There has been a general trend to wait up to 24 hours before offering induction. … It would be unusual to wait longer than 24 hours without discussing the pros and cons with the patient and without offering antibiotics."

The public hospital's policy, 'Ruptured Membranes – Prolonged' issued in August 1996 and reviewed in June 1998, stated:

> "4 POINTS TO NOTE:
>
> Duration of ruptured membranes before action is taken is ?48 hours (open for discussion)."

I note the ACC independent advisor advised ACC that the conservative management of ruptured membranes is now a "widely held policy" and waiting for the spontaneous onset of labour for 24 to 48 hours is appropriate only when there is no sign of maternal infection and the foetal heart rate is normal.

Dr B's actions appear to have been in keeping with the public hospital's 1996/98 policy for the management of ruptured membranes, which states it is acceptable to wait for 48 hours before action is taken. However, even if it is considered acceptable to wait for 48 hours following early rupture of membranes before intervention occurs, any decision must be based on the presenting clinical factors. In this case Ms A clearly showed signs of maternal infection.

My obstetric advisor commented that it is difficult to attribute the foetal tachycardia, Ms A's temperature of 37.6°C and the elevated white cell count to anything other than a degree of uterine infection, and noted:

> "[Dr B] suggests that he covered the possibility of chorioamnionitis by prescribing intravenous antibiotics but does not appear to appreciate that an infected foetus has an increased oxygen requirement and exposing it to eight hours more labour with a single dose of antibiotics could not be described as good management."

I am advised that the important fact in this case is that an infection made Ms A febrile, which increased the foetal temperature and heart rate and increased oxygen requirements. My expert considered that Dr B did not appreciate that, as a result of the effects of the chorioamnionitis, the foetus was exposed to progressive, severe and nearly fatal hypoxia (lack of oxygen) during labour.

There is no indication that Dr B considered any of the presentations as significant. His decision to allow Ms A to wait for 48 hours in these circumstances, before offering induction and antibiotics, was not consistent with standard practice. I accept my obstetric advisor's advice that in relation to the management of the premature uterine rupture and uterine infection, Dr B failed to provide Ms A with services with reasonable care and skill or in compliance with professional standards. Accordingly, Dr B breached Rights 4(1) and 4(2) of the Code.

Failure to perform a Caesarean section
When Dr B reassessed Ms A at 10.45am there had been variable decelerations for about 30 minutes and the tachycardia was reaching 190 bpm. The maternal temperature had returned to normal, but there was persisting tachycardia which was most likely due to foetal infection. By 12.20pm the foetal heart rate indicated a deteriorating condition. There is no record that Dr B informed Ms A that there was a possibility of an assisted delivery if these conditions continued.

My obstetric advisor stated that Caesarean section was justified from 10.30am and was mandatory by 12.45pm. Dr B reviewed the CTG tracing at 12.45pm and noted his opinion that Ms A would have a spontaneous vertex delivery "in a relatively short time" and that she should be allowed to progress.

I note that the ACC independent advisor advised ACC:

> "A good case could have been made for considering Caesarean section during the morning of the 21st."

I am guided by my expert's advice that in not progressing to a Caesarean section, Dr B did not respond appropriately to the worsening situation. In my opinion, in not performing a Caesarean section, Dr B failed to provide services with reasonable care and skill and therefore breached Right 4(1) of the Code.

Inappropriate use of Syntocinon in the presence of maternal pyrexia and foetal tachycardia
Dr B reviewed Ms A at 8am, shortly after her admission. Mrs C informed Dr B that Ms A, whose uterine membranes had ruptured 47 hours earlier, was in early labour, her cervix dilated to 1cm and the foetal head was at station -2. Mrs C also informed Dr B that Ms A had an elevated temperature of 37.6ºC and a raised white blood cell count, which indicated infection. Dr B suggested that the midwife commence Ms A on an intravenous infusion of Syntocinon to augment her labour.

At about 10.30am Ms A was given pethidine for pain. Dr B reviewed Ms A at this time and ordered an epidural anaesthetic infusion, which was started at 11.20am. The midwife

noted that the foetal heart baseline was around 170 bpm with reduced heart rate variability. As discussed above, the CTG at this time was very abnormal, but no action was taken.

The midwife asked Dr B to review Ms A again at 11.50am because she was concerned about the CTG. Dr B noted that Ms A's temperature had risen to 36.8°C, and her white cell count was 20.7 (normal is 4.0 to 11.0), which indicated infection. Ms A's cervix had dilated only to 3cm. Dr B ordered a Syntocinon infusion to augment labour. The Syntocinon infusion was commenced at 12 midday.

Dr B first considered the Syntocinon infusion to augment labour early in Ms A's labour. When he ordered it to be administered at 11.50am his apparent plan was to expedite the delivery which he fully expected to happen in a relatively short time. Augmented by the Syntocinon Ms A's labour progressed steadily, but the foetal heart rate deteriorated more rapidly. My advisor stated that Dr B's direction to administer the Syntocinon at 11.50am was not appropriate. The CTG pattern had altered during the morning and was consistent with foetal hypoxia. During the period that Ms A was being administered Syntocinon, when her uterine activity was recorded, she was having contractions about every two minutes. I am advised that such contractions were too frequent and would have placed an additional hypoxic stress on the foetus. The risk of administering Syntocinon in this situation is that the foetus is exposed to more uterine contractions. During uterine contractions there is temporary reduction in the oxygen available to the foetus. A healthy foetus is able to tolerate this, but a foetus that is already hypoxic will not; increasing the contractions in such a situation will increase the foetal hypoxia.

I note the ACC independent advisor's advice to ACC:

> "The prospect for rapid vaginal delivery at 11.50am, in a primigravida, was not high as she was only just 3cm dilated. In view of the complicated tachycardia, a tachycardia in association with decelerations, assessment of the foetal acid base status by scalp sampling would have been appropriate at this stage before subjecting the foetus to more vigorous labour augmented by Oxytocin [Syntocinon is a synthetic oxytocin]."

In my opinion, in relation to the direction to administer Syntocinon to Ms A in these circumstances, Dr B failed to provide services to Ms A with reasonable care and skill or in compliance with professional standards, and therefore breached Rights 4(1) and 4(2) of the Code.

Failure to communicate effectively and plan the management of Ms A's labour
The Transitional Health Authority Maternity Project 'Guidelines for Referral to Obstetric and Related Specialist Medical Services' specify the 'Level of Action' situations when a Lead Maternity Carer may or must recommend to the woman that consultation with or referral to a specialist is warranted. Abnormal foetal heart rhythm, such as tachycardia, prolonged ruptured membranes and pyrexia (greater that 37.6ºC) in labour are some of these situations. Mrs C followed these guidelines and reported to Dr B her observations regarding her concerns about the progress of Ms A's labour.

Dr B assessed Ms A five times and had three telephone discussions with Mrs C about the progress of Ms A's labour. He reviewed the CTG tracings twice after Mrs C expressed her

concerns about the foetal heart rate. On each occasion Dr B's advice to Mrs C was "wait and see".

Dr B stated that the management of patients in labour has been inadvertently altered since the introduction of the section 51 agreement. He said that because of the resulting shared nature of maternity case management he feels that he is not in "total control of the patient's management at times".
Mrs C stated:

> "[Dr B's] later statement that he was 'not asked to come and assist' is completely out of step with our usual practice and the expected level of obstetric involvement in the public hospital where the specialist is more likely to be 'sitting at your shoulder' throughout the labour and birth."

In the opinion of my obstetric advisor, Dr B had accepted responsibility for the management of Ms A's labour by virtue of the fact that he saw her five times during her labour and telephoned to check her progress. My obstetric advisor stated that there was poor communication between Dr B and the midwife, and commented that the midwife's reports of "Type II dips", although incorrect terminology, was the term Dr B was also using and should have raised sufficient alarm to cause him to check the CTG tracing.
I am advised that Dr B appeared to be preoccupied with another high risk patient. It appears that this was a factor in his failure to follow up Mrs C's concerns. There is independent comment from colleagues that it was unusual for Dr B not to have responded appropriately to such an abnormal CTG.

Mrs C was the LMC. While she may not have formally requested Dr B to take over, Dr B was heavily involved in Ms A's labour. The decision to proceed to Caesarean section is one for an obstetrician, who cannot wait for a formal referral when the safety of the foetus is at risk.

I acknowledge that confusion may have been generated by the section 51 agreement. The ACC independent advisor made the following comments about this issue:

> "[Dr B] makes mention of the changes in the Section 51 Agreement, which was ultimately instituted in 1997. I would agree with him that the culture of the control of the labour was altered significantly by the introduction of the Lead Maternity Carer who has the sole responsibility of the overall management of the patient. While in the past, under the old arrangement, the Specialist might have deemed himself to be in charge of the labour from the time that he was consulted, the new regime places the responsibility squarely on the Lead Maternity Carer for the overall management and to obtain consultation as necessary. This also places upon the Consultant the need to make it clear to the LMC at the time of the consultation what his wishes are with regard to the future management. [Dr B] in this instance, probably because of the distraction of the other case, failed to make it clear to [Mrs C] that he had it in mind to deliver [Ms A] with the forceps at full dilatation."

I am guided by my obstetric advisor's comments that the poor communication between the midwife and Dr B was attributable to both providers making assumptions about the other's involvement in Ms A's care. I also note the comments by the ACC independent advisor. In the circumstances, Dr B should have clarified his understanding of his responsibilities with the LMC. In my opinion, in relation to this matter, Dr B failed to provide Ms A with services with reasonable care and skill or in compliance with professional standards, and therefore breached Rights 4(1) and 4(2) of the Code.

Opinion: Breach – Mrs C

Failure to recognise and respond to the significance of the abnormalities in the foetal heart rate

I am advised that the deviation from an average labour began when Ms A's membranes prematurely ruptured at 9am on 19 September 1999. Ms A came into spontaneous labour at 3.30am on 21 September, about 42 hours later, and was admitted to the public hospital Delivery Suite at 7.30am. Mrs C examined her at 8am. Mrs C noted that Ms A's temperature had risen to 37.6°C and the CTG showed a foetal tachycardia of about 160 bpm with accelerations. Infection detection and prevention should be a major concern when a mother has had ruptured membranes for this length of time.

My midwifery advisor stated:

> "What is difficult to understand is the lack of attention to the ongoing foetal tachycardia (rapid heart rate) with a very high baseline reading of 170-190 beats per minute from the time of admission (normal range is 105-155bpm). … [Mrs C] did not register concern for the higher than normal baseline (though she was very worried about the decelerations), the raised white cells from the full blood count or the episode of raised maternal temperature. … [Mrs C] should herself have questioned whether [Ms A] had a chorioamnionitis."

My advisor commented that Mrs C appropriately notified Dr B of the decelerations, but when Dr B advised her to restart the Syntocinon at 1.40pm she did so without attempting to persuade him of the inadvisability of this course of action, given the seriousness of the previous decelerations, the persistent underlying tachycardia and the reduced beat to beat variability.

I am advised that the CTG tracing from 2.30pm until the birth was obviously abnormal. Mrs C's notes at 2.10pm and 3.00pm, where she described the deceleration, did not adequately address the seriousness of the situation. My midwifery expert noted that "[d]espite the six previous calls, the midwife needed to phone the consultant again at or shortly after [2.30pm] since the tracing was very poor. I find it hard to explain why she failed to do so". My obstetric expert advised that the CTG changes were not correctly described at any point. Constant references to Type I and Type II decelerations were incorrect and inadequate to detail the progressive deterioration of the foetal heart rate.

Mrs C called the paediatrician at 3pm because she knew the overall picture was not good, and the foetal heart rate tracing was poor. She did not place an urgent call for Dr B until 3.55pm at which stage there was a terminal fall in the foetal heart rate.

I accept my expert advice that in relation to recognising and responding to the significance of the abnormalities of the foetal heart rate combined with the signs of uterine infection, Mrs C failed to provide Ms A with services with reasonable care and skill or in compliance with professional standards. Accordingly, in my opinion [Mrs C] breached Rights 4(1) and 4(2) of the Code.

Failure to plan, effectively communicate, and formally hand over care
On 20 September Mrs C consulted with Dr B about a management plan for Ms A's labour following the rupture of Ms A's membranes. Mrs C consulted him again when Ms A was admitted with a raised temperature and evidence of foetal tachycardia; however, it appears that apart from monitoring the labour, recording her observations and reporting them to Dr B, Mrs C did not have a management plan for Ms A's labour in the event of a deviation from the expected.

At 1.30pm Mrs C further reported concern about the abnormal trace. This was met with advice from Dr B to stop the Syntocinon temporarily and come back to it as soon as possible. My expert commented that Mrs C seemed to rely on the obstetrician to put together the signs when she herself should have questioned whether Ms A had developed a uterine infection.

My midwifery advisor stated:

> "The plan for labour does not seem to have adequately taken account of signs of infection with prolonged labour. [Mrs C] does not seem to have noted or commented on these signs and seems to have taken little part in developing the plan. There does appear to have been a failure in communication during the transition and second stage of labour when the worst signs of foetal distress were evident."

The Guidelines for Referral to Obstetric and Related Specialist Medical Services state that the LMC midwife, in the event of an abnormal CTG and foetal tachycardia, must recommend to the woman that consultation with a specialist is warranted. I am advised that Mrs C should have asked Dr B to come in to reassess Ms A at 3.15pm when the CTG tracing deteriorated again. Mrs C did report to Dr B (via another midwife) her concerns about Ms A, but she did not make it clear to him that his presence was required at that time.

Mrs C stated:

> "I was aware of the significance of the foetal heart rate. … I contacted [Dr B] six times about my concern. … I did anticipate an assisted delivery and prepared for it.
>
> …

> As a midwife LMC at the public hospital there has never been an expectation or a need to formally document hand-over of care in labour to an obstetrician. We tend not to do this as there are no registrars. … Once first contact is made, the obstetrician oversees and directs the management of labour."

My midwifery expert stated that Mrs C failed to adequately express her concerns about the seriousness of the foetal heart rate at 1.30pm and 2.20pm. She first consulted with the obstetrician about Ms A's care on 20 September 1999. On 21 September Dr B gave every indication that he was planning the management of Ms A's labour. Apart from monitoring the progress, reporting her observations and supporting Ms A, Mrs C appeared, understandably, to defer to the obstetrician's judgement. However, as an independent practitioner, and in the interests of her patient, Mrs C should have been more proactive in strongly expressing to the obstetrician her concerns about the CTG tracing.

I am guided by my midwifery expert's advice that there was a failure in communication during the transition and second stage of labour when the signs of foetal distress were evident. In my opinion, in relation to planning and managing Ms A's labour, communicating with the obstetrician, and handing over care, Mrs C did not provide Ms A with services with reasonable care and skill or in compliance with professional standards, and therefore breached Rights 4(1) and 4(2) of the Code.

Opinion: No breach – Mrs C

Encouraging Ms A to push with contractions
At 2.45pm Mrs C performed a vaginal examination on Ms A and found that her cervix was fully dilated and the baby's head well down into the birth canal. Ms A started to push with the contractions at 3pm.

My midwifery advisor stated that there is no evidence that Mrs C encouraged Ms A to push with contractions.

The records show that the baby's well-being was severely compromised at this time, and I am advised that even without pushing a vaginal birth was dangerous.

Mrs C was being guided by the obstetrician, who she believed had taken responsibility for the management of Ms A's care. Although Mrs C's judgement in this matter was questionable and she should have challenged the decisions made by the obstetrician, she had received no other information from him but to proceed with the labour and delivery. In allowing Ms A to start pushing as soon as she was fully dilated, Mrs C was focussed on expediting the delivery as soon as possible. She had every reason to believe that this course of action was in line with the obstetrician's plan. Therefore, in my opinion, in relation to this matter Mrs C did not breach Right 4(1) of the Code.

Opinion: No breach – The Public Hospital

Vicarious liability
In addition to any direct liability for a breach of the Code, employers are vicariously liable under section 72(2) of the Health and Disability Commissioner Act 1994 (the Act) for ensuring that employees comply with the Code. Under section 72(5) it is a defence for an employing authority to prove that it took such steps as were reasonably practicable to prevent the employee from doing or omitting to do the things that breached the Code.

Dr B
Dr B was employed as a consultant obstetrician at the public hospital. As an employer, the public hospital may be vicariously liable for any breaches of the Code by Dr B.

As discussed above, Dr B breached Rights 4(1) and 4(2) of the Code in failing to perform a Caesarean section, failing to recognise the significance of the abnormalities of the foetal heart rate and the signs of uterine infection, and by the inappropriate use of Syntocinon in the presence of foetal tachycardia and maternal pyrexia. He also failed to communicate effectively and plan the management of Ms A's labour.

The public hospital, like the majority of public hospitals throughout New Zealand in 1999, did not have formal systems in place to detect whether a doctor was practising safely. It did, however, have mechanisms of ongoing peer review and support. The public hospital advised me that Dr B was an active member of the obstetric team at the public hospital and that he participated in regular ongoing practice reviews. He was also involved in the weekly audit and improvement process meetings and continuing medical education.

In the circumstances, I am satisfied that the public hospital took reasonable steps to prevent the shortcomings on the part of its on-call obstetrician. The public hospital is therefore not vicariously liable for Dr B's breaches of the Code.

Mrs C

Mrs C was an independent midwife who had an access agreement at the public hospital which enabled her to use the facilities of the hospital. However, Mrs C was not an employee. In the circumstances, no issue of vicarious liability arises on the part of the public hospital in relation to Mrs C's breaches of the Code.

Opinion: Breach – The Public Hospital

Direct liability
The right to receive good quality medical care is central to the Health and Disability Commissioner Act 1994 and the Code of Health and Disability Services Consumers' Rights. The statutory purpose, set out in section 6 of the Act, is to "promote and protect the rights of health consumers" or patients. At the core of patients' rights is the right to receive services of an appropriate standard (section 20(1)(f)). The key right is affirmed in

Right 4 of the Code, entitled the "Right to Services of an Appropriate Standard". In my opinion, the public hospital failed to ensure that Ms A received obstetric services of an appropriate standard, and breached its organisational duty of care and skill in the following two respects:

Workload
Dr B stated that he was distracted from adequately assessing the deteriorating circumstances of Ms A's labour because he was concerned about another woman in labour who he had prioritised as being at higher risk.

I note the ACC independent advisor's advice to ACC:

> "There is the institutional difficulty of having a Consultant needing to manage two significant events simultaneously and having to decide which one was more significant with regard to risk. … While current practice places the responsibility for management of the patient in labour squarely on the Lead Maternity Carer, the institution also has a responsibility to ensure that safe practice is occurring."

The public hospital does not employ registrars in its Maternity Unit. The absence of that level of clinical oversight necessarily places a heavier workload on the on-call obstetricians. It appears that in 1999 there was not an adequate safety net at the public hospital to ensure the safe management of high risk obstetric patients.

In response to my provisional opinion, the DHB explained that more than one acute obstetric emergency occurs very rarely at the public hospital; one of the other obstetricians would generally be available if called for; and senior house officers are always on site to assist. No doubt this back-up is adequate in most situations. However, it was not adequate on 21 September 1999. Dr B was managing a heavy workload, and another high risk woman in labour. In my opinion, Dr B's excessive workload contributed to his failure to effectively perform his duties as the on-duty obstetrician. In these circumstances the public hospital breached Right 4(1) of the Code.

Ruptured membranes protocol
Ms A's membranes had been ruptured for 48 hours when she was admitted to the public hospital's Maternity Unit at 8am on 21 September 1999. My obstetric advisor commented that it would be unusual to wait longer than 24 hours following the rupture of membranes without considering options and discussing them with the mother. My advisor questioned whether there were protocols in place at the public hospital regarding the management of pre-labour rupture of membranes.
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The public hospital's protocol to manage pre-labour rupture of membranes was formulated in August 1996 and reviewed in June 1998. The protocol stated that if the labour has not started spontaneously within 24 to 36 hours of spontaneous rupture of membranes, consideration should be given to the induction of the labour to avoid ascending infection.

I note the ACC independent advisor's advice to ACC that the conservative management of ruptured membranes is now a widely held policy and that waiting for the spontaneous onset

of labour for 24 to 48 hours is acceptable, but only if there is normal foetal monitoring and no sign of maternal infection.

The public hospital's 1996/98 "Ruptured Membranes" protocol notes the need for regular observations of pulse, temperature and foetal heart rate and that consideration should be given to avoid ascending infection. There is no indication of what course of action should be taken or when, in the event of signs of uterine infection. I acknowledge the submission that it is not practical to have protocols in place for all clinical judgements that should be within the experience and expertise of the practitioners involved. However, the intention of protocols is to provide guidance in the event of the unexpected or when a clinician reaches the limits of his or her experience. I note that the "Ruptured Membranes" protocol states in "Points to note" that it is "open for discussion" whether it is appropriate to take action before 48 hours have elapsed. This section of the protocol is loosely worded and gives clinicians inadequate guidance. In my opinion, the public hospital did not have an adequate protocol in place in 1999 and therefore breached Right 4(1) of the Code.

Comments

Maternal observations
I am advised that Mrs C attended to only some of the usual parameters of care in relation to Ms A. She recorded the maternal pulse only once in the labour (at 1.00pm) despite recording a raised maternal temperature at 8am. My midwifery advisor stated that assessing the maternal pulse is an easy and direct way to check that the mother is coping physiologically.

Mrs C also recorded the result of only one urine test, which showed moderate ketones, an indication that the body is running short of energy. I am advised that Mrs C should have retested for ketones. Mrs C submitted that she expected the intravenous infusion to help reduce the ketones, and that she would have checked the urine again if labour had persisted. However, I accept my advisor's comments that there was inadequate maternal monitoring, especially in an abnormal labour.

My midwifery advisor also noted that Mrs C was unwise to examine Ms A vaginally twice in one-and-a-half hours. With a history of ruptured membranes the risk of infection from vaginal examinations is higher than the likelihood of detecting any real progress in dilatation. Mrs C explained that her reason for the second assessment was to assess for pain relief. My advisor considered that this was an inadequate reason and that the six internal examinations performed by Dr B and Mrs C on Ms A during her labour were excessive. I accept my advisor's comments that Mrs C's practice when taking and recording maternal observations fell below expected standards.

Informing Ms A of her options
When the obstetrician assessed Ms A shortly after her admission, he discussed with Mrs C the possibility of proceeding to Caesarean section if there was no progress in labour. A discussion should have taken place between Mrs C and Ms A about her expectations and wishes. Mrs C stated that she discussed the issue with Ms A, but Ms A cannot recall this. Ms A should have been told that the risk of waiting was one of infection but the benefits of

not intervening could be less intrusion and the experience of a normal birth. If such a discussion occurred, it should have been documented.

Foetal acid test
A sample of capillary blood can be taken from the foetal scalp when there is concern about foetal well-being, as the scalp presents through the dilated cervix. If the foetus is hypoxic the blood pH will fall (become acidotic). A scalp blood pH greater than 7.25 is considered normal for a foetus during labour. A scalp blood below 7.20 is acidotic and recognised as a level of foetal distress.

My obstetric advisor commented that Dr B should have considered the management option of foetal scalp blood sampling to obtain more information about the foetus. If the scalp blood sample had proved to be normal on the first test, testing should have been repeated hourly. I note that in his advice to ACC, the ACC independent advisor stated that there was no suggestion to assess the foetal acid base status. He noted that information provided by the public hospital indicates that scalp sampling was available at the hospital. The ACC independent advisor stated that it would have been appropriate to assess the foetal acid base status at 11.50am before subjecting the foetus to Syntocinon stimulation when it was already tachycardic. He said that the foetal acid base should have been reviewed again at 12.45pm and then at 2.15pm if the first two tests were satisfactory.

Dr B admitted that foetal scalp blood sampling would "ideally" have been useful, but said that the prevailing work conditions – including the lack of registrars or experienced senior house officers to assist and the minimal use of the procedure – meant that it was not practical. I acknowledge these difficulties, but consider that it would have been good practice on the part of Dr B to conduct a foetal acid test to assess the well-being of Ms A's baby.

Actions

I recommend that the public hospital take the following action:

- Complete the review of its protocol relating to the management of prolonged rupture of membranes, and ensure that staff working in the Delivery Suite are educated about the revised protocol, and that independent midwives working in the Delivery Suite are notified of the revised protocols.

Further actions

- A copy of this opinion will be sent to the Medical Council of New Zealand and the Nursing Council of New Zealand.
- A copy of this opinion, with identifying features removed, will be sent to the Royal New Zealand College of General Practitioners, the New Zealand College of Midwives, the Royal Australasian College of Obstetricians and Gynaecologists, and the Maternity Services Consumer Council, and placed on the Health and Disability Commissioner website, www.hdc.org.nz, for educational purposes.
- The Chair of the New Zealand Committee of the Royal Australasian College of Obstetricians and Gynaecologists, and the National Director of the New Zealand College of Midwives, will be advised of the identity of Dr B and Mrs C respectively.
- The Medical Council of New Zealand will be asked to consider whether a review of Dr B's competence is necessary.
- This matter will be referred to the Director of Proceedings under section 45(f) of the Health and Disability Commissioner Act 1994 for the purpose of deciding whether any further action should be taken.

Addendum

The Director of Proceedings issued proceedings before the HRRT against the obstetrician. These were discontinued following agreement by all parties.