

Midwife, Ms C
Midwife, Ms D
A Public Hospital

A Report by the
Health and Disability Commissioner

(Case 01/02996)

Parties involved

Mr A	Complainant
Mrs A	Complainant
Ms C	Provider / Independent midwife
Ms D	Provider / Independent midwife
Dr E	Registrar, regional public hospital
Ms F	Hospital midwife, regional public hospital
Dr G	Consultant paediatrician, regional public hospital
Dr H	Obstetrics and gynaecology consultant, regional public hospital
Dr I	Neonatal consultant, city public hospital
Dr J	Consultant paediatrician, city public hospital

Complaint

On 19 March 2001 the Commissioner received a complaint from Mr A and Mrs A concerning the services provided to their baby daughter by midwives Ms C and Ms D, and a regional public hospital. The complaint was summarised as follows:

During the delivery of their baby on 14 February 2001, Ms C did not provide an appropriate standard of care. In particular Ms C:

- *left Mrs A in a spa bath at midnight*
- *reprimanded Mrs A when she screamed with pain*
- *asked Mr and Mrs A to cut their baby's cord, although they had previously advised that they did not wish to do so*
- *did not suction their baby or take any other action when it was obvious that the baby was distressed*
- *asked Mr A to assist in cleaning up his wife's placenta, although he and his wife had previously advised that they did not wish to keep it*
- *left Mrs A in the delivery room fully exposed and with afterbirth on the floor.*

During the delivery of their baby on 14 February 2001, Ms D did not provide an appropriate standard of care. In particular Ms D:

- *did not check the baby's airway*
- *conducted chest compressions and did not provide appropriate treatment when advised that the baby was not breathing*

- *left Mrs A in the delivery room fully exposed and with afterbirth on the floor*
- *prior to Mrs A being flown to the city, Ms D “ripped” a plaster from the arm of Mrs A, resulting in blood running down her arm, onto her shirt, a bag and the floor.*

An investigation was commenced on 21 May 2001. On 7 November 2001 the investigation was extended to include the following matters:

During the management of Mrs A’s care both before and after Mrs A was admitted to a regional hospital on 13 February 2001, Ms C did not provide services of an appropriate standard. In particular Ms C:

- *did not seek specialist involvement in Mrs A’s pre-birth management and labour*
- *did not recognise the clinical importance of the presence of meconium when she broke Mrs A’s waters, given Mrs A’s obstetric history, and did not seek specialist assistance*
- *failed to recognise that the CTG tracing taken after Mrs A’s waters were broken showed irregularities*
- *failed to assess the baby’s condition by undertaking continuous monitoring of the foetal heart-rate using a CTG during the last two hours of Mrs A’s labour*
- *failed to recognise that the baby’s one minute Apgar score was low, that the baby was distressed and that specialist assistance was needed.*

Information reviewed

- Correspondence with Mr and Mrs A
- Notes of interview conducted with Mr and Mrs A on 23 May 2001
- Dr I’s statement to Police of 7 June 2001
- Response from Ms D dated 6 June 2001
- Response from Ms C dated 27 June 2001
- Response from the District Health Board dated 13 July 2001
- Further information from the District Health Board enclosed with letters dated 30 November and 18 December 2001
- Further information from Ms C dated 7 December 2001
- Copies of medical notes and statements obtained from the Police
- Copies of medical notes obtained from Mrs A
- CTG tracings for the baby, supplied by the District Health Board

Independent expert advice was obtained from Ms Ann Yates, midwife.

Introduction

This is a report about the circumstances surrounding the tragic death of a baby, who died on 16 February 2001, two days after her birth at a regional public hospital. Following a lengthy inquest, the Coroner found that she died as a result of multiple organ failure in the neonatal period with the primary cause being undetermined, but possibly perinatal asphyxia or congenital metabolic abnormality with superimposed asphyxia.

Mr and Mrs A have concerns about the care that their baby received from the two midwives who were involved in her delivery and immediate postnatal care at a Regional Hospital– Ms C and Ms D. In particular, they are concerned that the midwives failed to identify various signals that their baby’s condition was not stable, and failed to respond appropriately and in a timely manner to her condition.

My role in this case is to assess whether Ms C and Ms D provided care with reasonable care and skill to the baby. The assessment in this case is very difficult for a number of reasons: there are conflicting versions of events from the parties involved; there are conflicting opinions about the standard of care provided (not only between my midwife advisor and the paediatric specialists at a city public hospital, but also between the paediatric specialists at a city public hospital and the specialist obstetrician at a regional public hospital); the accuracy of the documentation in the clinical records has been questioned (ie, the one minute APGAR score); and the primary cause of the baby’s death is undetermined.

The tragedy of this case is that Mr and Mrs A’s daughter has died, and they do not know why. Naturally they have concerns about the care their baby received, and questions about that care they need answers to. The evidential difficulties in this case (as set out above) mean that Mr and Mrs A are unlikely to ever obtain the answers they are looking for. This is an extremely sad situation, contributed to by the lack of clear, accurate, and contemporaneous notes about the baby’s condition on birth, and her immediate management following birth. I hope that my report conveys to all practitioners the importance of maintaining full, clear, accurate and contemporaneous notes, and the significant consequences for patients and family members when that does not happen.

Where possible, I have tried to capture the different parties’ recollections in the “information gathered during investigation” section of this report. In each section where there are conflicting recollections, I begin by stating Mr and Mrs A’s recollections, followed by the recollections of the midwives or clinicians involved, and the clinical records.

Information gathered during investigation

Background

On 4 February 1994 Mrs A gave birth to a son, after a normal vaginal delivery. In May 1998 Mrs A became pregnant again. At around week 20 of her pregnancy Mrs A became quite ill and at 28 weeks it was discovered that her child had died. An autopsy showed the cause of death as intrauterine growth retardation. Mrs A became pregnant once more during September 1999. At nine weeks Mrs A began bleeding and at 12 weeks she miscarried.

Prenatal care

During May 2000 Mrs A became pregnant and chose the midwife who had been involved in Mrs A's previous two unsuccessful pregnancies. Because of Mrs A's history, the midwife offered Mr and Mrs A specialist input into her pregnancy. Mr and Mrs A agreed to the referral, and she referred Mrs A to Dr H, a consultant obstetrician and gynaecologist.

On 11 July 2000, Mrs A had an ultrasound. Her baby was nine weeks and three days old, and appeared normal. On 18 July Mrs A consulted Dr H, who prescribed folic acid and low dose aspirin, and advised her to have regular scans.

On 19 September 2000, Mrs A had a further ultrasound. Her baby was 19 weeks and four days old, and appeared normal. Mrs A consulted Dr H following the scan. Dr H discharged Mrs A into the care of the midwife, with an instruction to repeat the ultrasound examinations and a request to return to him if any problems arose. Mr A recalled that they were informed that Mrs A no longer required specialist treatment. He advised that they were not happy about the decision (to discontinue specialist oversight), but accepted that "[Dr H] must know what he is doing".

Mrs A had further scans on 30 October 2000 (when her baby was 25 weeks and one day old), on 7 December 2000 (when her baby was 31 weeks and three days old), and on 11 January 2001 (when her baby was 37 weeks and one day old). All scans were normal.

Change of midwife – Ms C

At approximately 38 weeks' gestation, Mrs A had problems with a urinary tract infection. Mrs A was not reassured by her midwife's response to the infection, and decided to change midwives. On 22 January 2001 Mrs A discussed her previous pregnancy experiences with Ms C, an independent midwife in her second year of practice. Mrs A explained to Ms C that she wanted a midwife who could work with Dr H (ie, who would call him if there were any problems), and who could cope with a high-risk patient. Ms C agreed to provide midwifery services to Mrs A.

Mrs A advised that at no time did Ms C inform her that she was only in her second year of practice. Ms C claimed that she did tell Mrs A that she was in her second year of practice following her degree, and worked with other midwives. She said that she explained to Mrs A that her previous midwife was one of the more experienced in the area, and suggested that Mrs A give further thought to changing midwives. Mrs A replied that she wanted Ms C to be her midwife.

Mrs A had an antenatal assessment by Ms C on 29 January, following a tour of the hospital. At that point Ms C noted that the baby was active and moving well. During the tour of the hospital, Mr and Mrs A noted that the maternity ward was being painted. They were concerned about the possible effects the fresh paint might have on the baby and, following the appointment on 29 January, phoned Ms C to discuss their concerns. Mrs A recalled that Ms C said that there was nothing to worry about, and the paint had not affected anyone so far. Ms C recalled that she reassured Mrs A that the renovations would not be occurring if there was a risk to women or babies, but Mrs A could contact the Head of Midwifery to discuss her concerns.

Mrs A had a further antenatal assessment by Ms C on 5 February. Mrs A was experiencing Braxton Hicks contractions, but the baby was well with a heart rate of 157bpm and lots of movements.

On 11 February Mrs A telephoned Ms C, as she was concerned that the baby's movements had slowed down. Ms C advised Mrs A to drink iced water, which she did, and she then felt her baby move.

A further antenatal visit took place on 12 February. Mrs A and her baby were both noted to be well.

Admission to hospital

On 13 February 2001 Mrs A called Ms C at approximately 1.20pm after experiencing bleeding, with no mucus in the blood. Ms C advised Mrs A to visit the regional public hospital. Mr and Mrs A arrived at the hospital at approximately 2pm. Ms C examined Mrs A, applied a CTG (a CTG tracing was recorded from approximately 2pm to 2.50pm), and a urine test was performed. Ms C advised that she contacted Dr H at 3.35pm to discuss Mrs A's vaginal bleeding. Dr H reviewed and signed off the CTG tracing.

A further CTG tracing was taken between approximately 3.20pm and 3.50pm. No concerns were noted.

At approximately 4pm Ms C received the results of the urine test and told Mrs A that she had a "show" (usually a sign that labour is imminent).

Mr and Mrs A recalled that Ms C advised them that they could return home, and suggested that Mrs A have her pre-arranged scan on 14 February, and return on 16 February for an induction. Mr A did not want to take Mrs A home. Ms C contacted Dr H, who advised that Mrs A could be admitted to the ward for observation. Dr H did not personally assess Mrs A at that time.

Mr A went home at approximately 4pm. Before he left, he asked Ms C to phone him if there were any changes.

At around 5.00pm that evening Dr H reviewed Mrs A and advised that labour would be induced the following morning. Mrs A recalled that she asked Dr H to check the position of the baby, because the previous day Ms C had informed her that the baby was not in a good birthing position (the baby was face up). She stated that Dr H replied that he was not

concerned about the baby's position, and left the room. Mrs A advised that Dr H did not attempt to relieve her stress.

Labour

Onset of contractions

At approximately 8.30pm Mrs A began to experience contractions. Ms C was contacted at approximately 9pm and asked to attend. Ms C assessed Mrs A soon after 9pm. Mrs A was 4-5cm dilated, with mild contractions.

Mr A recalled receiving a phone call from Mrs A at approximately 9.30pm, when she told him that she was 5cm dilated and he should come to the hospital. Mr A recalled that he arrived at the hospital at 10pm to find Mrs A experiencing regular contractions.

Ms C stated that she spoke to Dr H, who was in the delivery suite, and discussed Mrs A's options. She then assessed Mrs A and told her that she could either have some pain relief and wait until morning to have her labour induced, or have an early artificial rupture of membranes (ARM) to establish labour.

Timing of the artificial rupture of membranes – conflicting recollections

It appears that a decision was made to artificially rupture Mrs A's membranes. However, the parties have conflicting recollections of when the artificial rupture of membranes occurred.

Mr and Mrs A recalled that Ms C artificially ruptured Mrs A's membranes at some time after 1am on 14 February, after Mrs A had returned from having a spa bath.

Ms C recalled that the membranes were ruptured following the discussion with Dr H on the evening of 13 February, at 9.45pm. Mr A advised that the membranes could not have been ruptured at 9.45pm because he did not arrive at the hospital until 10pm, and he remembers being present when the membranes were ruptured.

The clinical progress notes originally recorded that Mrs A's membranes were ruptured at 10.45pm, but this was amended to 9.45pm. A note made on the CTG tracing indicates that the membranes were artificially ruptured at 10.45pm. The notes also record that Mr A was present when the membranes were ruptured.

Meconium in the liquor

Ms C recalled that when the membranes were ruptured, there was a good amount of amniotic fluid and that it was pale brown in colour and thin in consistency. Ms C was unsure whether it was old blood or old thin meconium (excrement from the foetus, the presence of which in amniotic fluid may indicate foetal distress). Ms C advised Mrs A that meconium can mean the baby is stressed, but it was nothing to worry about.

Ms C did not seek specialist involvement from Dr H after the meconium was noted. However, she was aware that the presence of meconium meant that she needed to monitor Mrs A and baby closely. Ms D advised that when she came on duty at 10.45pm, Ms C

informed her that Mrs A's liquor was meconium-stained, and that Ms C wanted to keep a "good eye" on her.

Ms C monitored the baby by CTG following the artificial rupture of membranes (tracings were taken between approximately 10.45pm and 11.30pm). She advised that the CTG was reactive and appeared satisfactory (it was showing good variability with a baseline of 150bpm and accelerations to 160bpm). Ms C recorded in the clinical notes that meconium-stained liquor continued to drain. Ms C was reassured by the CTG, and recalled that she stopped the CTG tracing 45 minutes after the membranes were ruptured to allow Mrs A to mobilise and establish labour. The clinical notes indicate that the CTG tracing was discontinued at 11.30pm.¹

I understand that the liquor cleared as labour progressed. At no stage was there fresh thick meconium in the liquor, and there was no meconium on delivery.

Spa bath – conflicting recollections

At approximately midnight Ms C ran a spa bath at Mrs A's request. After seeing Mrs A into the spa bath, Ms C told her that she (Ms C) was going to have a sleep/break. Ms C introduced her to Ms F, hospital midwife, and advised her that Ms F would care for her while she was on a break. Neither Ms C nor Ms F stayed with Mrs A in the spa bath room. Mrs A recalled that there was a buzzer by the pool to call for help. Mrs A advised that after being left alone, she fell asleep. There are conflicting accounts of when Mrs A got out of the spa bath and returned to the delivery suite.

Mrs A recalled that she awoke with a fright at 1am when her face fell into the water. Mrs A got herself out of the bath and dressed. As she was changing, Ms F entered the pool room and pulled the plug in the spa bath. Mrs A and Ms F walked back to the delivery room, where Mr A was waiting.² Mrs A said that she arrived back in the delivery room at approximately 1.05am. Mr A recalled that Ms C arrived approximately 10 minutes later and performed an internal examination on Mrs A. Mrs A was 7cm dilated at that time. Mr and Mrs A recalled that it was at this stage that Ms C ruptured Mrs A's membranes. The progress notes for 1.15am do not record that an examination took place,³ or that the membranes were ruptured – they record that the CTG was discontinued, and that Mrs A was "coping beautifully" and was mobilising.

Ms C recalled that she returned to the pool room to take a CTG tracing at 12.28am. She found that Ms F had already helped Mrs A out of the spa, and connected her to the CTG monitor. She recalled that the CTG was showing reassuring patterns.

¹ The statement that the CTG was discontinued 45 minutes after the artificial rupture of membranes and the record that the CTG was discontinued at 11.30pm supports a finding that the artificial rupture of membranes occurred at 10.45pm, as originally recorded in the notes. Ms F's recollection that she was informed that there was meconium in Mrs A's liquor when she came on duty at 10.45pm also supports a finding that the rupture of membranes occurred at 10.45pm.

² Mr A advised that Ms C's notes record that he was present with Mrs A in the spa room, but he was not.

³ An examination is recorded in the clinical progress notes as taking place at 2am, at which point Mrs A was 8cm dilated.

The clinical notes record that at 12.28am Mrs A was out of the spa, and the CTG re-applied – the CTG showed a baseline of 150bpm with accelerations to 170bpm and good variability. There is a CTG tracing from 12.28am to approximately 1.18am.

Monitoring of foetal heart rate from 1.18am to birth at 6.05am

The clinical progress notes record that the CTG was discontinued at approximately 1.18am, with a baseline of 140bpm. However, the CTG tracings indicate that the tracing recommenced shortly before 1.30am and continued to approximately 4.10am, when the machine ran out of paper.⁴ Numbers on the CTG tracings indicate that the tracings taken between 1.30am and 4.10am were from a different CTG machine than the tracings taken between 10.45pm and 1.15am. Mr and Mrs As are concerned that some of the tracings are not Mrs A's tracings (in particular, the tracings taken between 12.28am and 1.15am when Mrs A recalled being in the bath, and Mr A advised that no CTG tracing was taken between 3.30 and 5.30am). At the Coroner's Inquest, the expert witness for the Coroner, Ms Ann Yates, midwife, advised that the latter tracings were consistent with the earlier tracings of Mrs A and baby, and suggested that the CTG machines were changed between 1.18am and when the tracing was restarted just before 1.30am. She advised that it is not uncommon to change machines.

Following the discontinuation of the CTG tracings at approximately 4.10am, Ms C did not record the foetal heart rate in the clinical notes. However, she advised that she did listen to the foetal heart rate by intermittent monitoring between alternate contractions, and there was no foetal distress – the heart rate was within normal limits.⁵

Continuation of labour (progress and monitoring) – conflicting recollections

Mrs A said that Ms C left her alone for long periods of time between approximately 1.15am and 5.50am. She recalled that Ms C only returned to do tracings on the baby's heart rate. She advised, "She [Ms C] never stayed in the room for any length of time. She left as soon as the tracings were done. She did at least five tracings." Mrs A stated that she was not advised of any abnormalities or concerns with the foetal heart rate over that time. Mr A advised that he felt "quite anxious" when he was left alone with Mrs A.

Ms C stated that she had two short breaks, which occurred with Mrs A's consent, after introducing her to another midwife at the birthing unit, Ms D.

The notes record that at 2am Ms C did a vaginal examination and that Mrs A was 8cm dilated. It was recorded that light yellow liquor was draining, and the foetal heart rate was 156bpm.

⁴ The progress notes record: at 12am the FHR (foetal heart rate) was 148bpm; at 12.28am the FHR had a baseline of 150bpm with accelerations to 170bpm; at 1.15am the FHR had a baseline of 140bpm; at 2am the FHR was 156bpm; at 3am the FHR was 149bpm; at 3.45am the FHR was 134bpm; and at 4.15am the FHR was 151bpm.

⁵ Ms C provided me with two partogram records for the bay and Mrs A. The clinical entries on both copies differ (one appears to be an incomplete version of the other). Both copies record that at 4am the bay's heart rate was 151bpm, and at 5am it was approximately 145bpm. One copy includes a record of the FHR at 4.10am as approximately 162bpm.

Ms C recorded that at 3am Mrs A was sleeping between contractions, which were strong, and the foetal heart rate was 149bpm.

Mr A recalled that at 3.30am Ms C told him “there was very little to go” and then left the room until 4.05am. However, Ms C made entries in the notes at 3.30am and 3.45am. At 3.45am it was recorded that Mrs A was very uncomfortable throughout contractions, and the foetal heart rate was 134bpm.

At 4.15am the notes record that contractions were strong, and lasting 60 seconds. The notes record that Mrs A got up to the toilet, and Ms C could recall being in the toilet with Mrs A for some time. The foetal heart rate was noted as being 151bpm. There was no liquor draining.

The notes record that at 5.30am Mrs A’s cervix was 9cm dilated.

Mr A recalled that between 4am and 5.30am Mrs A was “sort of thrashing about without control” and seemed like she was in incredible pain. Ms C reviewed Mrs A and said that she was doing okay. Mrs A calmed down, and Ms C left the room. Mr A recalled that Mrs A’s pain then got worse. He stated that Ms C checked the baby’s heart rate. He noted, “The heart machine is audible and when it is used you can hear the baby’s heart beat through the speaker. When it was used at this time I could not hear the heartbeat.” Ms C advised him that the heartbeat was there, but it was faint, and she explained that she thought the faintness was probably because the baby had shifted position and was further down the birth canal. Mr A recalled that Ms C then examined Mrs A, said she could see the head, and advised Mrs A to commence pushing.

Delivery of the baby

Mrs A commenced pushing at around 5.50am on 14 February 2001. Mr A was concerned that Ms C was not timing the contractions. When he raised his concern with her, she replied, “She knows when one is coming.” Mrs A stated that during the late stages of delivery she became frightened and started to scream uncontrollably. She recalled that Ms C yelled, “That’s enough of that carry on,” and that after this she calmed down. Mr A stated that Ms C yelled in a domineering manner. Ms C stated that she did not reprimand Mrs A, but attempted to give her encouragement.

As the time of delivery drew closer (approximately 6am), Ms C contacted Ms D, an independent midwife who was attending a client in the delivery suite, for assistance. Ms D arrived part-way through the delivery.

The baby’s condition on birth and her immediate care

Summary

Mr and Mrs A’s daughter was born at 6.05am. It is generally agreed that their baby was delivered with the cord around her neck and body. The cord was untangled, and their baby was placed on a towel on Mrs A’s chest. The baby was towel dried, wrapped in a clean warm towel, and handed to Mr A by Ms D.

Description of the baby's condition on birth – conflicting recollections

Mr A advised the Coroner that their baby was limp and had no movement when she was born. He recalled that when she was placed on Mrs A's chest she tried to stretch and cry, opened her eyes, and was a healthy dark pink colour. She let out one cry. His recollection is that the baby was not vigorous at birth. Mrs A recalled that after their baby was placed on her stomach, their baby coughed and cried, and opened her eyes.

Ms D advised the Coroner that when their baby was born, she was blue and her heart rate was 140bpm. She recalled that the baby was moving and responding to stimuli. She was still only gasping at that stage.⁶ Ms D advised my Office that the baby was centrally pink with peripheral blue coloration, but the coloration did not concern her as many babies are born "with varying degrees of shock".⁷ At the time her baby was on Mrs A's chest Ms D recalled that there were no respirations, which she advised is common in newborn babies.⁸

Ms C recalled that the baby gasped at the perineum, cried and coughed on delivery, and was essentially pink. Ms C's recollection is that the baby birthed very quickly, and cried and breathed straight away. She advised that the baby was a vigorous and healthy baby, and was not distressed. Ms C placed the baby on Mrs A's chest. Ms D recalled that she suggested Ms C blow gently on the baby's face, which stimulates respiration. Ms C did this, and the baby gasped and gave a cry. Ms C dried the baby with a towel⁹ and she recalled that the baby cried as she did this. Ms C advised that she felt the baby's heart rate, which was strong, regular and approximately 130-140 beats per minute. Her colour was centrally pink, but peripherally blue. Ms C advised the Coroner that the baby moved her hands.

The baby's condition on birth is not clearly documented in the clinical records. At one minute of age it is standard and usual practice to record the baby's condition by a scoring system known as APGAR. The APGAR scoring system is a system by which the LMC or attending practitioner gives the baby a score between zero and two for colour, heart rate, respirations, tone, and reflex irritability. It is designed as a rapid assessment tool for describing the state or condition of the baby after delivery. Scores are taken at one minute, five minutes, and ten minutes. The total score possible is ten. The lower the score, the

⁶ Dr J, a consultant paediatrician at a city public hospital, advised the Coroner that he would have significant concerns about a baby who was gasping at one minute of age and cyanosed – a baby in that condition should be taken to the resuscitaire, for further intervention.

⁷ At the Coroner's inquest, Dr I, a consultant paediatrician at a city public hospital, stated that for a baby to look "shocked" usually means that it is pale and limp, and is in trouble. He advised that it is not normal for a baby to look "shocked". Ms D advised that "shock" was a bad choice of words, and instead used the word "stunned" to describe the baby's condition. Dr G advised the Coroner that very few babies are completely pink at one minute of age. He said, "Most babies are peripherally still blue and of course all babies are blue at the moment of birth, no baby is pink at that precise moment because they haven't had time to draw breath ..."

⁸ The District Health Board Neonatal Resuscitation Policy notes, "After delivery of a healthy term baby the first breath usually occurs within 60 seconds of clamping or obstructing the umbilical cord. Clamping of the cord leads to the onset of asphyxia, which is the major stimulant to start respirations. Physical stimuli such as cold air or physical discomfort help provoke respiratory efforts."

⁹ Mr A advised that Ms C rubbed their baby "vigorously".

higher the indication that the baby requires assistance or stimulation. The labour summary documentation for the baby indicates that her one minute Apgar score was four (very poor and indicating that immediate assistance was required). Ms C advised that she did not record the baby's one minute APGAR score as four in the notes. She advised that the baby's one minute APGAR score was good, and definitely higher than four – the baby's heart rate was strong and within normal limits, she was centrally pink and had cried. Ms D also advised that she did not complete the one minute APGAR score in the notes, and it would have been higher than four. Ms C suggested that one of the medical team or the morning midwifery staff may have completed the form. However, the members of the medical team have also denied completing the one minute APGAR score.

The baby's pH at birth was subsequently reported as 6.46, which is very low.¹⁰

The cutting of the cord

Ms D recalled that she left the room before the cord was cut and returned immediately with a clean, dry, warm towel. After unravelling the cord from the baby, Ms C asked Mr A whether he wanted to cut the baby's cord. He replied that he did not. Ms C then asked Mrs A whether she wished to cut it. She replied, "God no." Mrs A stated that she had previously discussed this with Ms C and told her that neither she nor her husband wished to cut the cord. Ms C said that although she was aware of Mr and Mrs A's wishes, she wanted to check with them as some people change their mind during labour.

Mr A identified that the baby was not breathing

After letting Mrs A hold their baby briefly, Ms D wrapped her in the warm towel and handed her to Mr A. Ms D recalled that the baby "still looked a bit shocked", but she was not concerned because the baby's heart rate was 130bpm. Ms D looked back to Ms C to ascertain whether there was any progress with the delivery of the afterbirth.

Mr A stated that he immediately noticed that their baby was not breathing and he alerted the midwives to this.

Response to Mr A's concerns – conflicting recollections

Mr and Mrs A recalled that the midwives did not respond to Mr A immediately, so he alerted them to the fact that their baby was not breathing a second time. He recalled that after notifying the midwives a second time that his baby was not breathing, Ms D approached him and clamped four fingers together and pressed down hard and rapidly on the baby's sternum four times. Mr A said that she pushed so hard that he had trouble holding onto the baby, and he heard a cracking sound "like ice breaking". Mrs A recalled that at no stage did either midwife check to see whether their baby was breathing, or if her airway was clear.

Ms D advised that when Mr A alerted her to the fact that the baby was not breathing, she checked the baby's heart rate by placing her fingers on the baby's apex. She noted that the heart rate was still strong (130bpm). Ms D did not commence chest compressions. She

¹⁰ I understand that with a pH of 6.46 on birth, one would expect the bay to be pale and floppy, with a slow heart rate and no respirations.

noted that the baby's chest was moving. Ms D turned back to Ms C to watch for progress on the delivery of the placenta. Mr A does not accept Ms D's explanation, and is concerned that Ms D's actions may have caused internal damage, and a lump he subsequently noted on the baby's chest.

Mr A recalled that Ms D turned back to Mrs A and Ms C. Mr A recalled that their baby's colour was poor, and she was still not breathing. He yelled out again that the baby was not breathing. He recalled at that point Ms D took the baby from him to give her some oxygen.

Ms D recalled that at this point the baby's colour was poor and she was not breathing. Ms D said she was still not overly concerned because the baby's heart rate was okay. However, she told Mr A that she would give the baby some oxygen to stimulate breathing, and took the baby to the resuscitation room. As Ms D went into the resuscitation room, she called for Ms F to help.

Ms C said that there was no time when they did not respond to Mr A's concerns about the baby's breathing. Ms D advised the Coroner that she responded immediately.

The above events took place between approximately the second and fourth minute of the baby's life.¹¹

Mr A left the delivery room to look for Ms D and the baby.

Resuscitation

Ms F recalled that when she entered the resuscitation room the baby was on the resuscitaire, and Ms D was giving the baby oxygen via a mask – Ms D put the baby on oxygen at a rate of four litres per minute with intermittent positive air pressure through a facemask. Ms F recalled that the baby's colour was poor, but her heart rate was 120bpm. Ms F suctioned the baby's mouth, back of the throat and nose and this produced a small amount of blood-stained fluid (Ms D advised that this is not unusual). Ms F went back to the office and paged the paediatric house surgeon. When Ms F returned to the resuscitation room, Ms D was still giving the baby oxygen, but the baby's heart rate was noted to have dropped to around 60 beats per minute. Ms D recalled that because the baby's heart rate was decreasing and she was getting paler, she asked Ms F to seek paediatric assistance (there was no telephone in the resuscitation room). Ms F requested another midwife to contact Dr G, and she commenced cardiac massage. Ms D checked the baby's vocal chords with a laryngoscope to see if there was an obstruction, but none was noted. She recalled that Ms F gave the baby a vitamin K injection, which is routine and helps stimulate a response from the baby.

Mr and Mrs A are concerned that there was not appropriate resuscitation equipment in the resuscitation room, which led to a further delay in their baby being treated. There is no

¹¹ This calculation is based on information obtained during the Coroner's Inquest that it would have taken more than one minute to cut the baby's cord, towel dry her and hand her to Mr A, and the house surgeon's recollection that she was paged at 6.10am to assist with resuscitation in the resuscitation room.

evidence that the appropriate equipment was not available, or that it was not being used appropriately.

Dr E, house surgeon, was paged at 6.10am and arrived three to four minutes later. When Dr E arrived, she noted that resuscitation was in progress – the baby was lying on the resuscitaire, which was switched on to keep her warm, and one of the midwives was performing two-finger chest compressions. Dr E recalled that an oxygen mask was over the baby's nose and mouth. The baby was making only occasional gasps. She was a dusky colour, but there were no obvious physical features suggesting abnormalities. Dr E assisted Ms D with resuscitation, giving chest compressions and intermittent positive pressure ventilation via a face mask. She was informed that the baby had seemed fine following delivery – she had breathed spontaneously and had a reasonable heart rate, but poor colour. Dr E was told that there had been a sudden deterioration in the baby's condition, when it was noted that she had stopped breathing, turned blue, and her heart rate had dropped to below 60bpm – at which stage resuscitation had been commenced. Dr E was also advised that Dr G, consultant paediatrician, had been contacted and was on his way to the hospital. She recalled that Mr A was in the resuscitation room, and was very distressed.

A question was raised as to why Dr E did not intubate the baby on her arrival. Mr and Mrs A are concerned that although Dr E was trained to intubate, she chose not to, and that led to a further delay in their baby being treated. Dr G noted that all house surgeons and midwives undergo the same basic resuscitation training for newborn infants and are shown how to intubate. However, he advised (about intubation):

“[I]t is like riding a bicycle, you need practice and so we don't actually expect that midwives and house officers can intubate. If they can it is good but if they can't then we are also keen that they recognise that it's important to stop trying and to go back to the basic resuscitation which is very effective in most situations in fact.”

A certain amount of training and experience is required for advanced resuscitation and intubation. It appears that although Dr E had received training in intubation, she lacked the experience to intubate the baby. Dr G advised that the basic resuscitation team would be the midwife and the junior doctor present, performing basic resuscitation, and the paediatrician would be called to provide advanced resuscitation, although there are occasions when other people with advanced resuscitation skills are present and can assist (for example, an anaesthetist, obstetrician or midwife who has had sufficient training and experience). The role of a midwife in performing basic resuscitation is to assess the baby, check the airway, provide the baby with breathing as necessary, and administer cardiac compressions if required, until the doctor arrives. Basic resuscitation is effective in most situations. When Dr G arrived at the resuscitation room, the baby was receiving bag and mouth resuscitation and external cardiac compressions, which were being performed in accordance with the midwives' training.

Mr A recalled that he entered the resuscitation room when Ms D and Ms F were attending to the baby. He noticed blood on the floor, table, and on the baby's right arm and leg (Ms D said there was no blood on the floor). Mr A was worried about the amount of blood. He noted that Ms C entered the resuscitation room and took photos of the baby. He was

concerned that Ms D stopped resuscitation to allow Ms C to take the photos. Ms C denied taking photographs of the baby.¹² Mr A recalled asking Ms C what was wrong with the baby, and she replied that it appeared the baby had some internal bleeding or an infection. Mr A recalled that he was hysterical. Mr A held his baby's hand.

Delivery of placenta – conflicting recollections

At the time of the baby's resuscitation, Ms C stayed in the delivery room with Mrs A to deliver the placenta. Mr A remained outside the room. Ms C told Mrs A to cough, which she did, and she passed the placenta into a kidney dish (the placenta was delivered at 6.20am). Ms C asked whether Mr and Mrs A wanted to keep the placenta. Mrs A said that was also something they had discussed prior to labour, and that she and her husband had made it clear that they did not want to keep it. Ms C agreed that it had been discussed, but wanted to make sure, as people sometimes change their mind after delivery.

Mrs A stated that shortly thereafter Ms C also left the delivery room, leaving her alone and without cleaning her up. Mrs A recalled that her husband and Ms C returned five minutes later. There was blood on the floor, and Ms C asked Mr A to help her clean up Mrs A. Mr A declined, and left the room.

Ms C denied leaving the delivery room until the delivery of the placenta and subsequent bleed were managed. Ms C said that after the placenta had been delivered and the subsequent bleed managed, she left the room briefly to check on the baby and speak to Mr A. She also denied that she asked Mr A to help her clean up Mrs A, and said that there may have been a bit of blood and liquor on the floor, but not a lot.

Mrs A recalled that at one stage she heard her husband "crying hysterically" outside the delivery room. Ms C informed her that Mr A would be all right. Mrs A was shocked that no one was supporting her husband at the time.

Intubation

Dr G, paediatric consultant, was contacted at home at approximately 6.20am, and attended at 6.30am, around 25 minutes after the baby was born. Dr G could not recall whether he was informed of the baby's one minute APGAR score on his arrival in the resuscitation room. However, he recalled being informed that the baby had initially appeared to breathe and had a heart rate, but subsequently deteriorated and required resuscitation. His note in the clinical records states, "Called to 'flat baby' at 0620. Baby born at 41/40 after uneventful pregnancy. Some evidence of distress during labour (meconium, minor [heart rate] irregularities cleared as OK by obstetrician)." He made the following note about the baby's condition on his arrival at the delivery suite: "On arrival pale, shocked, no spontaneous movements apart from occasional gasp. Good chest movements with bag IPPV [intermittent positive pressure ventilation]. [Heart rate] 80bpm but no pulses in limbs."

¹² At the Coroner's Inquest, Ms D advised that the photos were taken in the neonatal unit (which the baby was subsequently transferred to), not in the resuscitation room. Dr G also confirmed that the photos were taken in the neonatal unit once the baby had been attached to the mechanical ventilator.

Dr G's immediate impression of the baby was that she was suffering from circulatory shock for reasons that were not immediately obvious, and she was also in respiratory failure. He immediately intubated the baby without difficulty and noted that her heart rate had increased slightly to approximately 100 beats per minute. Because her heart rate had improved, Dr E ceased chest compressions, and continued to ventilate the baby with an Ambu-bag. Dr G inserted an umbilical venous catheter, took blood samples and administered intravenous adrenaline three times over the next 10 to 15 minutes. The baby's heart rate improved to 120 beats per minute, but her overall colour and circulation did not improve – she remained cyanosed, pale, and with no obvious peripheral circulation. Dr G noted that her pupils were dilated and were not responding to light. He also noted that she had frothy bright red blood in her pharynx. Dr G did not recall any meconium being present in the pharynx when he intubated the baby. He stated that one of the first indications of a lack of oxygen in a baby is a falling heart rate. The baby's heart rate was steady throughout the time Dr G saw her (low to begin with, but steady), which he advised is at odds with a picture of severe asphyxia.

The baby was transferred to the Neonatal Unit.

Neonatal Unit

On arrival at the Neonatal Unit, Dr G requested the assistance of a paediatrician. He also contacted the city public hospital Neonatal Unit for advice and to request the assistance of the Neonatal Retrieval Team. Dr G stated:

“The differential diagnosis at this stage was unclear, but included severe perinatal asphyxia even though she had a regular heart rate from birth, and also included a possible congenital cardiac defect with obstruction to the systemic circulation, septic shock, severe hypovolaemic shock, or a metabolic condition as yet undiagnosed. There was also evidence of a pulmonary haemorrhage with continuing small amounts of fresh blood in the endotracheal tube, and of gastrointestinal haemorrhage with blood appearing into the nasogastric tube ...”

The baby was moved to the overhead warmer, and a more careful examination was possible. Dr G noted that his examination showed no significant dysmorphic features, continued good air entry throughout her lung fields with positive pressure ventilation, a heart rate of approximately 140bpm, and a slightly enlarged and firm liver.¹³ The baby continued to show irregular breathing movements, but no other movements, and was pale and shocked.

A bolus of 30mls normal saline was administered and the baby was commenced on intravenous saline. A chest X-ray and further blood samples were taken. The chest X-ray showed that there was no sign of an air leak or pneumothorax in the lungs, and the heart appeared normal. The blood tests taken at approximately 7.30am showed persisting severe acidosis (excess acid in the blood, partly from severe metabolic disturbance). The tests also

¹³ In evidence to the Coroner, Dr I advised that the baby's enlarged liver could be the result of swelling from lack of oxygen. Dr G stated, “I've seen many babies who have been severely asphyxiated and an enlarged liver would be an uncommon finding. You are far more likely to find a baby who has severe brain injury, severe heart problems with the difficulty getting the heart going, rather than an enlarged liver.”

showed a normal level of blood glucose and sodium, but an elevated level of potassium. The blood count showed normal levels of haemoglobin, platelets and C cells. The baby was given a further 30mls of normal saline. There was some improvement in her colour and circulation, but no obvious peripheral pulses. Dr G stated that at the time, his impression of the possible causes of the baby's illness were severe infection, congenital heart disease, shock due to low blood volume, pulmonary haemorrhage causing respiratory failure, or an inborn error of metabolism. He therefore proceeded to take further blood samples and administered antibiotics (amoxicillin and gentamycin). He also continued to give intravenous salt solution and added a dose of intravenous fresh-frozen plasma to correct a possible bleeding problem.

The paediatrician assisted Dr G in setting up a mechanical ventilator and made arrangements for fresh frozen plasma, if needed for transfusion. Phenobarbitone (an anticonvulsant) was administered because the baby showed some jerking movements in her limbs consistent with convulsions. Dr G advised that at approximately 8.30am he had to attend another patient and the paediatrician supervised the ongoing resuscitation, in consultation with Dr J, a neonatal paediatrician in the city.

Information from Dr G

Mr A recalled that Dr G told him that the baby was very sick. Mr A told Dr G about his concern that Ms D injured the baby when she palpated the baby's heart in the delivery room. He advised that Dr G did not listen to him, and went into the delivery room to speak to Mrs A. Mr A is concerned that Dr G did not acknowledge his concern, and did not document his complaint about Ms D's actions.

Dr G advised that there was no evidence of chest injury – he was dealing with a baby who had evidence of severe illness which, in his opinion at the time, was not in any way related to a possible chest injury. Accordingly, he found it difficult to see the relevance of Mr A's comment at the time. His examination of the baby did not show any evidence of injury to the external chest.

Mrs A recalled that Dr G came into her room, and said, "Things look very grim with [the baby]. She is very sick." This was the first time she had any idea of what was going on. She recalled, "The baby's situation was never really discussed with me. They spoke to [Mr A]. I didn't really know what was going on. I was told that they would have to take the baby to a city public hospital."

A city public hospital

Transfer to a city

At 9.45am the Neonatal Retrieval Team arrived and transferred the baby to a city public hospital by helicopter. Mr A travelled in the helicopter with the baby, and Mrs A and her son, flew to the city in a chartered plane. In her original statement to the Police, Mrs A stated that Ms D ripped a band-aid from her arm, causing blood to run down her shirt and bag and onto the floor. Ms D advised that she had no further contact with Mrs A after the baby's delivery and was not involved in her transfer. Mrs A later amended her statement to state that it was another midwife, not Ms D, who injured her.

Care at the city public hospital

Mrs A recalled that at the city public hospital she and her husband were informed about their baby's condition on a regular basis, and were notified "straight away" if there were any changes in her condition. She recalled that it was evident that the staff were "trying everything they possibly could to save her life", and "they were very professional". She also stated:

"I would like to express that the [city public hospital] Neo-natal team took exceptional care of the baby from the time they arrived at the regional hospital and throughout her stay in the city public hospital. They also offered exceptional support, care and compassion to [Mr A], myself and other family members present at the city public hospital."

The baby's condition did not improve. Dr J, consultant paediatrician, advised that diagnostic possibilities that were considered at the city public hospital included: asphyxia (intra-partum and post-partum), sepsis, inborn error of metabolism, congenital heart disease, intra-cranial haemorrhage, or abdominal pathology such as malrotation with volvulus. Further investigations at the city public hospital did not show evidence of congenital infection or structural congenital heart disease. Abdominal X-rays were non-specifically abnormal. A specialist was consulted regarding the possibility of an inborn error of metabolism. The specialist was of the opinion that asphyxia was the more likely cause given the clinical picture, but an inborn error of metabolism could not be ruled out.

Cerebral function monitoring indicated significant brain injury, and the baby remained unstable. Based on the multi-organ failure and cerebral function abnormalities, the specialists at the city public hospital felt that it was futile to continue with intensive care. The situation was discussed with Mr and Mrs A. At 4.40pm on 16 February 2001 The baby was taken off life support. She died at 4.53pm.

Dr J advised:

"Based on the history and examination and results of investigations, and the clinical course, I consider the most likely diagnosis to be of peri-partum asphyxia with resultant multi-organ failure. Alternative diagnostic possibilities are sepsis such as congenital enterovirus infection (though no evidence of specific viral agents was identified) and inborn error of metabolism."

Concerns and complaint

On 16 February the social worker from the regional hospital visited Mr and Mrs A. Mr and Mrs A found her unsympathetic and unresponsive to their concerns. Mr and Mrs A found it very difficult to make a complaint, and to have their complaint taken seriously by the regional public hospital. The social worker referred Mr and Mrs A to the local health and disability advocacy service.

Mrs A recalled that a doctor from the city public hospital told him that their baby had been killed by an injury she sustained while at the regional public hospital.

Dr I, head of the Neonatal Unit at the city public hospital, advised the Police on 7 June 2001 that, following a review of the medical records and discussions with Mr and Mrs A, he had concerns about the care that the baby received. In particular:

- He was of the opinion that because of Mrs A's previous difficulties, the minimal care she should have been afforded was to have a paediatric physician present as a precautionary step during labour and birth.
- A specialist should have been contacted when Mrs A's membranes were artificially ruptured and meconium was detected.
- During labour, the baby's heart rate was monitored by a CTG. The tape on the CTG ran out at 4.12am on 14 February, and was not replaced. That meant that the last two hours of Mrs A's labour were not monitored, and there was no recognition of the baby's condition – it was impossible for anyone to know whether the baby was in trouble. At the time the CTG tracing ran out, the baby's heart rate was decelerating – he advised the Coroner that the heart rate dropped by about 30% shortly before the CTG tape ran out after 4am on 14 February.¹⁴ If the CTG had been reconnected, it may have been possible to more adequately assess the baby's condition.
- He assumed that the baby's one minute APGAR score was recorded by Ms C as 4. He noted that on that basis, resuscitation should have been started immediately, and backup called.
- When Mr A raised with Ms D and Ms C his concern that the baby was not breathing, it was not appropriate for Ms D to commence chest compressions. The standard procedure is to check airway, breathing and then circulation. The baby's airway should have been checked and cleared first. It was unacceptable for Ms D to commence chest compressions on advice that the baby was not breathing without establishing a clear airway.¹⁵
- The baby was in a critical condition by the time she arrived in the city, which was aggravated by the delay in her resuscitation.
- He was of the opinion that Ms C failed to recognise the severity of the baby's condition from the time the CTG was switched off until Mr A recognised that the baby was not breathing, and should not be practising as a Lead Maternity Carer.

¹⁴ Ms C advised, "At no stage do I recall the baby's heart rate showing decelerations." Dr H reviewed the CTG tracings at the Coroner's Inquest. He stated that the tracings were normal, with no decelerations. The heart rate was 160 at the start and end of monitoring, so there was no 30% drop in baseline, as suggested by Dr I. Dr I advised the Coroner that he was not an expert on CTGs.

¹⁵ At the Coroner's Inquiry, Dr G advised that the procedure to check on an infant who is not reported as breathing "would be to assess the baby's condition, check the bay's heart rate, to look for signs of breathing and to check the air entry – it is called the ABCs and then to follow through and deal with problems in that order".

At the Coroner's Inquest, after obtaining further information on this case, Dr I acknowledged that some of his concerns listed above were allayed. In particular, at the time of making his statement, Dr I was not aware that:

- National Women's Hospital, the regional public hospital, and the National Referral Guidelines for Maternity Services do not require consultation with a specialist, or a paediatrician to be present at birth in the presence of thin meconium.
- Ms C continued to monitor the baby's heart rate by intermittent auscultation after the CTG was discontinued.
- The one minute APGAR score was not recorded by Ms C, and on the description by the parties of the baby's condition at one minute, did not appear to accurately reflect the baby's actual condition at the time.

Dr J, consultant paediatrician the city public hospital, advised the Police that on the information available to him, it was his opinion that the baby's condition was under-recognised and the mode of resuscitation was inappropriate – in particular, Ms D's response when Mr A noted that the baby was not breathing. He expressed concern that there was a delay in requesting specialist assistance, and advised, "I think the timing of a specialist being called is not irrelevant." He stated at the Coroner's Inquest that if a baby is apnoeic, but has a good heart beat, it needs to be transferred to a resuscitaire and further assessed. Of Ms D's actions he noted:

"If I could be confident that that was simply the assessment of the heart rate, which was found to be adequate, I would still be anxious about the quality of care that was given at that moment. I haven't been reassured that the baby was breathing normally at that stage."

Dr J advised the Coroner of the importance of an accurate record of the APGAR score:

"When we were dealing with [the baby] in [the city] we wanted to find out what the diagnosis was and that helps us with our management and whether she was in need of resuscitation at birth and very shortly afterwards is an important fact in trying to work out what that underlying pathology [was]. Was she perfectly well at birth and then became sick later on. Well that opens up some other diagnostic doors, so we were very keen to try and work out exactly how sick she was at birth. So you know if the APGAR scores are grossly unreliable then that is a major concern. It's a major concern. It makes it difficult for us to do our job."

Mr A recalled that the Police told him that the care provided to the baby was definitely substandard, but they were unsure whether it amounted to criminal negligence.

Mr and Mrs A have concerns about the care their baby received from Ms C and Ms D. They believe that their baby was a healthy, normal baby until she became distressed during the birthing process. Their concern is that the midwives did not identify or appropriately respond to the various signs that their baby's condition was not stable. Mr and Mrs A do not accept that it was not possible to identify the onset of their baby's distress, to the point

where she suffered severe asphyxia, until it was too late. They question whether the delay in identifying and responding to her condition led to her death.

Resuscitation training of midwives

The Chief Executive Officer of the regional District Health Board advised me that Ms D attended a neonatal resuscitation training session in July 2000, as did Ms C in October 2000.

Post-mortem report

A copy of the post-mortem report is attached to this report as Appendix 1. In summary, the report stated that the immediate cause of the baby's death was multiple organ failure consistent both clinically and pathologically with severe asphyxia. The report stated that the primary cause of the pathology was not certain. There were two possibilities:

1. an undetected perinatal insult combined with a delay in recognising and treating the baby; or
2. The baby was compromised by an unidentified congenital metabolic abnormality that required resuscitation in the immediate neonatal period, but was not clinically recognised immediately.

The report stated that there was no damage to the baby's organs consistent with trauma to the chest, and asphyxia or collapse could not have been caused by Mr A's description of Ms D's actions when he noted that the baby was not breathing.

Coroner's Inquest

Following the death of the baby, the city Police and Coroner were notified. The city Police investigated the matter on behalf of the Coroner. A Coroner's Inquest was held between 25 and 28 November 2002, with an additional hearing on 1 July 2003. The Coroner's report was released on 7 April 2004. After hearing extensive evidence, the Coroner concluded that the baby died as a result of multiple organ failure in the neonatal period, with the primary cause being undetermined but possibly perinatal asphyxia or congenital metabolic abnormality with superimposed asphyxia.

Dr H noted in his statement to the Police, "There is nothing which really explains what happened."

Independent advice to Commissioner

The following expert advice was obtained from Ms Ann Yates, an independent midwife:

“My name is Ann Yates. ... I am a Registered Nurse and Registered Midwife. I am currently the Midwifery Leader at National Women’s Hospital Auckland. I have been selected by my professional body The New Zealand College of Midwives to act as an expert witness. I have read the case notes of [Mrs A] and the events surrounding the birth of [the baby] on the 14 February 2001. I am being asked to comment on whether they received a reasonable standard of midwifery care.

History

[Mrs A] was 33 years old having her 4th pregnancy. She had had a normal vaginal birth in 1994 of a live boy at full term. Followed by an intrauterine death in 1998 at approximately 24 weeks gestation. [Mrs A] had one further pregnancy in 1999 resulting in a miscarriage at about 12 weeks.

She had initially registered with a midwife in her 4th pregnancy having known her from previous pregnancies. [Mrs A] had been taking Clomiphene to assist fertility and was due on the 8 February 2001. She was noted to be healthy and well but prone to urinary tract infections. She took Folate and low dose aspirin in her pregnancy.

The Midwife referred her to a specialist obstetrician, [Dr H] because of her past history of an intrauterine death followed by a miscarriage. [Dr H] saw her twice, once at 10 weeks gestation and again at 20 weeks. He outlined instruction for repeat ultrasound scans and discharged her into the care of her LMC unless further problems arose.

Her pregnancy continued normally until [Mrs A] encountered problems with a urinary tract infection at 38 weeks gestation. At this stage [Mrs A] decided to change Lead Maternity Carers and contacted [Ms C], another self-employed midwife, to discuss her care. [Ms C] phoned the Midwife and a handover of information took place.

Comment

1. [Mrs A] chose a midwife to be her Lead Maternity Carer. She was entitled to this choice regardless of risk factors under Section 88 Health and Disability Act.
2. Her Lead Maternity Carer referred her to an Obstetrician during the first trimester of her pregnancy. This was an appropriate referral. The Obstetrician did not consider [Mrs A] high risk enough to continue his involvement in her care unless further problems arose.
3. [Mrs A] chose to change Lead Maternity Carers at 38 weeks gestation. This was a convenience matter rather than a clinical issue.
4. [Ms C] and the Midwife undertook a handover of care in order to provide a midwifery service of an appropriate standard and to minimise risk to [Mrs A].

Labour and delivery

13 February 2001 [Mrs A] contacted [Ms C] to tell her she had vaginal bleeding. She was asked to come to Delivery Unit for assessment where her midwife would see her. The assessment revealed a normal 'show' or mucous plug, which comes away in early labour as the cervix changes. A cardiotocograph (CTG) was performed to check the heart rate of the baby. This was shown to the specialist Dr H who had no concerns about the tracing.

[Mrs A] was at this point almost one week past her due date. Her husband [Mr A] was observed to be anxious, and insisted his wife remain in hospital until after the birth. [Mrs A] was not in labour and usually women would be sent home to await labour following a show with no contractions and a normal foetal heart rate. However, [Mrs A] was admitted and later that night began having contractions. Her midwife was called to attend.

[Ms C] again referred to Obstetrician Dr H, who gave the option to do nothing and await normal labour, or artificially rupture [Mrs A's] membranes to accelerate labour. [Mrs A] chose the latter and this was performed at 2148 Hours. [Ms C] noted the colour of liquor to be 'pale light brown, and thin in consistency'.

Comment

The management of the labour by [Ms C] was completely appropriate at this point. She:

1. Was available on a 24 hour 7 day basis.
2. Consulted appropriately with specialist obstetrician.
3. Carried out routine observation normally expected at this stage.
4. Consulted and informed [Mr and Mrs A] of their options and accommodated their wishes.

Meconium Liquor

Approximately 13% of newborn infants are born through meconium stained amniotic fluid. There is widespread varieties of clinical practice in order to manage a potential risk to the baby of meconium aspiration and respiratory distress after birth. This is notwithstanding the possibility that the foetus may have been compromised antenatally and therefore already in a poor state at birth.

A recent multicenter international trial has demonstrated that intubation and suction of apparently vigorous meconium exposed infants do not result in a reduction of respiratory disorders.

Most hospitals have developed protocols for management of meconium exposed infants. National Women's Hospital Newborn Services guideline for Delivery Room Management is as follows:–

1. The Paediatric Resident should be called if there is thick meconium staining or light meconium staining plus foetal distress.

2. All babies with meconium stained 'liquor' should have pharyngeal suction as the head is delivered.
3. If the baby is vigorous at birth (heart rate >100, spontaneous respiration, reasonable tone) there is no need to intubate unless the baby subsequently has poor respiratory effort or early respiratory distress.
4. Intubation should be performed if the baby has moderate or thick meconium and depression at birth or thick meconium without obstetric pharyngeal obstruction.

Therefore if [the baby] was born at National Women's Hospital, there would not have been a requirement for a paediatrician to attend [the baby's] birth.

In my opinion it was reasonable practice for [Ms C] to have not called a paediatrician until [the baby] showed signs of depression after delivery.

Referral Guidelines Section 88

Guidelines for Consultation with Obstetric and Related Specialist Medical Services (Section 88 Health and Disability Act).

These guidelines have been developed in collaboration with the professional Colleges in New Zealand to provide a guide for Lead Maternity Carers in the referral process for pregnancy, birth and postpartum period. They are an accepted guide for best practice. There are three categories of referral.

[Mrs A] had a past obstetric history, which would warrant a score of 2 on the referral guidelines. This was for a previous pregnancy with a Growth Retarded baby. Recurrent miscarriage is also categorised as 2 after three or more miscarriages.

A category of 2 is described as:-

'Lead Carer must recommend to the woman that a consultation with a specialist is warranted. The specialist will not automatically assume responsibility for ongoing care.'

[Ms C] referred appropriately under the recommended guidelines.

[Dr H] states that in his opinion [Mrs A's] pregnancy was normal, with good foetal growth shown in the serial ultrasound scans. He was well informed of [Mrs A's] progress both antenatally and after admission to hospital.

There does not appear to be any barrier in accessing an obstetrician consultation if required. [Dr H] favoured normal labour and birth management under the care of a midwife LMC. There was no request for continuous foetal heart monitoring throughout labour by the obstetrician which would have been usual practice had there been sufficient risks demonstrated antenatally to warrant extra vigilance.

The CTG was used to monitor contractions and foetal heart rate for varying lengths of time through [Mrs A's] labour. [Ms C] used frequent intermittent foetal heart

monitoring when [Mrs A] was in the spa bath or while up walking around. She did not detect any foetal distress during the labour and states she listened during and after alternate contractions.

Comment

The admission CTG was reviewed and signed by [Dr H] at 1450 hours.

Subsequent episodes of cardiograph (CTG) recordings of foetal heart and uterine contractions were mostly unremarkable.

The baseline heart rate of 150 BPM is within normal range, the rate is variable with some episodes of reduced variability not uncommon while babies sleep or when mother takes entonox gas or pethidine in labour.

There were some short, variable deceleration generally interpreted as fairly low risk and very common in active labour.

There were two prolonged decelerations noted in the recording strip where the heart rate appears to drop 30 BPM to around 120 followed by a return to the baseline. One of these decelerations has loss of contact with the heartbeat. The baseline remains the same throughout labour.

Overall, this CTG is non-predictive in that it does not demonstrate the likelihood of a baby about to collapse. Interpretation of such CTG's is sometimes difficult because there are so many opinions about what is normal and what is ominous. Research has demonstrated that even experts have difficulty agreeing on what is an abnormal CTG and what is not and when there is agreement on the CTG, there is further disagreement on what to do about it.

When deciding the best form of foetal monitoring in labour, midwives have to recognise risk factors for the woman antenatally and recommend appropriate monitoring. There is little doubt from the evidence that in pregnancies with recognised high risks, continuous electronic foetal monitoring should be offered and recommended.

However, for healthy women in an uncomplicated pregnancy, the midwife is mindful that the high level of false positive interpretation have been shown to lead to higher Caesarean Section rate and unnecessary intervention.

Reviews of current evidence concludes that:

- There are no differences in the rate of adverse neonatal outcome (umbilical artery acidosis or APGAR score of less than 7 at 5 minutes) or mode of delivery when intermittent electronic foetal monitoring was compared with continuous electronic foetal monitoring.

- Therefore in my opinion it was reasonable practice to use intermittent foetal monitoring on [Mrs A] rather than continuous monitoring.

[Mrs A's] labour became stronger and she was able to cope by using immersion in water and entonox gas. This was normal physiological labour and it is standard midwifery practice to support women throughout labour in this manner. It is common for women to use water in labour to relieve discomfort. [Ms C] took a break while [Mrs A] was in the spa. A hospital midwife covered her during this time.

Most women would be encouraged to remain at home until labour becomes too uncomfortable and would be encouraged to take a shower or a bath. The midwife becomes constant in attendance when the labour is advanced. It was not unreasonable to have [Mrs A] in the bath in early labour. [Mrs A's] husband [Mr A] was present at the time and the contractions were recorded as mild and [Mrs A] coping well.

At 0200 hours [Mrs A] requested to be examined for progress. A vaginal assessment by [Ms C] revealed [Mrs A] was 8cms dilated – an indication that birth was imminent and that [Mrs A] was making excellent progress in labour. [Mrs A] was contracting every 3 minutes in strong labour and draining yellow clear liquor. Foetal heart rate was 156 beats per minute; [Mrs A] was using entonox gas to assist with painful labour and sleeping between contractions.

She continued electronic foetal monitoring until 0440 hours. There were no further foetal heart rate recordings documented until the baby was born at 0605 hours.

[Ms C] states in her brief to the police that she 'listened to foetal heart rate through and after alternate contractions and it was always within normal limits'.

There was no explanation for why the CTG was removed, however, it is common to use frequent intermittent auscultation in the absence of foetal distress. Especially in the later stage of a normal labour when women are unable to remain still and adequate recording is difficult to achieve. This would normally be documented in the clinical notes as heart rate and time listened to.

It is clear that [Ms C] did not perceive there was any foetal distress evident.

Meconium present in the early part of the labour was thin and pale – common in post-mature babies; there was no evidence of fresh thick meconium, an indication to monitor closely with continuous foetal heart monitoring and referral to paediatricians prior to delivery.

It would not be usual practice to refer to a paediatrician for thin pale meconium liquor in the absence of any other risk factors.

Neither [Ms C] nor [Dr H] believed there were any features to have behaved differently.

During the birth of [the baby] a second midwife was called to assist. Most midwives prefer to have assistance at this point and hospitals are required to make assistance available on request for short breaks for the midwife and when extra help is indicated at delivery.

This was provided by another independent midwife [Ms D] who was attending her own client and answered the call bell [Ms C] had rung. The hospital midwives were busy and so [Ms D] assisted her colleague.

The birth proceeded normally, the cord was noted to be around the baby's body but did not require cutting until after baby was born. It is extremely common for the cord to be wound around the baby. The baby was lifted on to the mother's abdomen, [Ms D] states there was no meconium present at delivery.

The baby was rubbed down, she gasped and cried upon stimulation.

[Ms C] states she felt the baby's heart rate by touching her chest. The heartbeat was strong and regular at approximately 130–140 beats per minute.

The baby cried a second time, was wrapped in a towel and handed to her father. [Ms C] returned to attending [Mrs A].

There was no description of the baby's colour or tone at delivery. Neither midwife had any apparent concerns at this point. A short time after being given his baby to hold, [Mr A] said to [Ms D] that the baby was not breathing.

[Ms D] states that she investigated this by placing two fingers over the baby's chest to palpate a heart rate. This was observed by [Ms C] who continued to attend [Mrs A].

[Mr A] called out a second time that the baby was not breathing. [Ms D] and [Ms C] stated that the baby's colour was changing from pink to a dusky colour, [Ms D] took the baby from [Mr A] and carried her to a nearby room to resuscitate her.

The APGAR score is recorded at 4 out of 10 (4/10) at one minute and 2 out of 10 at (2/10) 5 minutes. APGAR's are a measure of heart rate, respiratory rate, reflex irritability, muscle tone and colour. These are assessed at one and five minutes and sometimes again at 10 minutes. They are a rapid assessment tool for describing the state or condition of the baby after delivery. An APGAR score of less than 6 at one minute would generally be a strong indication that the baby was requiring assistance or stimulation. A deteriorating APGAR score at 5 minutes is an indication that the baby needs immediate resuscitation.

Many babies at delivery are dusky or blue in colour, which would normally change to pink quite rapidly when the baby breathes or cries. A normal picture at delivery would be a baby who gasps and cries within one minute, who is moving arms and legs vigorously, who establishes breathing spontaneously and who maintains colour, respiration, heart rate and tone without stimulation. Sometimes it is necessary to

provide some stimulation at the time of the delivery when the baby is slow to initiate breathing. This would be to physically rub, handle or towel down the baby, blow gently on the baby's face, and sometimes gentle suctioning of the baby's oropharynx to remove any birth debris. Suctioning the baby's airways is not routine except where thick meconium liquor is anticipated from a distressed baby.

In this instance there was no indication to suction [the baby's] airways until she collapsed after delivery. There was no meconium present in her airways upon examination by paediatrician.

She was reported to have commenced breathing spontaneously, had cried and moved her limbs initially. Neither midwife believed she was compromised until [Mr A] noticed the baby was not breathing and both midwives observed her colour to have changed to a dusky colour.

At this point, [Ms D] acted quickly and appropriately to commence resuscitation and obtain paediatric assistance. It is unclear what the time delay was between birth and this happening.

Comment

If at one minute the baby was compromised enough to have a APGAR score of 4/10 this would have been an indication to commence resuscitation of [the baby] immediately and to gain assistance if the situation did not improve with basic standard intervention.

[The baby] was described as having a good heart rate, moving her limbs, crying, and pink in colour. Her APGAR's would have been more like:

Heart Rate	2
Respiratory	2
Colour	1 or 2
Tone	1 or 2
Reflex Irritability	?
A minimum total of	6

It is unlikely either midwife would have handed a compromised baby to its father to hold while they did other midwifery tasks. It is also unlikely that the midwives would have had time to fully deliver [the baby], wipe her down with a towel, hand her to her

mother, clamp and cut the umbilical cord, wrap the baby in a fresh towel and hand to [Mr A] in one minute.

In my opinion either the APGAR score at one minute is incorrect (based on the description of [the baby] after delivery), or the timing of assessment of the APGAR score was later than one minute.

The actions of [Ms D] were thought by [Mr A] to be sternal chest compressions such as you would perform during CPR. Ms D denies this took place while he was holding [the baby]. She states she was placing her fingers over the baby's chest to feel for her heartbeat, which she noted, was probably at around 140 beats per minute.

Sternal chest compression while a baby is being held by another person would not be appropriate. The basics of CPR [Ms D] are taught to all midwives and most midwives attend updates and refresher courses made available at hospitals where they can practise on mannequins and are certificated by trained CPR instructors. [Ms D] states she attends CPR education forums and denies performing chest compression whilst [Mr A] was holding his daughter.

Both midwives maintain they responded both times that [Mr A] stated the baby was not breathing. [Ms D] took the baby from [Mr A] on the second occasion and transferred her to another room containing resuscitation equipment. She called for assistance from midwife [Miss F], who assisted with attempts to revive [the baby].

The baby is described as having a heart rate of 120 per minute, there was no response to suctioning the airway of some blood stained fluid, she was becoming paler with a decreasing heart rate, oxygen was administered via a face mask with intermittent positive pressure. This was appropriate care.

Paediatric assistance was called for and full CPR commenced before arrival of the Paediatric medical officer at approximately 0615 hours. The midwives continued to assist with resuscitation until after the Senior Paediatrician [Dr G] arrived at 0630 hours.

Comment

Midwife [Miss D] acted appropriately when [the baby] collapsed after delivery. Her actions demonstrate a knowledge of CPR procedures and referral in a paediatric emergency situation.

Midwife [Ms C] continued to provide care to [Mrs A]. This entailed delivery of the placenta and membranes. Unfortunately [Mrs A] sustained a postpartum haemorrhage at 0625 hours requiring extra assistance of another midwife. [Mrs A] was given syntocinon intravenously. A drip was inserted and an infusion commenced. When the bleeding settled, the notes record that [Mrs A] was given clean bedding and made comfortable after which [Ms C] left [Mrs A] to go and establish what was happening with baby.

Comment

[Ms C] demonstrates appropriate and safe midwifery care following the collapse of [the baby]. Her management of [Mrs A] during this time would have been difficult as both women would have been extremely anxious for the baby's wellbeing, but unable to assist or even observe events due to [Mrs A's] own condition at the time. This would have been further complicated by [Mrs A] experiencing a postpartum bleed, which was handled in a timely and competent manner by [Ms C].

It is important in such circumstances for two midwives to assume responsibility for mother and baby in the event of either developing complications which is in fact what happened.

Summary

Although there were instances during labour, which may have indicated a deviation from normal, none of these were predictive or severe enough to have reacted any differently.

From all accounts, this baby was born normally, was initially OK and then deteriorated suddenly and did not recover despite reasonable and timely attempts at resuscitation. The faint presence of old meconium during early labour and episodes of foetal heart irregularities were not in my opinion severe enough to have altered the decision making of the midwives.

[Ms C] was vigilant in her attendance, she referred appropriately antenatally to a specialist. Documentation of foetal heart recordings observed by intermittent auscultation should have been documented in the clinical notes. (Though these may have been recorded on a partogram which was not present in any of the notes I reviewed.)

Contemporary literature does not support routine continuous heart monitoring during an uncomplicated labour. However, this does not negate the requirement for adequate intermittent auscultation and documentation of findings.

In the active stages of labour, this would occur after a contraction for a minimum of 60 seconds and at least every 15 minutes in the first stage of labour and every 5 minutes in the second stage.

I am satisfied that foetal heart monitoring took place frequently in the later stage of labour. [Mrs A] and [Ms C] both describe frequent monitoring of [the baby's] heart rate before birth.

It is not uncommon for a baby to appear vigorous at birth and then deteriorate. It is not always possible to predict which babies are likely to do this. Babies who demonstrate signs of foetal compromise antenatally and in labour would be routinely managed in a different way and almost certainly have included a discussion with a paediatrician and presence at delivery. This was not the case for [this baby] as there was insufficient warning that the baby would later collapse.

Both obstetrician and midwife caring for [Mrs A] believed on the clinical evidence that her care was appropriately managed as a normal labour and birth with intermittent auscultation of foetal heart rate and the availability of additional help if required.

When [the baby] was born, although slow initially, she revived and showed sufficient colour, active heart rate and breathing for the experienced midwife [Ms D] to be reassured. When the baby began to change colour [Ms D] was prompt in attending and carried out appropriate neonatal resuscitation measures.

In my opinion [Ms C] and [Miss D] demonstrated a reasonable standard of midwifery care.”

In response to specific questions posed to her, Ms Yates advised:

“1. Given her previous difficulties and the late stage of her labour, was [Ms C] an appropriate choice to be [Mrs A’s] LMC?”

All women are entitled to choose their LMC. The LMC is responsible for appropriate care, advice and referral to specialists. Her previous difficulties required referral antenatally, which took place accordingly. The specialist made a decision that [Mrs A] was OK to be cared for by a midwife LMC.

Regardless of LMC – all women receiving care in a New Zealand Maternity Hospital have midwifery care throughout labour and delivery with or without the assistance of a medical person.

By ‘late stage of labour’ I assume this to mean post dates, or overdue. Being overdue does not require handover from midwifery care as postmaturity >1 week is extremely common.

2. [Mrs A] was left unattended in the spa bath. Is this acceptable practice by a midwife?

[Mrs A] chose to commence her labour in hospital rather than go home. It is common for midwives to direct women to take a bath at home in early labour to relieve discomfort prior to the midwife arriving. Indeed, some women spend many hours in water during labour with or without midwives in attendance.

In this instance [Ms C] put [Mrs A] in the spa bath in early labour. The contractions were recorded as mild and [Mrs A] coping well, with husband [Mr A] in attendance. [Mrs A] had not had any analgesic or medication, which would have put her at risk of drowning. [Ms C] took a break at this point. A hospital midwife provided cover. This would not necessitate her presence in the room continuously. Under the circumstances outlined, it was completely appropriate for [Mrs A] to be left unattended for periods of time by her midwife.

3 Was there any indication that [the baby] was distressed prior to or during delivery. What action should [Ms C] have taken?

When foetal distress occurs during labour, there are two main features that manifest themselves. One is presence of meconium in the liquor, the second is changes to foetal heart rate.

Labour is recognised as a stressor for babies, it is not unusual to see foetal heart irregularities in a normal labour with a healthy vigorous baby. For this reason false positive diagnosis of foetal distress leads to a high rate of Caesarean Section where there is an apparently uncompromised baby delivered. There are recognised foetal heart rate patterns that midwives and obstetricians would all agree would require further investigation, or greater vigilance.

However, there are many instances where CTG recordings are not predictive of a poor outcome. This creates controversy over what is unreassuring and further what to do about it. In my experience this would happen daily on busy maternity units.

In this instance, there were foetal heart irregularities which some midwives may have deemed as within the realms of normal and others may have pursued further obstetric opinion. Opinion amongst my own colleagues was divided. The debriefing comments from [Dr H] indicate that he would not have done anything differently on this evidence, and in hindsight the issue of meconium liquor was negligible because at no time was there fresh meconium liquor draining or present during delivery.

I would conclude on this point that only with hindsight could a midwife have predicted this outcome on the basis of the CTG in labour. To state that further action prior to and during labour could have saved [the baby] would be highly speculative.

Monitoring of [Ms A's] labour was in my opinion carried out appropriately with regular intermittent foetal heart monitoring.

4. After [the baby] collapsed – [Mrs A] was left in the delivery room fully exposed, distressed and with afterbirth on the floor?

It is likely that after [Mrs A's] care was completed and she was 'made comfortable' [Ms C] left the room to establish what was happening to [the baby]. This would have been some time after [Ms D] had left with the baby, as [Mrs A] had still to deliver the placenta and subsequently needed management of a postpartum haemorrhage.

It is usual practice to leave the delivery room after delivery when patients are comfortable for short periods of time to complete other tasks.

The presence of after birth on the floor is highly unlikely, though following a haemorrhage it may have been possible that some blood was on equipment and floor area.

Midwifery training has a large component of cultural safety and sensitivity which has become fundamental to our practice, regardless of whether our patients are Maori or not. Issues of privacy, modesty, and consideration are regarded with high priorities in the care of women and integral to any women's health service.

[Ms C] denies leaving [Mrs A] in this state and has documented making her comfortable before going to see if [the baby] was all right. There is no explanation for why [Mrs A] believes otherwise other than the possibility that the presence of blood on the floor may have caused alarm. As they mistakenly thought it to be the afterbirth.

5. *Should [the baby's] airways have been checked immediately after delivery?*

If a baby is attempting to breath and cry immediately after delivery and appears to be uncompromised, then suction and examination of the airways is unnecessary and can cause other complications.

When [the baby] collapsed her airways were viewed and cleared of fresh blood. It would have been appropriate to have viewed her airways immediately [the baby] demonstrated she was unable to maintain respiration. This did not occur for some minutes as [the baby] initially breathed and acted spontaneously.

In the absence of obvious foetal distress, viewing the airways would not be routinely performed.

6. *Was the treatment provided by [Ms D] when [the baby] was noted not to be breathing appropriate? (chest compressions) What other actions could or should she have taken?*

When [the baby] was noted to be turning dusky and not breathing, [Ms D] responded by palpating an apex beat – placing her fingers over the baby's chest to feel for heart rate. She denies that this was chest compressions, when it was clear that the baby needed resuscitation, [Ms D] moved her to an area where resuscitation equipment was set up and assistance was called. Had [the baby] not established respiration initially the resuscitation would have been commenced earlier. I am satisfied that [Ms D] had knowledge and skills sufficient to carry out appropriate resuscitation.

7. *Should Paediatric assistance have been sought earlier?*

In my opinion there was insufficient evidence of foetal distress prior to delivery to have warranted calling a paediatrician. The paediatrician was called when it was clear that [the baby] was not able to maintain colour and breathing.

8. *Photographs taken during resuscitation – is this usual? Was the equipment put together properly, do the photographs portray anything unusual?*

Polaroid or digital photos are quite often taken of babies who are separated from their mothers at birth. This is to give the mother an instant impression of her infant when she is unable to be present. It is fairly routine in most newborn units.

The photos show a baby wearing a pink bonnet lying on her back. She appears to have an oral tube, heart monitor leads, an umbilical catheter, and possibly a urinary bag attached to her body. There is equipment strapped to her chest for a ventilator. In three of the photos a Laerdal bag and mask is on the resus table but not in use. This is usual in anticipation of needing to disconnect machinery during transport to have a manual device to assist or maintain ventilation. It would not be used simultaneously with the ventilator machine.

The baby appears to be ventilated by the machine. Given the presence of the umbilical catheter and monitoring equipment, this is unlikely to have been taken before the presence of the paediatrician to Delivery Unit at 0630hrs. The baby is attached to almost every monitor or piece of equipment routinely used in a neonatal intensive care unit.

I cannot see anything unusual about these photos.

9. *[Mrs A] states that [Ms D] ripped a plaster from her arm resulting in blood running on to the floor and her clothing.*

[Ms D] states she had no further interaction with [Mrs A] following the resuscitation of [the baby]. The person who removed the plaster was someone else. Whoever removed the plaster should have taken measures to cover the puncture site and remove the plaster with reasonable care.

Comments by [Dr I]

1. *[Ms C] did not seek specialist involvement in [Mrs A's] pre-birth management and labour.*

This is clearly incorrect as [Dr H] and [Ms C] have both given evidence to the contrary.

2. *Did not recognise the clinical importance of meconium in the waters?*

This is covered in the main body of my opinion. That is that the meconium present was so faint that it could not unequivocally be related to foetal distress. Meconium was not observed at the birth or during subsequent resuscitation. Mrs A's obstetric history did not warrant a handover to obstetric care, antenatally or in labour.

3. Failed to recognise the CTG tracing showed irregularities?

Most CTG's commonly show irregularities. This CTG in the context of a normal full term pregnancy with a well grown baby and normal labour, would be seen to have episodes of unreassuring aspects, followed by predominantly normal tracing.

4. Failed to assess baby's condition by performing continuous CTG monitoring during the last 2 hours?

Not performing continuous monitoring does not mean the labour was unmonitored. [Ms C] states that she continued to listen to the foetal heart during and after alternate contractions. She did not detect any heart rate abnormalities. [Ms C] failed to provide adequate documentation of foetal heart rate recordings during this time.

5. Failed to recognise [the baby's] one minute Apgar score was low, that [the baby] was distressed and that specialist assistance was needed.

If [the baby] was pink, breathing, moving her limbs and had a normal heart rate, there would have been no indication to call for assistance until [she] deteriorated and became dusky.

In my opinion either the description of [the baby] was incorrect at one minute or the Apgar score was assessed at a later time.

Neither midwife perceived [the baby] to be compromised immediately after delivery. Both midwives focussed their attention on baby and mother during the delivery and period following delivery. There were no other events that were likely to create a distraction at that time. Both midwives were experienced, and in particular one very experienced midwife.

In my opinion, it is reasonable to accept the description of events that [the baby] revived initially after delivery, and collapsed a short time afterwards.

My sincere condolences to [Mr and Mrs A] for the loss of their baby daughter."

References

Section 88 Maternity Services – Appendix 1, 'Guidelines for Consultation with Obstetric and Related Specialist Medical Services' (2000).

'The Use of Electronic Foetal Monitoring', Evidence Based Clinical Guideline Number 8, Royal College of Obstetricians and Gynaecologists (January 2002).

'Delivery Room Management of Apparently Vigorous Meconium Stained Neonatal, Results of the Multicenter, International Collaborative Trial'. (Wiswel et al January 2000).

National Women's Hospital Newborn Services, 'Guidelines for Management Meconium stained liquor and Meconium Aspiration'.

Code of Health and Disability Services Consumers' Rights

The following Right in the Code of Health and Disability Services Consumers' Rights is 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.*
-

Professional Standards

The 'Code of Conduct for Nurses and Midwives' (Nursing Council of New Zealand, 1998) states:

"Principle 2.9

The nurse or midwife accurately maintains required records relating to nursing or midwifery practice."

Opinion

Summary

The standard of proof for finding a breach of the Code is the balance of probabilities, ie, as Commissioner I must be “of the opinion” that it is more likely than not “that any action that was the subject-matter of the investigation was in breach of the Code” (Health and Disability Commissioner Act 1994, s 45).

In my opinion Ms C did not breach the Code in her prenatal management of Mrs A or in her monitoring of the baby during labour (for the reasons set out below). However, the conflicting accounts of events and the absence of clear records means that there is insufficient evidence for me to make a finding whether or not the baby received care of an appropriate standard following her birth.¹⁶ Further investigation at this stage will not assist to determine the matters. Accordingly, I have decided to take no further action on the issue of the management of the baby following her birth, in accordance with section 37(2) of the Health and Disability Commissioner Act 1994 (for the reasons set out below).

No Breach – Ms C

Prenatal care

Specialist consultation

During the early stages of Mrs A’s pregnancy the midwife referred her to Dr H, a consultant obstetrician and gynaecologist, because of her obstetric history. Mrs A consulted Dr H on 18 July 2000. He advised her to have regular scans, and prescribed folic acid and low-dose aspirin.

Following a scan on 19 September 2000, Mrs A consulted Dr H again. Because everything appeared normal on the scan, Dr H discharged Mrs A to the care of the midwife, with instructions for regular scans and to contact him if any problems arose.

Mrs A had ultrasound scans on 30 October and 7 December 2000, and on 11 January 2001. Due to concerns about the midwife, Mrs A changed midwives at approximately 38 weeks’ gestation. Ms C was her new midwife. Mrs A informed Ms C of her obstetric history, and that she wanted a midwife who would work with Dr H. Ms C was aware of Dr H’s involvement with Mrs A’s pregnancy. Ms C reviewed Mrs A on 29 January, 5 February, and 11 February 2001. At each visit, mother and baby were noted to be well.

¹⁶ For example, the assessment of the baby’s condition on birth, the monitoring of the baby’s condition in the moments after birth, and the response to the baby’s deteriorating condition.

Mrs A presented at the regional hospital on 13 February with vaginal bleeding (which was later confirmed to be a “show”). A CTG tracing was taken. Ms C contacted Dr H at 3.35pm to discuss Mrs A’s vaginal bleeding. Dr H reviewed and signed off the CTG tracing.

Dr H reviewed Mrs A at 5pm, and did not note any concerns.

Ms C consulted Dr H again later in the evening, because Mrs A was experiencing contractions. Dr H advised that Mrs A could either receive pain relief with an induction the following morning, or an artificial rupture of membranes could be performed to establish labour. A decision was made to rupture Mrs A’s membranes.

Ms C acted appropriately in her prenatal management of Mrs A. When she took over care at 38 weeks’ gestation, she was aware of Mrs A’s obstetric history and Dr H’s involvement. As noted by my advisor, there was no requirement for Ms C to contact Dr H to consult on Mrs A’s condition until Mrs A was admitted to hospital on 13 February. Following her admission on 13 February, Ms C consulted Dr H appropriately. Mrs A’s obstetric history did not warrant an antenatal handover to obstetric care.

I am guided by my expert advice. In my opinion, Ms C did not breach Right 4(1) of the Code in relation to her prenatal management of Mrs A and specialist involvement.

Management during labour

Presence of meconium

The timing of the artificial rupture of Mrs A’s membranes is relevant only insofar as it relates to an assessment of Ms C’s response to the meconium present in the liquor when the membranes were ruptured. The evidence supports a finding that the artificial rupture of membranes occurred at 10.45pm on 13 February, for the following reasons:

- The clinical progress notes originally recorded the artificial rupture of membranes as occurring at 10.45pm, but were subsequently amended;
- A note on the CTG tracing indicates that the artificial rupture of membranes took place at 10.45pm;
- Mr A recalled being present at the time the membranes were ruptured. Mr A was not present at 9.45pm, but was present at 10.45pm;
- Ms F recalled that she came on duty at 10.45pm, at which time Ms C informed her that there was meconium in Mrs A’s liquor, and she required close monitoring; and
- Ms C recalled that following the artificial rupture of membranes, she took a 45- minute CTG tracing to monitor the baby. A CTG tracing was taken between 10.45pm and 11.30pm. There is no CTG trace between 9.45pm and 10.45pm.

In my opinion it is likely that Mrs A’s membranes were ruptured at 10.45pm. After the artificial rupture of the membranes, Ms C noted that the amniotic fluid was pale brown in colour and thin in consistency. She was unsure whether the fluid was pale brown because of old blood or thin meconium.

Meconium is otherwise known as foetal excrement. The presence of meconium in the liquor can indicate that the foetus is distressed. The issue is whether Ms C recognised that the presence of meconium in Mrs A's liquor indicated that the foetus might be distressed, and whether she responded appropriately.

Ms C did not contact Dr H for specialist input when she noted the meconium. However, she was aware that the presence of meconium in the liquor meant that she needed to monitor Mrs A and the baby closely. This is supported by:

- The fact that she told Mrs A that meconium was present and can mean the baby is distressed; and
- Ms F's recollection that when she came on duty at 10.45pm, Ms C informed her that Mrs A's liquor was meconium-stained, and she (Ms C) therefore wanted to keep a "good eye" on her.

Ms C monitored the baby for 45 minutes following the artificial rupture of membranes. The CTG tracing ran from 10.45pm to approximately 11.30pm, when it was discontinued to allow Mrs A to mobilise and establish labour. The CTG tracing between 10.45pm and 11.30pm showed a good variability with a baseline of 150bpm and accelerations to 160bpm. Ms C was reassured by the CTG that the baby was not distressed.

My advisor informed me that approximately 13% of newborn infants are born through meconium-stained amniotic fluid. A variety of clinical practices are used to manage a potential risk to the baby of meconium aspiration and respiratory distress after birth. Most hospitals have developed guidelines for management of meconium-exposed infants. The National Women's Hospital Newborn Services guideline for Delivery Room Management states:

1. The Paediatric Resident should be called if there is thick meconium staining or light meconium staining plus foetal distress.
2. All babies with meconium-stained "liquor" should have pharyngeal suction as the head is delivered.
3. If the baby is vigorous at birth (heart rate >100, spontaneous respiration, reasonable tone) there is no need to intubate unless the baby subsequently has poor respiratory effort or early respiratory distress.
4. Intubation should be performed if the baby has moderate or thick meconium and depression at birth or thick meconium without obstetric pharyngeal obstruction.

The meconium present in the early part of Mrs A's labour was thin and pale. There was no evidence of fresh thick meconium, which is common in post-mature babies. There were no additional indications of foetal distress. I acknowledge Mr and Mrs A's concern that the presence of thin meconium in the liquor when the membranes were ruptured may have been a "warning sign" that the baby's condition was compromised. However, according to the above guidelines, in the presence of light meconium staining and the absence of other indicators to demonstrate foetal distress, it was reasonable practice for Ms C not to call a paediatrician prior to or during the baby's delivery. Ms C was aware that thin meconium

may indicate foetal distress, and accordingly monitored the baby with the CTG until she was satisfied that the baby was not distressed.

I also acknowledge Dr I's comment that a specialist should have been contacted when meconium was detected in the liquor. However, I note:

- National Women's Hospital, the regional public hospital, and the National Referral Guidelines for Maternity Services do not require consultation with a specialist, or a paediatrician to be present at birth in the presence of thin meconium; and
- in assessing whether Ms C's actions were reasonable, I must assess her actions on the basis of what a reasonable midwife would have done when faced with a similar situation. In order to make that assessment, I must be guided by the advice of a peer of Ms C – ie, another midwife. My expert advisor is a midwife and a peer of Ms C; Dr I is not. I cannot assess Ms C's actions by reference to the opinion of a medical practitioner who is not her peer.

I accept my expert advice that Ms C acted reasonably in the circumstances in not seeking specialist assistance when meconium was detected, but instead monitoring mother and baby closely. In my opinion Ms C did not breach Right 4(1) of the Code with respect to her actions on noting the presence of meconium in Mrs A's amniotic fluid.

Monitoring of the baby's heart rate during labour

When Mrs A was admitted to the regional public hospital, a CTG tracing was taken, which was reviewed and signed by Dr H at 2.50pm.

Further CTG tracings were taken between approximately 3.20pm and 3.50pm, and 10.45pm and 11.30pm on 13 February, and 12.28am and 1.15am, and 1.30am and 4.10am on 14 February. Mr and Mrs A are concerned that the latter tracings appear to be from a different CTG machine and do not belong to Mrs A. They advised that a tracing was not taken between 12.28am and 1.15am because Mrs A was in the bath at that time, and Mr A does not recall a trace being taken after 3.30am.

It is very difficult to reconcile Mr and Mrs A's recollection with the CTG tracings provided during my investigation. However, I have no reason to believe that the tracings have been falsified in any way. I am satisfied that the tracings provided are those of Mrs A. As noted by Ms Yates in the course of the Coroner's Inquest, the tracings are consistent with being from the same mother and baby, and it is not unusual for a CTG machine to be changed.

Ms Yates advised me that the CTG recordings for Mrs A and the baby were mostly unremarkable. The baseline heart rate of 150 beats per minute was within normal range, and the rate was variable with some episodes of reduced variability, which are not uncommon while babies sleep or when the mother takes Entonox gas or pethidine in labour. There were some short, variable decelerations, which are generally interpreted as fairly low risk and very common in active labour. Ms Yates also advised that there were two prolonged decelerations noted in the recording strip where the heart rate appeared to drop to around 120 beats per minute followed by a return to the baseline. One of these decelerations

included loss of contact with the heartbeat. The baseline remained the same throughout labour.

Ms Yates stated that, overall, the baby's CTG is non-predictive in that it does not demonstrate the likelihood of a baby about to collapse. She explained that interpretation of CTGs such as this is sometimes difficult because there are so many opinions about what is normal and what is ominous.

Ms Yates advised that, in this baby's case, there were foetal heart irregularities that some midwives might have deemed to be within the realms of normal and others might have considered required further obstetric opinion. Opinion amongst Ms Yates' own colleagues was divided.

Research has demonstrated that even experts have difficulty agreeing on what is an abnormal CTG and, when there is agreement on the CTG, there may be disagreement on what to do about it. Such disagreement is evident in this case by the contrasting opinions of Dr I and Dr H. Dr I advised the Coroner that at the time the CTG tracing was discontinued, the baby's heart rate was decelerating – it dropped by approximately 30% shortly before the CTG tape ran out (I note that Dr I acknowledged to the Coroner that he was not an expert on CTGs). However, Dr H advised the Coroner that the tracings were normal, with no decelerations, and there was no 30% drop in baseline. Dr H indicated that he would not have done anything differently on the evidence of the CTG tracings.

My advisor informed me that the CTG tracings did not indicate that the baby was on the verge of collapse. She stated that only with hindsight could a midwife have predicted the baby's outcome on the basis of the CTG taken during Mrs A's labour. My role is to assess whether Ms C acted reasonably in the circumstances she faced at the time. That assessment must be free from the influence of hindsight bias. I accept my advice that the CTG tracings were mostly unremarkable and did not indicate that the baby was distressed and on the verge of collapse. Ms C acted appropriately on the basis of the CTG tracings.

After the CTG was discontinued at 4.10am, Ms C listened to the foetal heart rate by intermittent monitoring between alternate contractions. She did not make any records of the foetal heart rate in the notes, but recalled that the baby's heart rate was always within normal limits, and there was no foetal distress. Mr and Mrs A are concerned that Ms C discontinued the CTG, and believe that had continuous foetal heart monitoring by CTG taken place in the last two hours of labour, Ms C may have detected that the baby was distressed and required assistance.

When deciding the best form of foetal monitoring in labour, my advisor stated that midwives have to recognise risk factors for the woman antenatally and recommend appropriate monitoring. There is little doubt that in pregnancies with recognised high risks, continuous electronic foetal monitoring should be recommended. However, for a healthy woman in an uncomplicated pregnancy, the midwife is mindful that the high level of false positive interpretations have been shown to lead to a higher Caesarean section rate and unnecessary intervention.

Ms Yates' review of current evidence concluded that there are no differences in the rate of adverse neonatal outcome or mode of delivery when intermittent electronic foetal monitoring is compared with continuous electronic foetal monitoring. While there is no explanation for why the CTG was discontinued at 4.10am, it is common to use frequent intermittent auscultation in the absence of foetal distress, especially in the later stage of a normal labour when women are unable to remain still and adequate recording is difficult to achieve. It was therefore reasonable practice for Ms C to use intermittent foetal monitoring on Mrs A rather than continuous monitoring. It is speculative to say that the baby may have been distressed in the last two hours of labour and that, if she was, CTG monitoring between 4.15am and 6am would have identified that.

I accept my expert advice that Ms C appropriately monitored the baby's heart rate during Mrs A's labour. Accordingly, in my opinion Ms C did not breach Right 4(1) of the Code with respect to her monitoring of the baby's heart rate.

Spa bath

Mr and Mrs A complained that Ms C left Mrs A unattended while she took a spa bath on the night of her admission to a regional public hospital. Mrs A chose to commence her labour in the hospital rather than go home. Ms Yates advised me that it is common for midwives to direct women to take a bath at home in early labour to relieve discomfort prior to the midwife arriving. In this instance Ms C put Mrs A in a hospital spa bath during early labour. The contractions were recorded as mild and Mrs A appeared to be coping well. Mrs A had not had any analgesia or other medication that would have put her at risk of drowning. There was a bell in the spa bath room for Mrs A to call for assistance, if required. After seeing Mrs A into the spa bath, Ms C took a break and asked Ms D, the hospital midwife, to provide cover. Ms Yates advised that in these circumstances it was appropriate for Mrs A to be left unattended in the spa bath while Ms C took her break.

I am guided by my expert advice. In my opinion, Ms C did not breach Right 4(1) of the Code with respect to her failure to attend Mrs A while she was in the spa bath.

Management following the birth of the baby

Leaving the delivery room

Shortly after the baby was born, Ms D took her to the resuscitation room. Ms C remained in the delivery room with Mrs A to deliver the placenta and manage a subsequent post-partum haemorrhage. It was only after attending to these matters that Ms C left the room to establish what was happening to the baby. Ms Yates advised me that when patients are comfortable it is usual practice to leave the delivery room for short periods of time after delivery to complete other tasks.

Mr and Mrs A complained that when Ms C left the room, Mrs A was fully exposed and there was afterbirth on the floor. Ms C denies leaving Mrs A in this state. Ms Yates stated that it was unlikely that afterbirth was left on the floor, although it is possible that some blood was on the floor as a result of Mrs A's post-partum haemorrhage.

While I am unable to determine what efforts Ms C took to clean Mrs A and the delivery room before leaving to check on the baby, I am satisfied that Ms C acted appropriately. Mrs

A was clearly distressed at not being completely cleaned up and being left exposed, but these were exceptional circumstances. Given that the baby had stopped breathing and had been taken to the resuscitation room, Ms C was understandably anxious to check on the baby's condition and, in doing so, acted reasonably. In my opinion, Ms C did not breach Right 4(1) of the Code with respect to her alleged failure to clean and cover Mrs A.

No further action – Ms C

Management during labour

Ms C's response when Mrs A screamed with pain

Mrs A stated that during the late stages of delivery she became frightened and started to scream uncontrollably. She advised that Ms C yelled, "That's enough of that carry on," and that after this she calmed down. Mr A complained that Ms C yelled in a domineering manner. Ms C stated that she did not reprimand Mrs A, but attempted to give her encouragement. I am unable to reconcile the statements of Mr and Mrs A and Ms C, and do not believe that further investigation will assist in resolving this matter. Accordingly, I have decided to take no further action on this matter.

Management following birth

Cutting of umbilical cord and disposal of placenta

Prior to delivery Mr and Mrs A told Ms C that they did not want to cut their baby's cord or keep the placenta. After her delivery Ms C asked Mr and Mrs A whether they wanted to do so because some parents change their mind during the birthing process. It appears that Mr and Mrs A interpreted Ms C's offer as an indication that she had not listened to them. I do not intend to take any further action on this matter, but suggest that Ms C keep this in mind in her future practice.

No further action – Ms C and Ms D

Mr and Mrs A do not accept that it was not possible to identify the onset of the baby's distress before she suffered severe asphyxia. The outstanding question for Mr and Mrs A is why their baby's distress was not noticed in time for successful resuscitation to take place. I am satisfied that there was no evidence prior to delivery that their baby was a distressed baby likely to collapse. However, the evidence of their baby's condition at birth and in the five minutes after birth (before resuscitation was commenced at 6.10am) is too inconclusive for me to determine whether there was a delay in recognising and responding to the baby's condition. Sadly, for Mr and Mrs A this means that their question – whether a delay in recognising their baby's condition contributed to the outcome in this case – cannot be

answered. However, I make the following comments about the management of their baby following her birth.

Management of the baby following birth

Immediate assessment of the baby's condition

Whether Ms C and Ms D adequately managed the baby immediately following her birth is dependent on what the baby's condition was at birth. If the baby's condition is accurately reflected by the one minute APGAR score recorded in the labour summary as four, then clearly Ms C and Ms D did not adequately manage the baby following delivery – the baby should not have been given to Mr A, but should immediately have been taken to the resuscitation room for assessment of her airways and resuscitation, and paediatric assistance requested. However, if the baby's condition on birth and at one minute was as described by Ms C and Ms D (and to some extent, Mr and Mrs A) in their evidence to my Office and the Coroner – that the baby was essentially pink, but peripherally blue, her heart rate was strong, she cried and moved her hand – then Ms C and Ms D acted reasonably in cutting the cord, drying the baby, and letting Mr A hold her while they waited for the delivery of the placenta.

It is impossible to reconcile the record of the one minute APGAR score with the recollections of Ms C and Ms D of the baby's condition on delivery and at one minute of age. As noted by my advisor, it appears that either the one minute APGAR score was incorrect, or the timing of the assessment of the APGAR score was later than one minute.

I cannot take any further action on the question whether Ms C and Ms D responded appropriately to the baby's condition at birth, because of the difficulties noted above in determining the baby's condition. Further investigation will not provide any assistance with this matter. However, I make the following comments.

First, if a baby is assessed to have a one minute APGAR score of four, resuscitation should be commenced immediately, and paediatric assistance sought. There was a suggestion that the baby was gasping at birth. I draw Ms C's and Ms D's attention to Dr J's statement to the Coroner that he would have significant concerns about a baby who is gasping at one minute of age and cyanosed, and that a baby in that condition requires further intervention.

Secondly, the lack of clear and contemporaneous written information of the exact nature of the baby's condition on birth is concerning. Not only does the lack of documentation affect Mr and Mrs A's ability to obtain answers to their questions about the care that their baby received, but it impacted upon the baby's continuing care at a city public hospital. As Dr J advised the Coroner:

“When we were dealing with the baby in [a city] we wanted to find out what the diagnosis was and that helps us with our management and whether she was in need of resuscitation at birth and very shortly afterwards is an important fact in trying to work out what that underlying pathology [was]. Was she perfectly well at birth and then became sick later on. Well that opens up some other diagnostic doors, so we were very keen to try and work out exactly how sick she was at birth. So you know

if the APGAR scores are grossly unreliable then that is a major concern. It's a major concern. It makes it difficult for us to do our job.”

I also note that Ms C did not record the baby's heart rate in the clinical records after the CTG was disconnected at 4.10am. The foetal heart rate must be recorded. It is possible that Ms C believed the heart rate was not clinically significant between 4.10am and the baby's birth at 6.05am. However, this case demonstrates the importance of recording even normal results.

Principle 2.9 of the 'Code of Conduct for Nurses and Midwives' (Nursing Council of New Zealand, 1998) states that a midwife must accurately maintain required records relating to midwifery practice. Records should be clear, accurate, and contemporaneous. As illustrated by this case, the failure to maintain accurate records can have significant implications, not only for ongoing care, but for any subsequent inquiry into the circumstances surrounding an adverse event. The importance of adequate record-keeping in clinical practice cannot be emphasised strongly enough, and is an aspect of Ms C's and Ms D's practice that needs careful consideration and review.

Response to lack of respirations

It is accepted that when Mr A was holding the baby, he noticed that she was not breathing and alerted Ms C and Ms D. What is not clear are the events that transpired after Mr A alerted Ms C and Ms D to that fact, and the urgency of their response to the situation.

Mr and Mrs A recalled that Ms C and Ms D did not initially respond to his statement that the baby was not breathing. He recalled that it was only on notifying them a second time that Ms D responded and approached him. Mrs A advised that Ms D did not check to see whether the baby was breathing or if her airway was clear. Rather, Mr and Mrs A's recollection is that Ms D clamped four fingers together and pressed down hard and rapidly on the baby's sternum four times. Mr A recalled that he had difficulty holding onto the baby while Ms D pressed on the baby's chest, and he heard a cracking sound "like ice breaking". He described Ms D's actions as similar to "chest compressions". Mr A recalled that Ms D turned back to Ms C and Mrs A. It was only on notifying her again that the baby was not breathing that Ms D took the baby from him to give her oxygen.

Ms D and Ms C recalled that they responded immediately to Mr A's concerns. Ms D advised that when Mr A alerted her to the fact that the baby was not breathing, she checked the baby's heart rate by placing her fingers on the baby's apex. She noted that the heart rate was still strong (130bpm) and the baby's chest was moving. When Mr A raised further concerns about the baby, she noted that the baby's colour was poor and she was not breathing, and took her to the resuscitation room to give her oxygen to stimulate breathing.

In the absence of a contemporaneous clinical record of the events that transpired following the baby's birth until her removal to the resuscitation room, I am unable to reconcile the conflicting account of events from Mr and Mrs A, Ms C and Ms D. If Mr and Mrs A's recollection of events is preferred, Ms D's response was inappropriate and would raise significant concerns about her care and skill as a midwife. If Ms D's and Ms C's recollection of events is preferred, it appears Ms D's actions were reasonable. I have no reason to

disbelieve either recollection of events, and accordingly I am placed in a difficult position in making an assessment of whether the Code has been breached.

I would certainly be concerned if Ms D did not respond immediately to Mr A's concerns, and clearly it would have been highly inappropriate for Ms D to commence chest compressions or press down firmly on the baby's chest while she was in Mr A's arms. However, as noted at post-mortem, there was no damage to the baby's organs consistent with trauma to the chest, and asphyxia or collapse could not have been caused by Ms D's actions as described by Mr A.

Further investigation will not resolve the evidential conflicts and, accordingly, I am not in a position to make a finding on this matter. For this reason, I have decided to take no further action under section 37(2) of the Act. However, I make the following comment about the events surrounding the midwives' response to Mr A's concern that the baby was not breathing.

Ms Yates advised me that from the descriptions provided, it appears that Ms D was attempting to palpate an apex beat, which is done by placing the fingers over the baby's chest to feel for a heart rate. I understand that the standard procedure to respond to an infant who is reported as not breathing is to check the airway, assess the breathing, and finally assess the circulation. This is commonly referred to as the ABCs. Although Ms D appears to have followed that procedure when the baby was taken to the resuscitation room, it is unclear to what extent she followed that procedure when Mr A first advised her that the baby was not breathing. Ms D advised that she responded to Mr A's statement that the baby was not breathing by putting her hands on the baby's chest to palpate a heartbeat. She advised that she noticed that the chest was moving (presumably indicating that the baby was therefore breathing). There is no indication that Ms D checked the baby's airway or adequately assessed the baby's breathing, which is standard practice (the ABCs). Dr J advised the Coroner that he would not be reassured from Ms D's assessment that the baby was breathing normally at that stage. Ms D should review her practice in relation to this matter.

No breach – Ms D

Resuscitation of the baby

Mr and Mrs A are concerned that there was a delay in the baby being resuscitated and intubated. As noted above, I am unable to conclude whether there was a delay in recognising the baby's condition. However, I am satisfied that when Ms D noted that the baby was not breathing, her actions in resuscitating the baby were appropriate.

After Ms D removed the baby from the delivery room, she took the baby to the resuscitation room and put her on oxygen at a rate of 4 litres per minute with positive air pressure through a facemask. This occurred before 6.10am (when the house surgeon was paged), less than five minutes after the baby's birth. Ms D suctioned the baby's mouth, back of throat and nose. At that time the baby's heart rate was still strong at 120bpm. Ms D called

for assistance from another midwife, and assistance from the paediatric house surgeon. When the baby's heartbeat decreased, cardiac compressions were commenced by Ms D, and the consultant paediatrician was summoned.

Dr G advised the Coroner that the midwives' role in such a case would be to commence basic resuscitation (the ABCs) until a paediatrician arrived to commence advanced resuscitation.

My advisor informed me that Ms D responded appropriately when baby the baby collapsed – she demonstrated knowledge of CPR procedures and referred to a paediatric specialist. Dr G also advised the Coroner that when he entered the resuscitation room at 6.30am, Ms D, Ms F and Dr E were resuscitating the baby appropriately, in accordance with their training. There is no evidence that there was insufficient equipment in the resuscitation room, or that the equipment was not being used appropriately for basic resuscitation. I am satisfied that the care provided to the baby after she was removed to the resuscitation room was appropriate, and that Ms D did not breach the Code in relation to the resuscitation of the baby.

Mr and Mrs A are concerned that there was a delay in the baby being intubated, and that this may have affected her chances of survival. My inquiry was limited to the actions of Ms C and Ms D. I am satisfied that Ms D acted appropriately as a midwife in resuscitating the baby using basic resuscitation techniques, and that she performed resuscitation in accordance with standard practice. Ms D appropriately requested assistance from the paediatric team. Ms D was not sufficiently experienced to commence advanced resuscitation and intubate the baby. Although Dr E did not intubate the baby when she arrived at the resuscitation room at approximately 6.13am (two to three minutes after she was paged), it appears that she was inexperienced to do so, and she acted appropriately in assisting the midwives to continue with basic resuscitation until Dr G arrived. Dr G advised that, in hindsight, intubation (and by implication, the delay in intubation) is unlikely to have affected the eventual outcome for the baby. Basic resuscitation is very effective in most situations.

Leaving the delivery room

On discovering that the baby was not breathing, Ms D took her to the resuscitation room. At this stage Mrs A had not yet delivered the placenta. Mr and Mrs A complained that when Ms D left the room, she left Mrs A fully exposed and with afterbirth on the floor. Ms Yates stated that it was unlikely that afterbirth was left on the floor, although it is possible that some blood was on the floor as a result of Mrs A's post-partum haemorrhage.

While I accept that Ms D made little or no attempt to clean Mrs A and the delivery room before leaving the room, I am satisfied that she acted appropriately. Mrs A was clearly distressed at not being completely cleaned up and being left exposed, but these were exceptional circumstances. Given that the baby had stopped breathing and urgently needed to be taken to the resuscitation room, Ms D acted appropriately. Ms C remained in the delivery room with Mrs A, and left only after the placenta had been delivered. In my opinion, Ms D did not breach Right 4(1) of the Code with respect to her alleged failure to clean and cover Mrs A.

Tearing a plaster from Mrs A's arm

In her original complaint, Mrs A stated that Ms D tore a plaster from her arm at the time of the baby's transfer to the city, causing blood to run onto her shirt, bag and the floor. Ms D recalled that she had no further interaction with Mrs A following the resuscitation of the baby. Mrs A later advised that it was another midwife who did this. I am satisfied that it was not Ms D who removed Mrs A's plaster. Therefore, Ms D did not breach Right 4(1) of the Code with respect to this allegation.

Concluding comments

My advisor informed me that it is not uncommon for a baby to appear vigorous at birth and then deteriorate. At the Coroner's Inquest, specialist medical professionals also advised that the sudden and unexplained collapse of what appears to have been an otherwise healthy baby can occur on occasion. My advisor noted that it is not always possible to predict which babies are likely to collapse. Babies who demonstrate signs of foetal compromise antenatally and in labour would be routinely managed in a different way and almost certainly there would be a discussion with a paediatrician. However, the baby did not demonstrate signs of foetal compromise antenatally, and there was insufficient warning that she would collapse following delivery.

The baby's death was tragic, and has had a significant impact on all involved – none more so than Mr and Mrs A. Whether the baby's condition could have been identified sooner after her birth, and whether there was a chance for her life to be saved, cannot be determined on the available evidence. However, this case should serve as a reminder to midwives of the appropriate steps to take when a baby collapses suddenly following delivery, and of the importance of accurate and contemporaneous note taking, and the significant implications when such records are not maintained.

Actions

- A copy of this report will be sent to the Nursing Council of New Zealand, the Midwifery Council of New Zealand, and the City Coroner.
- A copy of this report, with all details identifying the parties removed, will be sent to all District Health Boards as a reminder of the need for accurate record-keeping in maternity units, and for appropriate policies on neonatal resuscitation and response to an apnoeic newborn.
- A copy of this report, with all details identifying the parties removed, will be sent to the New Zealand College of Midwives with a recommendation that the College consider the implications for training midwives on how to respond to a baby who collapses unexpectedly following birth.

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

Appendix 1 – Post-mortem report

The post-mortem report completed by a perinatal pathologist, stated:

“Summary and comment to the Coroner (from hospital notes) This infant was born after an apparently normal pregnancy. The mother had 1 live child and 4 pregnancies – 1 miscarriage and 1 intrauterine foetal death at 20 weeks gestation. She went to a regional hospital in labour at 40 weeks + 6 days gestation. A CTG showed a few decelerations that were seen by an Obstetrician and she was allowed to labour. There was thin meconium in the liquor – this is not unremarkable at term. The infant was born by normal vaginal delivery at 0605 on 14.02.01. The infant gasped at birth and was given an Apgar score of 5 at 1 minute. She was wrapped and given to the father to hold. She was noticed to be apnoeic and the heart rate was very low at 60bpm.¹⁷ The Apgar scoring was 2 at 5 minutes (2 for heart rate). There were occasional gasps in the period 5-10 minutes of life. Full CPR was instituted and she was intubated at 20 minutes of age. There was frothy blood in the pharynx at the time of intubation.

The parents report that the baby at delivery was floppy, gasping and ‘black’.¹⁸ The baby was placed on the mother’s abdomen and then handed to the father. At 2 minutes he noticed that she was not breathing. The father describes that the midwife looked at the baby and gave 5-6 sternal compressions leaving the baby in the father’s arms and then returned to the care of the mother. The father said that he again called out that the baby was not breathing – she was then removed from his arms and resuscitation [commenced] at an estimated 3-4 minutes of age.

The transport team arrived at 1030 hours and [the baby] was transported to the city neonatal unit. An enlarged liver was noted prior to transport. The infant was stabilised and started to breathe spontaneously and the output improved. The abdomen was distended and a lot of old and fresh blood was suctioned out via a nasogastric tube.

Assessment in the city found an anatomically normal infant. The blood glucose was not pathologically low. There was an initial severe combined metabolic and respiratory acidosis (pH 6.4). The impression clinically was of perinatal asphyxia with possible superimposed liver disease leading to a bleeding diathesis – ? [possible] primary metabolic liver disease.

The clinical course was dominated by multiple organ failure – hepatic failure, renal failure, gastrointestinal bleeding, shock (inotrope dependent), and seizure activity on

¹⁷ Mr A advised that the heart rate on birth, noted by the doctor who conducted the post-mortem to be 60bpm, does not match the clinical records.

¹⁸ Mr A advised that he could not recall telling anyone that the baby was “black” on birth. He stated that when she was born she was “a dark-purple colour, a healthy colour”. The progress notes from the city hospital recorded by Dr J at 11pm on 14 February note that the baby’s parents described her as “floppy and gasping and ‘black’”.

CFM. Intensive care was withdrawn on 16.02.01 at 1640hrs. The baby died at 1653 hrs.

Post-mortem examination showed an anatomically correct normal female infant with multiple organ failure. There was extensive haemorrhage and necrosis of the liver, adrenal glands, kidneys and bowel. The brain showed areas of neuronal necrosis in the cerebellar cortex, the pons and cerebral hemispheres. The C matter showed an early gliad response and there was mild oedema. The pathology in the brain is consistent with an hypoxic event occurring less than 3 days prior to death. No abnormalities were seen in the heart by light microscopy but electron microscopy detected lipid in the myocardium.¹⁹

There were several confounders in this case. The pathology and clinical course were suggestive of perinatal asphyxia²⁰ – but there was no evidence microscopically of massive meconium inhalation, the heart was not of clinical concern and the brain injury was not as severe as other organ injury. The absence of meconium suggests that the postulated asphyxial event occurred at a time when the infant could not inhale meconium (which was reported as lightly stained only).

Comment: The immediate cause of death is not in doubt here – multiple organ failure consistent both clinically and pathologically with severe asphyxia. The clinical course was relentless in spite of vigorous attempts to the highest standards by paediatricians and neonatal nursing staff. The primary cause of this pathology is not certain. The liver necrosis and failure were a major component in the clinical course and thus a possible underlying liver abnormality was considered. Post-mortem pathology histology demonstrated neutral lipid in the entire lobule of the surviving liver, in the kidney proximal tubular epithelium and in the myocardium. These latter features are also seen in some congenital metabolic defects and studies are being done to try and elucidate the problem.

Thus there are two possibilities – the first is that there was an undetected perinatal insult that combined with the delay in recognising and treating a sick neonate led to the death of the baby. The second and rarer possibility was that the infant was compromised by some as yet unidentified congenital metabolic abnormality that required resuscitation in the immediate neonatal period – but this was not clinically recognised until after some minutes.”

The doctor who conducted the post-mortem advised the Coroner that she did an electromicroscopy on a number of organs, which was normal, but raised a flag to pursue congenital metabolic abnormalities. She consulted geneticists and a paediatrician with expertise in metabolic abnormalities. The paediatrician ruled out one common metabolic

¹⁹ The doctor who conducted the post-mortem advised the Coroner that in her opinion these pathologies occurred post-natally.

²⁰ The doctor who conducted the post-mortem advised the Coroner that “perinatal” means “around the time of birth, before, during and after”.

diagnosis. Although tissue can be sent overseas for testing, this apparently did not happen in the baby's case.