Obstetrician, Dr C

Paediatrician, Dr D

Midwife, Ms B

A Public Hospital

A Report by the

Health and Disability Commissioner

(Case 02HDC01476)

Health and Disability Commissioner
Te Toihau Hauora, Hauātanga

Introduction

Mr and Mrs A came to New Zealand in October 2001. Mrs A was expecting her second child at the end of December. Mr and Mrs A chose the services of an independent midwife as Mrs A's lead maternity carer ("LMC"). Mrs A had an uneventful pregnancy with the only problem identified being a mildly reduced maternal platelet level. The plan was for their baby to be born at a public hospital.

Very sadly, Mr and Mrs A's son, who was born at the public hospital on 28 December 2001 by Caesarean section, died on 12 February 2002 having been very ill from birth. The precise cause of the baby's death has not been established but the severity of foetal compromise at birth and the fatal outcome were unexpected in the clinical circumstances.

This investigation concerns the actions of three providers about whom Mr and Mrs A complained to the Health and Disability Commissioner – a hospital midwife, the obstetrician on call when Mrs A was admitted to hospital in labour, and the paediatrician present at the baby's birth and who cared for him before he was transferred to a second public hospital. It does not cover the actions of the LMC who provided Mrs A with antenatal care and who had responsibility for Mrs A's labour until she handed over care to the on-call obstetrician.

After the baby's death, the public hospital undertook a sentinel event investigation which reviewed Mrs A's antenatal care, labour, the baby's delivery and the care he received after his birth. It identified a number of factors that were not the subject of this investigation and, accordingly, are not dealt with in my report. The hospital has established a plan to deal with matters it identified as requiring action.

Parties involved

Mrs A	Consumer
Mr A	Complainant / Consumer's husband
Ms B	Provider / Midwife
Dr C	Provider / Obstetrician
Dr D	Provider / Paediatrician
Ms E	Midwife / Lead Maternity Carer

Names have been removed to protect privacy. Identifying letters are assigned in alphabetical order and bear no relationship to the person's actual name.

Complaint

On 5 February 2002 the Commissioner received a complaint from Mr and Mrs A about services provided by midwife Ms B, obstetrician Dr C, and paediatrician Dr D. The complaint was summarised as follows:

Ms B
Ms B did not provide services of an appropriate standard to Mrs A on 28 December 2001. In particular:

- *Ms B did not contact the obstetrician on call as requested by Mrs A's Lead Maternity Carer.*

Dr C
Dr C did not provide services of an appropriate standard to Mrs A on 28 December 2001. In particular:

- *Dr C was not familiar with the application of a foetal scalp monitor*
- *Dr C did not take immediate steps to deliver Mrs A's baby following rupture of her membranes revealing bloodstained liquor*
- *Dr C unnecessarily delayed performing a Caesarean section. Dr C arrived in the delivery room at 6.35pm but the baby was not delivered until 7.25pm.*

Dr D
Dr D did not provide services of an appropriate standard to the baby on 28 December 2001. In particular:

- *Dr D did not immediately provide oxygen to the baby after his birth and delayed intubating him despite the baby's obvious breathing difficulties*
- *Dr D displayed no sense of urgency in taking the baby from theatre to ICU.*

An investigation was commenced on 27 August 2002.

Information reviewed

- Mrs A's antenatal records
- Mrs A's maternity records from the two public hospitals
- The hospital's Sentinel Event report
- Reports from independent experts: midwife Mrs Chris Stanbridge, obstetrician Dr David Cook, and paediatrician Dr Jeffrey Brown

Information gathered during investigation

Antenatal care
Ms E was the midwife chosen by Mrs A. On 25 October 2001 Ms E assessed Mrs A for the first time. Ms E recorded Mrs A's blood pressure as 110/80, her urine as clear, and the foetus as lying in the cephalic position. She asked Mrs A to try to obtain a copy of her maternity records for her first pregnancy overseas.

Mrs A attended antenatal visits on 14 and 28 November. The records indicate that on both occasions a birth plan was discussed. Mrs A wanted a water birth at the first public hospital. Ms E commenced Mrs A on oral vitamin K.

On 30 November Ms E recorded that Mrs A had "mild cytopaenia" with a platelet count of 124 (normal 150-400). Mrs A had no signs of pre-eclampsia (HOP – hypertension of pregnancy). Her blood pressure was within the normal range and she had no proteinurea (protein in her urine).

In view of the mild cytopaenia Ms E contacted her mentor. Ms E's mentor recommended follow-up HOP blood tests (renal and liver function tests) and a coagulation screen. Ms E queried whether Mrs A should be seen by an obstetrician, but her mentor did not think it was necessary at that stage.

When Ms E explained the blood test results Mrs A said that her platelets had been as low as 94 with her first pregnancy. Ms E again asked Mrs A to obtain the records of her previous pregnancy and, in the meantime, to increase her dietary intake of vitamin K.

Mrs A subsequently provided Ms E with documentation from her 1999 pregnancy, including 13 antenatal examinations, various blood tests, ultrasound screenings, a summary of labour and birth, hospital discharge report and six-week postnatal examination plus a personal account of her labour, pain relief and delivery.

On 12 December Ms E repeated the HOP blood tests as recommended by her mentor. They were reported on 14 December. The platelet count remained low (117) and on 14 December Ms E contacted the first public hospital locum on-call obstetrician to discuss the results. The obstetrician questioned her about Mrs A's blood pressure, presence of oedema, and urine test result. He advised Ms E to repeat the HOP bloods in one week. Blood tests on 17 and 24 December showed Mrs A's uric acid levels as 0.40 and 0.41 respectively (normal range 0.14 to 0.40). There is no indication that these results were reported to an obstetrician. The test on 24 December showed an increase in the platelet count to 124.

Labour and delivery
On 28 December 2001 at 11am Mr A telephoned Ms E to inform her that his wife's labour had started. Ms E assessed Mrs A at 4.15pm. She recorded that Mrs A's observations were within normal limits, her cervix was dilated to 4cm, she had no proteinurea, and the foetal heart rate was 145 bpm. Ms E told Mr and Mrs A to proceed to the first public hospital and telephoned Ms B, the hospital midwife on duty, to inform her of Mr and Mrs A's impending arrival.

Ms E advised me that she assessed Mrs A at home for about an hour before telephoning the first public hospital birthing unit. She spoke to the midwife on duty, explaining Mrs A's observations and that she was proceeding to the unit. Ms E said she gave a detailed briefing by telephone and repeated the information when she arrived at the hospital. She arrived at the hospital about three-quarters of an hour before Mr and Mrs A so she could consult the obstetrician on call.

Ms E met Mr and Mrs A at the hospital at 5.15pm and recorded Mrs A's observations as BP 100/80, pulse 64, urine test negative and foetal heart rate 134 bpm, and inserted an intravenous cannula. She recorded that Mrs A's contractions were difficult to feel, although the foetal heart remained satisfactory at 134 bpm. Mrs A was noted to be very relaxed with contractions six minutes apart. Mrs A entered the birthing pool at about 5.50pm. At that time the foetal heart rate was recorded as 138 bpm.

The obstetrician on call was locum Dr C, who had recently arrived from overseas. At about 5.50pm Ms E spoke to Dr C in the corridor outside Mrs A's room and advised him that Mrs A had been admitted and told him about Mrs A's platelet count. She also informed him that Mrs A reported low platelets with her first pregnancy but had proceeded to a normal vaginal delivery, following Syntocinon induction, and had had epidural pain management.

Ms E asked Dr C whether it was advisable for Mrs A to be in the birthing pool with a low platelet count. Dr C asked for more information on her observations – blood pressure, presence of protein and oedema. Dr C said that he asked Ms E whether she wanted him to assess Mrs A but she said it was not necessary. He advised Ms E to take blood samples for grouping in case Mrs A needed a transfusion.

Ms E said she intended to discuss a labour management plan with Dr C in more detail but did not make a formal patient referral. She said she expected Dr C to assess Mrs A and denies that she refused a "formal obstetric assessment". Ms E said Dr C may have intended to assess Mrs A, but another midwife asked Dr C to see her patient immediately. Ms E said she was not concerned when Dr C did not see Mrs A because there was nothing "out of the ordinary" with her labour. Ms E recorded in the notes: "mentioned to Obs [obstetrician] [Dr C] platelet count in passing in corridor". Dr C said that he was not called away by another midwife and was not in a hurry. Rather, he was on his way home and had called in to the delivery suite to see if he was likely to be needed.

Ms B said that at approximately 5.45pm Ms E informed her that Mrs A's platelet count had been low but that it had risen following treatment with vitamin K and a fish oil diet. Ms B assumed that Mrs A had been seen by an obstetrician and "all was OK".

Ms E recorded that at 6.00pm the foetal heart rate was 154 bpm and Mrs A's contractions were six minutes apart.

The timing of events

The precise timing of events from here on until Mrs A was taken to theatre at 7.10pm is in conflict. Ms E's contemporaneous records are brief and Ms B's and Dr C's records were

written retrospectively. The most comprehensive account, recorded by Mr and Mrs A, was also written retrospectively.

Ms E's account
Ms E recorded that at 6.15pm Mrs A got out of the pool to go to the toilet and then returned to the birthing pool. Ms E then had difficulty recording the baby's heart rate so shortly before 6.30pm she got Mrs A out of the bath and on to the bed, so she could listen more closely. Ms E attached the CTG monitor, but the trace was not clear. She used her own Doppler and picked up a foetal heart rate at 93.

Ms E recalled that everything seemed to be going well with Mrs A's labour when suddenly she doubled up with acute pain, and broke out in a cold sweat. Ms E said she immediately rang the bell for assistance from the hospital midwife. In the meantime she administered oxygen to Mrs A and turned her on her side.

She recorded:

> "1830 hrs – got [Mrs A] out of bath to get better trace of FHR [foetal heart rate] – FHR – 93 – rang for CHE staff. Repositioned [Mrs A] – Gave O2 [oxygen] … I requested to call obstetrician who asked for blood x match and to catheterise [Mrs A]."

Ms E said that Ms B responded to her call for assistance at approximately 6.30pm. She said she told Ms B that she was having difficulty recording the foetal heart rate and thought it was 93 bpm, and asked Ms B to call Dr C. She said Ms B asked her to do another vaginal examination. Ms B left the room; Ms E thought it was to call Dr C. It was not until Ms B came back with different CTG recording equipment that Ms E realised the obstetrician had not been contacted. Ms E completed the vaginal examination and found that Mrs A had not dilated any further than her previous examination (4cm). She decided to telephone Dr C rather than wait for Ms B to do so. She left Mrs A to use the phone in the nurses' station and called Dr C at 6.50pm.

She recorded:

> "1900 hrs – assisted with foetal scalp – ARM [artificially ruptured membranes] – liquor red, performed by [Dr C].
> 1905 hrs – prepared for OT."

Mr and Mrs A's account
Mrs A recalled that at 6.10pm she experienced intense pain. She knew the time because she had been timing her contractions. She emerged from the birthing pool at 6.15pm. Mrs A said that when the pain started Ms E told her she may be starting to "bear down" and left the room to find Mr A, who was outside, minding their other son.

Mr and Mrs A said that at 6.20pm Ms E asked Ms B to call the obstetrician. They said that instead of contacting Dr C, Ms B spent time unsuccessfully "fiddling with the CTG equipment". The couple said that at around 6.25pm Ms E left the delivery room to call Dr C personally. There were no phones in the delivery room.

Mr and Mrs A stated that Dr C arrived in the delivery suite between 6.35pm and 6.40pm, and that by 6.50pm he was still trying to get a foetal heart beat. They said part of the delay was caused by Dr C's inability to use the CTG equipment, requiring help from Ms E and Mr A. At 6.50pm Dr C told Mr and Mrs A that he would need to perform a Caesarean section.

Ms B's account

Ms B wrote her record retrospectively, on 3 January 2002. She recorded that at 6.30pm on 28 December Ms E rang for assistance. Mrs A had just emerged from the birthing pool. Ms B found Ms E attempting to record a CTG and struggling to find the foetal heart rate. Ms B recorded that she "took over" from Ms E. Ms B recorded the foetal heart rate between 60-95 bpm and ascertained that it was not the maternal heart rate. She asked Mrs A whether she felt like pushing, as she was having painful contractions. Ms B said she told Ms E to do a vaginal examination. Ms E did the examination and reported "an anterior lip 4cm dilated and thick". The CTG recorded the foetal heart rate at less than 100 bpm. Ms B said that Ms E then asked her whether she should call the obstetrician. Ms B advised her that if she was sure of the vaginal examination to call the obstetrician urgently. Ms B said that at 6.45pm the foetal heart rate "picked up for a period to between 110 to 120 bpm, but then dropped immediately to 90, then 60". Mrs A's membranes remained intact and her "contractions" were becoming more painful and continuous.

At 6.50pm Ms E contacted the obstetrician and proceeded to prepare Mrs A for Caesarean section. Mrs A had vomited approximately 100ml. Ms E took blood and then prepared Mrs A for urinary catheterisation. At 7pm Dr C arrived, assessed Mrs A and proceeded to theatre. The paediatrician was informed. Ms B accompanied Mrs A to theatre. She was in theatre at 7.15pm but did not have time to "scrub up" before Dr C commenced the operation. The paediatrician was present at the delivery. The baby was born at approximately 7.22pm.

Dr C's account

Dr C wrote his report at 8pm. He recorded the following:

> "I was phoned at 18.50 hrs [6.50pm] with [decreasing] FH to 80bpm. Arrived on L/W [labour ward] at approximately 19.00hrs [7pm]."

Dr C said he found Mrs A very distressed with pain and that the CTG had poor contact. He said it was reported to him that the foetal heart rate was jumping from 140 to 80bpm. He was aware, from his earlier conversation with Ms E, of Mrs A's low platelet count. Dr C attempted to apply a foetal scalp electrode. He said Ms E assisted him because he was unsure about the type of electrode or how the machine operated. Dr C advised that he had placed many electrodes over the years but electrodes vary and he took a couple of minutes to attach them. Once attached, Dr C obtained a clear trace, documented at 7.01pm, with the foetal heart rate between 60-80 bpm. On examination he found Mrs A was 3cm dilated (not 4cm as previously reported) and fully effaced with membranes intact. He ruptured the membranes and the liquor was blood-stained. He called for an urgent Caesarean section at 7.03pm and Mrs A arrived in theatre at approximately 7.10pm.

Public hospital records
At Dr C's request, the public hospital provided a record of telephone calls to him. The hospital reported as follows:

> "At your request, I analysed our computer log for outgoing telephone calls. You asked me to list calls to your mobile, the mobile we provided you with, your landline and the long range pager that we had allocated to you.
>
> You required a list of all calls between 19:00 and 21:00 on 28 December 2001.
>
> The only call on our log is a call to the pager at 18:49."

Findings of fact
I have carefully considered all the above information. The times provided by Mr and Mrs A, Ms E, Dr C and Ms B are estimates of the times events occurred based on their best recollections. Although Mr and Mrs A estimated that Ms E asked Ms B to call the obstetrician at 6.20pm, I am satisfied that Ms E called for Ms B's assistance at approximately 6.30pm. I am also satisfied, on the evidence, that Dr C was called at around 6.45pm and arrived at the hospital before 7.00pm. By 7.03pm he had notified theatre that Mrs A required a Caesarean section. In making these findings I have given weight to contemporaneously written notes, such as Ms E's (albeit brief) records, operating theatre records and the hospital's telephone record. Nevertheless, in seeking expert advice on this case I asked my obstetric advisor to consider both the earlier time (around 6.30pm) when Mr and Mrs A believe Dr C was called, and the later time (around 6.45pm).

Caesarean section
Mrs A was taken to theatre at 7.10pm. The contemporaneous anaesthetic record indicates that general anaesthetic commenced at 7.12pm, a lower segment Caesarean section operation commenced at 7.20pm and the baby was born at 7.22pm. After the operation Dr C advised Mr A that the baby was very ill and would be transferred to ICU.

Paediatric care
The paediatrician on call, and in attendance when the baby was born, was Dr D. Dr D reported that at delivery the liquor was bloodstained and when he suctioned the baby he obtained frank blood. On Dr D's initial assessment the baby's heart rate was 60bpm, he had intermittent gasping respirations, an APGAR score of 3 (out of 10) and marked hypotonia (poor muscle tone). Dr D initially resuscitated with bag and mask oxygenation. When the baby did not respond, Dr D intubated him. Dr D advised me that he was able to oxygenate the baby with positive pressure ventilation and he responded in about 10 minutes. Dr D then removed the intubation tube. The baby continued abnormal gasping respirations and his poor general muscle tone did not improve. This suggested to Dr D that the baby had suffered a significant central systems insult before birth. Dr D telephoned the second public hospital neonatal retrieval team to arrange the baby's transfer by helicopter as he considered that the baby required intensive paediatric care that could not be provided at the first public hospital.

Dr D reported that blood for blood gas analysis was taken from the placenta about half an hour after the baby's birth, recorded at 7.51pm. The result showed "hypoxia" but this was not necessarily an indication of the baby's blood gas analysis because the blood was not taken from him.

Mr A said that while he was waiting outside theatre for news of his wife and child, Dr D wheeled the baby past. Mr A described the baby lying on his left side with severe breathing problems. He said that every six or seven seconds the baby rapidly inhaled with a loud wheezing sound and his whole head and upper body jerked upright and sideways with each breath. Despite this, the baby was not connected to any type of breathing aid. Mr A said that Dr D did not seem to be in any hurry to get him to ICU. Rather, Dr D stopped to explain his concerns to Mr A without haste, and they walked together along the corridor to the lifts. On the way to ICU Dr D informed Mr A that he was concerned about the baby's central system symptoms, in particular his gasping respirations.

Dr D reported that despite the baby's obvious breathing difficulties he was "pink clinically", and he was able to be transferred to ICU on air rather than oxygen. Dr D advised me that he did not waste any time taking the baby to ICU. He was particularly concerned about the baby's brain and wanted to get him stabilised in ICU.

In ICU Dr D continued the resuscitation efforts he began in theatre. Ms E assisted Dr D by administering nasal oxygen while he was attempting (unsuccessfully) to insert an arterial line. Dr D reported that, contrary to Mr and Mrs A's account, the oxygen saturation was low in theatre and he commenced oxygen, which was effective in raising the oxygen concentration immediately. The baby maintained good oxygen saturation except for transient mild desaturation (low oxygen levels). Initially Dr D did not consider CPAP (continuous positive airways pressure) necessary because the baby was able to oxygenate himself adequately with only additional added oxygen. However, the baby required more oxygen over the next two hours and developed grunting respirations. Dr D performed a chest x-ray, which showed markings similar to those of hyaline membrane disease, a condition usually only associated with premature babies. The baby also had transient drops in oxygen saturation from a baseline of 90 to 95% into the 80s and occasionally 70s. These episodes responded rapidly to an increase in inspired oxygen concentration, but Dr D placed the baby on CPAP at 9pm. Dr D said that he would have placed the baby on CPAP sooner but there was a delay while nursing staff dealt with the baby's more immediate needs. Dr D discussed the baby with the neonatologist at the first public hospital at about 8.30pm. The neonatologist recommended placing the baby on CPAP, which Dr D had already ordered. Following CPAP the baby's blood gases stabilised, but he required higher concentrations of inspired oxygen to maintain adequate levels.

Dr D reported that the baby's muscle tone returned and he was, if anything, hypertonic. The baby became very active and the nature of his movements, although not convulsive, suggested cerebral malfunction. The baby also had a tendency to bleed. When Dr D suctioned him in theatre the aspirate was "almost pure blood". In ICU what appeared to be a pulmonary haemorrhage continued, and he also bled from his umbilical cord. A blood coagulation screen noted an APTT of 67 (normal upper range 40). Dr D prescribed the baby

vitamin K. Dr D advised me that the baby's blood sugar level was normal and his blood count "unremarkable for a newborn baby".

Dr D recalled that at no time did the baby have any prolonged or severe episodes of hypoxia, his blood pressure was adequate, he was never clinically cyanosed, and his profusion (blood flow to the extremities) was never clinically compromised.

Dr D left the hospital when the baby appeared stable on CPAP. At that time the retrieval team had not yet arrived, but was expected. Dr D was called back when the baby suffered further oxygen desaturation despite CPAP, but by that time the second public hospital team had arrived.

Ms E and Mr A brought Mrs A in to see the baby in ICU at about 8.00pm. The baby was not yet on CPAP and a nurse was holding an oxygen mask over the baby's face. Mrs A recalled that, although the baby was "relatively pink", Dr D commented that it was rare to see a term baby with grunting respiration not return to a normal breathing pattern. Dr D said that he could expect this respiratory behaviour with a premature infant but not a full-term baby.

The nurse caring for the baby in ICU recorded the following:

> "28/12/01 22.10[hrs] Baby quite irritable, grunting, hyperactive to touch. HR 140, reps 70/min. Colour pink O2 sats [oxygen levels] 90-95% Nasal CPAP @5cm H2O [water], rectal temp 35.8 Incubator temp 33. FIO2 90%, IV of D10 @ 10ml/hr via umbilical vein. Some slight ooze of blood from site despite suture, …. Recently notified [Dr D] that baby intermittently drops sats to low 80's – high 70's. Not accompanied by [reduction in] HR (heart rate) but accompanied by [reduction in] activity."

Subsequent care

The second public hospital's retrieval team arrived at the first public hospital at 11.42pm and the baby was taken to the second public hospital in the early hours of the morning after he had been further stabilised and intubated. He arrived at the second public hospital at 5.00am on 29 December 2001.

On the evening of 29 December the baby began having epileptic seizures, which continued, essentially unabated despite medication, until 18 January 2002. The second public hospital specialists explored the possibility of an underlying metabolic abnormality in discussions with specialists at a children's hospital, and a transfer there was considered.

However, an EEG recorded on 17 January showed an essentially "flat trace" with no spike or wave activity. A neurological assessment on 22 January was abnormal and an MRI scan on 25 January showed that the baby had widespread cerebral injuries. Following discussion between the second public hospital staff and Mr and Mrs A it was decided to transfer the baby into the care of the Palliative Care team. The baby was discharged home with his parents on 26 January and died on 12 February 2002. An autopsy was not performed.

On 1 March, a paediatrician, informed Dr D: "[The baby] had suffered a severe asphyxia injury around the time of his birth. His seizures were quite intractable throughout the first week. He had an MRI scan which indicated severe and generalised cerebral damage, and consequent on this it was decided that he could be managed conservatively by his parents without the need for active medical intervention."

Subsequent events: the public hospital's actions
The public hospital conducted a Sentinel Event Investigation into the care the baby received. The hospital identified "a number of contributory features around this particular incident:

- The recent arrival of the family in New Zealand and lack of previous maternal obstetric and medical history
- The lack of formal obstetric referral prior to onset of labour for a client with known risk factors
- The lack of detailed briefing to unit midwives on admission of LMC managed clients in labour
- The belief in the LMC that Obstetric advice was not readily available over the Christmas period
- The reliance on informal corridor discussion between LMC and Obstetrician
- The delay in calling the Obstetrician at the time the foetal heart rate dropped is longer than is acceptable, but may not have directly influenced the subsequent death of the baby
- The lack of post mortem of the baby to establish any pre-existing pathology of the lungs or neurological system.
- Retrospective notes of 28/12/01 written by LMC. Notes not initially dated or timed. It is difficult to verify the correctness of the events when recorded re[tro]spectively."

As already noted, a number of these matters are outside the scope of my investigation, which has focussed on matters complained of by the couple. The hospital has instigated a corrective action plan in relation to the matters identified above.

Independent advice to Commissioner

Obstetric advice
The following independent expert advice was obtained from an obstetrician, Dr David Cook:

"SOURCES

Documentation provided by the Health and Disability Commissioner as follows:

Patient complaint and commentary;
Copy of maternity record;
Response and supporting documents from [Dr C];
Investigation report from [the first public hospital];
Medical references listed in the appended bibliography.

ABSTRACT

A low risk maternity case with mild thrombocytopaenia and spontaneous labour at term unexpectedly developed acute foetal heart rate abnormalities at 3-4 cms dilatation. The well-documented case notes record that the duty Specialist was promptly paged and attended 10 minutes later. A rapid assessment determined the need for caesarean section and delivery was effected within 20 minutes. The severe effect on the baby suggests either a hidden pathology (e.g. foetal thrombocytopaenia) or a very acute adverse event (e.g. placental abruption) however no unequivocal cause has been established. The management by [Dr C], the duty Specialist, was entirely appropriate and exceptionally swift by the standards of most obstetric units. Analysis of the supplied documentation reveals no significant omissions in the management of this case.

REPORT

CASE HISTORY

[Mrs A], aged 39, EDD 29/12/01. Booking bloods normal

P1. 1999 NVD at 39 weeks. 3570g Male.

No other documentation regarding the antenatal course is provided. Her LMC midwife was [Ms E]. There had been some concern about mildly reduced platelet levels but no other significant problems during the pregnancy.

28/12/01:0200: Patient experienced 'a show'.

1500: Mild contractions. Cervical assessment performed at patient's home. 4cms dilated.

1715: Patient arrived at maternity unit. Vital signs normal and foetal heart auscultated: normal rate of 134 bpm. An IV line was sited and bloods taken because of the mildly reduced platelet count. The latter was reported to [Dr C], the duty O&G specialist, as he

was passing through the maternity unit at 1750. No additional management was recommended. The patient was comfortable in the birthing pool, contracting every six minutes and the foetal heart rate was normal.

Around 1830 the patient was distressed with pain and the LMC midwife was struggling to detect a clear foetal heart rate. The patient was transferred from the pool to a delivery bed.

A hospital staff midwife was called to provide assistance. The foetal heart rate was detected at a rate of 60-90 bpm. Oxygen was administered and the cervix reassessed by the LMC midwife. There was no significant change of the cervix from previously and vaginal delivery did not appear imminent. At 1845 the foetal heart rate was heard at a rate of 110-120 bpm but dropping to 60-90 bpm. Contractions seemed to be more painful and 'continuous'.

Because of the abnormal foetal heart rate [Dr C] was contacted at 1850 (paged 1849). He advised preparation for a Caesarean section and was in attendance at 1900.

[Dr C] performed a vaginal assessment. The cervix was only 3 cms dilated, the forewaters were ruptured revealing pink liquor and a foetal scalp electrode was attached.

There was a delay of 30-120 seconds attaching the foetal scalp electrode as [Dr C] was not familiar with this particular model. The improved foetal heart rate monitoring detected a significant bradycardia (slow heart rate). The parents were advised that a Caesarean section was necessary because of serious concerns for the baby's well-being.

The duty anaesthetist was contacted at 1903 to prepare for an emergency Caesarean section and the patient was in the operating theatre at 1910.

General anaesthesia was commenced at 1912, the Caesarean procedure commenced at 1920 and the baby was delivered at 1922. The Caesarean section procedure was uncomplicated. No cause for the abnormal foetal heart rate was apparent.

The baby was immediately transferred to the paediatrician. The limited documentation provided about the baby indicates that he was extremely unwell and despite transfer to the [second public hospital's] tertiary level neonatal unit subsequently died. Whilst hypoxia has been cited as the cause of death no direct cause for the hypoxia has been identified.

COMPLAINT DETAILS

[Dr C] did not provide services of an appropriate standard to [Mrs A] on 28 December 2001. In particular:

- *[Dr C] was not familiar with the application of a foetal scalp monitor.*

- *[Dr C] did not take immediate steps to deliver [Mrs A's] baby following rupture of her membranes revealed blood-stained liquor.*

- *[Dr C] unnecessarily delayed performing a Caesarean section. [Dr C] arrived in the delivery room at 6.35pm but the baby was not delivered until 7.25pm.*

Advise the Commissioner whether, in your opinion, [Dr C] provided services with reasonable care and skill and, in addition, answer the following questions:

What particular standards apply in this instance?

Did the obstetric care provided by [Dr C] reach those standards? And, if not, how was the care inappropriate?

Whether there was an unacceptable delay in [Dr C] delivering [Mrs A's] baby. Please comment on the length of time [Dr C] took to deliver the baby if he was called at 6.35pm, and if he was called at 6.50pm.

Any other matter which, in your opinion, should be brought to the Commissioner's attention.

OPINION

Different types of foetal scalp electrodes enjoy popularity in different regions and countries and are usually of the spiral or spring-loaded (Copland) type, this referring to the type of attachment to the foetal scalp. The opposite end of the electrode attaching to the foetal monitor, usually by way of an intervening lead and junction plate, may also differ depending on the type of monitor being used.

It can be disconcerting to patients when their care-providers are unfamiliar with equipment but whilst minor variants in equipment are common the underlying principles are much the same. Even when equipment is very familiar there can be minor difficulties establishing good contacts and an adequate foetal heart rate recording.

It would take only a short time to become familiar with the local variant and the half to two minutes establishing a recording in this case would not be regarded as unduly protracted. Assistance from the midwife was presumably offered in the interests of expediency and rightly so if she were more familiar with the piece of equipment.

[Dr C's] training [overseas] would have exposed him to a considerable experience with foetal scalp electrodes where their use is much more frequent than in New Zealand thus it is very unlikely that he would be unfamiliar with their use as suggested.

Blood-stained liquor is very common and rarely indicative of any serious problem and this feature alone did not warrant any emergency management. However the abnormal foetal heart rate (CTG) without the prospect of imminent vaginal delivery did warrant urgent management. The sudden nature of the complication and the increased intensity

of maternal pain suggested a placental abruption (separation and bleeding from the placental site) however this was not confirmed at the time of Caesarean section.

In many units, in an otherwise low risk pregnancy, the recommendation at this point would be to perform a foetal scalp blood sample. It is well recognised that abnormal foetal heart rates can occur as transitory episodes where the foetus is essentially healthy and may respond to conservative measures such as re-positioning the patient, rehydration and oxygen administration. To avoid unnecessary Caesarean sections in these cases further evaluation of the foetus by testing foetal blood may guide appropriate management. The choice between further testing and immediate Caesarean delivery is determined by the Obstetrician's skill at CTG interpretation and individual risk evaluation. It is also influenced by the availability and feasibility of further testing techniques.

[Dr C's] decision to undertake Caesarean section was very prompt, indeed most Obstetric units would be hard pressed to emulate the swiftness of events from initial consultation to delivery of the baby in this case. The condition of the baby at birth justified [Dr C's] decision for immediate Caesarean section although regrettably this ultimately proved to be of no avail.

There is a discrepancy between the timing of events reported by the hospital personnel and the baby's parents. The clinical notes of [Dr C], the LMC midwife and hospital midwife are very consistent and are also supported by the timing of [Dr C's] sole logged phone call received around this time.

However I note that [Dr C] claims to have 'introduced myself to the patient, assessed the (technically poor) CTG trace, gained consent to perform a vaginal examination, performed an abdominal and vaginal examination, performed an ARM, applied the FSE, helped the midwife attach the leads to the CTG machine, explained to the patient and her husband in words to the effect of "I am very worried about your baby's heartbeat, it is in serious trouble and I need to perform a Caesarean section immediately", and asked midwife [Ms E] to get the patient to the operating theatre all within three minutes between 1900 and 1903 despite spending "… between 30 seconds to two minutes to apply …" the scalp electrode'. I would regard this as a very unlikely time-frame.

Since the initial consultation with [Dr C] (paged at 1849) and the arrival in theatre at 1910 are well established in the records I would speculate that [Dr C] arrived on the maternity unit a minute or two before 1900 and rang theatre a little later than 1903. This would allow sufficient time for the above manoeuvres and explain the parents' impression that he was in attendance for longer than the stated three minutes. This time frame in no way undermines the fact that the management was very prompt and entirely appropriate with no significant delay affecting the outcome.

Speculating again, as requested, that [Dr C] might have been in attendance between 1835 and 1840 as stated by the patient, the management would still be regarded as reasonable. A maximum possible duration of 47 minutes from arrival to delivery of the baby would be regarded as quite expedient and compares favourably with the median

time of 42 minutes from decision for Caesarean section to delivery in Australasian level 3 hospitals.[1]

The time from decision for Caesarean to delivery in this case was very short (19 minutes or less) so criticism might be aimed at the (conjectural) time of [Dr C's] arrival to decision for Caesarean of about 30 minutes.

Given that clinical assessment must initially take place to establish the nature of the problem and the urgency of the management including practical procedures (e.g. attaching the FSE or, in some centres, performing foetal blood sampling) as well as patient explanation, preparation and consenting this would not be considered prolonged.

A 30-minute delay might be considered unacceptable if there were a very obvious obstetric emergency such as a placental abruption (separation and bleeding from the placenta). However not all placental abruptions are immediately obvious and may still require careful evaluation before determining further management. The diagnosis of placental abruption was considered by [Dr C] and the documented timeline indicates that he responded urgently to the possibility.

The precise cause of the baby's death has not, as far as I understand, been established but the severity of foetal compromise at birth and the fatal outcome were very unexpected in the clinical circumstances. The only problem identified ante-natally was a mildly reduced maternal platelet level (thrombocytopaenia). [Dr C] did make the comment 'poor haemostatic capabilities – bled easily' in the Caesarean operative note and frank bleeding from the neonatal airway during resuscitation was an unusual finding. These observations might lend support to a significant platelet disorder causing haemorrhage in both the mother and foetus. Laboratory results not provided in my documentation may have investigated this possibility.

A platelet count above $150x10^9$ is regarded as normal however counts between 100 and 150 are quite common (about 8%) and generally benign. Counts above $80x10^9$ are considered safe (at least for procedures such as epidural insertion) and only at counts below $50x10^9$ is the risk of bleeding considered to be increased. In this case the maternal platelet count was $124x10^9$ four days prior to delivery and fell to a low of $95x10^9$ post-natally. There are however numerous causes of thrombocytopaenia and some are potentially serious so further investigation is recommended when counts below $150x10^9$ are encountered.[2] The extent of such investigation would be dictated by the clinical history and in this case would probably indicate serial monitoring of the platelet levels. This was performed and significantly showed an increase in the platelet levels between 17/12/01 and 24/12/01 which would be reassuring.

Given the uncomplicated ante-natal course and ostensibly normal progress of labour preceding the abnormal foetal heart rate, no further investigation was indicated at the time. [Dr C] was made aware of the issue earlier in the day but there was no need for concern at that point. His rapid response to the acute complications of labour obviates any concern that the thrombocytopaenia problem was insufficiently considered.

SUMMARY

A low risk maternity case with mild thrombocytopaenia and spontaneous labour at term unexpectedly developed acute foetal heart rate abnormalities at 3-4 cms dilatation. The well-documented case notes record that the duty Specialist was promptly paged and attended 10 minutes later. A rapid assessment determined the need for Caesarean section and delivery was effected within 20 minutes. The severe effect on the baby suggests either a hidden pathology (e.g. foetal thrombocytopaenia) or a very acute adverse event (e.g. placental abruption) however no unequivocal cause has been established. The management by [Dr C], the duty Specialist, was entirely appropriate and exceptionally swift by the standards of most obstetric units. Analysis of the supplied documentation reveals no significant omissions in the management of this case.

BIBLIOGRAPHY

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Paediatric advice
The following independent paediatric advice was obtained from a paediatrician, Dr Jeffrey Brown:

"I have been asked to advise the Commissioner whether [Dr D] provided services with reasonable care and skill and, in addition, to answer the following questions:

What standards apply in this case?

Did the paediatric care provided by [Dr D] reach those standards and, if not, how was care inappropriate?

Whether there was an unacceptable delay in [Dr D] administering oxygen to [the baby], commenting on the intubation and timeliness of CPAP application?

Any other matters which should be brought to the Commissioner's attention?

I will summarise my opinions then provide detailed background for them.

Summary

Resuscitation immediately after birth was to an appropriate standard, with intubation, administration of oxygen, and assisted ventilation.

Subsequent ventilatory support could have been more intensive, either with earlier CPAP or intubation and mechanical ventilation. More frequent and detailed review between [Dr D] and the [second public hospital's] Neonatologist may have led to this support.

However, the long term outcome would not have been altered even if such support was instituted.

By the time of delivery, the degree of brain damage was already so severe that favourable outcome was not possible. Death or severe handicap was almost certain given the severe umbilical cord blood acidosis and the sustained spinal cord gasping reflex.

The only chance of a more favourable outcome was for earlier delivery. This required earlier recognition of such a need.

This recognition required a level of concern and monitoring which depends on individuals working together, trusting and relying on each other.

The level of collaboration to prevent further cases such as [the baby] will need more than a change in the behaviour of individuals. It will need systemic change in the expectations of craft groups of health professionals, and in their deployment within the spectrum of care provided to those producing future generations.

Opinion

The standards of Paediatric care apply firstly to resuscitation immediately after birth and secondly to the on-going neonatal care including transfer to the Neonatal Unit at [the first public hospital], care in the Neonatal Unit, and subsequent transport to and care in [the second public hospital's] Neonatal Unit.

Resuscitation after birth was certainly provided to the expected standards. There were intermittent gasping respirations and a heart rate of 60/min. Bag mask ventilation as initial support was appropriate. Following bag mask ventilation, [the baby] was rapidly intubated with positive pressure ventilation given for 10 minutes. The clinical notes indicate that he was pink, indicating adequate oxygenation. There is no record of his heart rates apart from the five minute Apgar score indicating the heart rate was above 100/min.

After 10 minutes intubation and positive pressure ventilation, [the baby] remained with poor tone and gasping respirations. The decision to extubate him and transport him to the Neonatal Unit under close observation was a judgment at the time by [Dr D], based on [the baby's] good oxygenation, a degree of spontaneous respiratory effort, and good heart rate.

Subsequent ventilatory support and whether it was intensive enough and early enough is not easy to ascertain.

The fact that [the baby] remained with reasonable oxygen saturation by pulse oximeter measurements with a baseline between 90-95% indicates that he was not significantly hypoxic during his time in [the first public hospital]. There were occasional drops associated with activity during which time the oximeter is not necessarily reliable in

picking up the true oxygen saturation. [The baby] needed increased inspired oxygen to maintain oxygen saturations on the oximeter and also developed grunting respirations. The increasing oxygen requirement and grunting respirations led to commencement of CPAP at approximately one and a half hours of age. Despite the CPAP there was continuing increase in oxygen requirements such that when the transport team arrived from [the second public hospital the baby] was in 100% oxygen. Even at that stage expert opinion from the Transport Registrar and from his Supervising Consultant Neonatologist at [the second public hospital] was that [the baby] was intubated for purposes of transport rather than because of clinical requirement.

While his pinkness may have been reassuring during transport from the Operating Theatre to the Neonatal Unit at [the first public hospital], and his oxygen saturations may have been reassuring in the Neonatal Unit when he was spontaneously breathing, there are suggestions that he may have benefited from more aggressive and earlier respiratory support. [Dr D] assessed that he was significantly asphyxiated at birth, needing intensive resuscitation. He describes 'gasping respirations and very poor general tone'.

[The baby's] father, [Mr A], gives an excellent description of gasping respirations 'with every 6-7 seconds [the baby] rapidly inhaling with his whole head and upper body jerking upright and sideways with these breaths'. This description is of spinal reflex gasping which is only seen when there has been severe asphyxia affecting higher brain centres responsible for the control of respiration. Recognition of these gasping respirations along with the other indicators of severe asphyxia could perhaps have prompted attempts to maintain maximum oxygen delivery to vital organs. There could have been attempts to keep his oxygen saturations above 95% with institution of CPAP or possibly mechanical ventilation, if needed to achieve this level of oxygenation. It is not clear what level of discussion regarding the gasping respirations occurred between [Dr D] and the Neonatal Consultant at [the second public hospital], and whether [Dr D] had other telephone discussions in the period when waiting for the retrieval team to arrive. Maintenance of ventilation and oxygenation, and maintenance of cerebral perfusion which needs adequate systemic blood pressure, are the fundamental treatment options available. Using inotrope infusions however is not something necessarily expected of a unit the size of [the first public hospital] and it is quite reasonable that this was only instituted when the baby was in [the second public hospital].

Once [the baby] had been extubated after the response to initial resuscitation, the decision to re-intubate for mechanical ventilation is difficult because it requires, in a baby who is spontaneously breathing, sedation and paralysis in order to achieve the intubation. This sedation and paralysis then masks any spontaneous breathing efforts and makes further assessment difficult without intensive monitoring which was not available, partly because an umbilical arterial line had not been able to be inserted.

On the other hand, with the severity of asphyxia at birth and the need for intubation, some Paediatricians would have left the endotracheal tube in place and maintained mechanical ventilation until there had been evidence of stable oxygenation and

improvement in muscle tone, along with some assessment of adequacy of blood pressure and perfusion.

With the advantage of hindsight, and reviewing [the baby's] progress, it is easy to suggest he should have been maintained on intubation and mechanical ventilation from the initial resuscitation. However, [Dr D's] assessment at the time was that he was spontaneously breathing and maintaining reasonable oxygenation. It is also easy to suggest that earlier CPAP and even consideration of mechanical ventilation could have improved oxygenation, but the baby was being monitored and given increasing inspired oxygen during the first three hours with [Dr D] in attendance. Perhaps if he had been in telephone communication, sharing his concerns and the clinical progress of [the baby] with the Neonatal Consultant at [the second public hospital], there may have been a combined decision to intervene earlier, before the transport team arrived.

However:

Even if there was earlier and more aggressive support of [the baby's] breathing, I am certain that the long term outcome would not have been altered. All the evidence, from his clinical condition and the investigations, point to severe asphyxia before he was born.

The evidence includes the severe birth depression with only intermittent gasping respirations, marked hypotonia, and bradycardia with a low heart rate. The subsequent continuing very poor muscle tone and well described spinal reflex gasping indicate a profound degree of neurological depression from before birth.

Other evidence is the progressive development of respiratory distress syndrome which is not normally seen in term babies, unless there has been birth asphyxia, severe infection, or congenital heart and lung abnormalities. Echocardiogram at [the second public hospital] excluded congenital heart and lung defects and there was no strong evidence of infection.

The early appearance of seizures which were almost impossible to control with medication is another sign of severe cerebral insult. These seizures may in fact have been occurring before they were first noticed at [the second public hospital] but may have been masked by the pancuronium muscle paralysis he was given to help manage his mechanical ventilation.

The low blood pressure, or hypotension, needing inotrope infusion at [the second public hospital] is another sign of poor stability of the circulation consistent with severe asphyxia.

The findings on subsequent imaging of his brain with entire cerebral hemispheres replaced by cystic encephalomalacia plus basal ganglia destruction are also indicators of severe brain damage from a profound insult.

Further evidence from the blood sample taken from the placenta at 30 minutes with a pH of 6.7 and base excess of -26 is consistent with severe asphyxia. Even after two and a

half hours of CPAP when the baby was four hours old his pH was still 7.12 with base excess -11, supporting the severe acidosis already present at birth.

Although there are studies being performed in Neonatal Intensive Care Units with head cooling, medications to try and alter cerebral metabolism or support areas of the brain during their recovery, these are all experimental and not in established clinical practice. Once the neonatal brain has suffered significant asphyxia the damage is essentially done and all that neonatal intensive care can provide is support to try and minimise any further damage by attempting to maximise oxygenation, maintain systemic blood pressure to maintain cerebral profusion pressure, and try and control seizure activity. Although sustained seizures can cause further cerebral damage they in themselves are usually indicators of the degree of cerebral damage, rather than dramatically altering the degree of insult unless there is major cardiovascular or respiratory instability during the seizures. From the clinical records there is no evidence that there was such instability in [either of the public hospitals].

Given the degree of insult already present at delivery, my opinion is that death or severe handicap was almost certain and that, even if there had been more aggressive and earlier support of his breathing or his blood pressure, the long term outlook for [the baby] would not have been altered.

The only chance of a more favourable outcome was for earlier delivery. This required earlier recognition of such a need.

It is apparent from the documentation provided, and is of serious concern, that there was major impediment to detecting the need for an earlier delivery. This impediment arose from the relationships between the health professionals responsible for care before delivery.

The LMC, an independent midwife, wanted to discuss [Mrs A's] labour management with the on-call Obstetrician in the hospital corridor. The Obstetrician asked to see [Mrs A] at least twice during the corridor discussion but these offers were declined by the LMC. Subsequently the Obstetrician has stated that if he was presented with the facts known to the LMC he would have been even more insistent on seeing [Mrs A].

It is impossible for health professionals to function to their levels of expertise if they are not given sufficient information to make judgments. The level of information exchanged depends upon a culture of encouraging and expecting full disclosure of facts.

It is apparent from the observations of [Mr and Mrs A] that the relationship between the LMC and the hospital Midwife was not one of easy teamwork. There was confusion over who should call the Obstetrician and what information the Obstetrician needed, there was disagreement over the fetal heartbeat and whether the recording was maternal or fetal. There is little evidence from the notes of sufficient fetal heart rate monitoring which would be expected when in labour, especially with factors indicating increased risk such as the low platelets and abnormal uric acid.

It is also apparent that the relationship between the LMC and staff in the Neonatal Unit was not ideal. Parental observation is that the LMC went into the Neonatal Unit and independently took an oxygen mask and put it on his face. The observations later suggest somewhat less than supportive interaction between the Neonatal Nurse and the LMC.

Although it is easy to focus on the failure of communication between the LMC and hospital staff (including the Consultant Obstetrician, the hospital Midwife and neonatal staff) it is important to look at why this failure of communication may have occurred.

It is also tempting to seek blame in an individual for failing to recognise the need for adequate communication.

Systemic issues, however, around the care of women during pregnancy and labour, during subsequent childbirth, and care of these women and their babies after delivery, are more insidious and more important.

Any system which promotes a belief in independent practice by solo practitioners is inherently risky. This risk is greater when dealing with two individuals simultaneously (a woman and her unborn child) who can both progress from complete normality to serious illness very rapidly. This progression can be sudden and unexpected and requires a high level of vigilance with detection of any subtle early warning signs.

Decision making regarding expectant versus active management, and levels of intervention, are made more safely when more than one individual is taking part in the judgment and risk analysis.

Most modern health care is based on teamwork rather than individuality. The more complex and more risky the possible outcomes, even if rare, the more dependence there is of individuals on other team members. This dependence is on other team members picking up the mistakes that an individual inevitably will make in their practice before these mistakes lead to unfavourable outcomes.

These mistakes may be errors of omission or errors of commission. It is impossible for any individual practitioner to avoid completely any such mistakes. That practitioner needs to be able to practise in an environment and culture of open dialogue. This dialogue needs to encourage sharing of concerns, involving other experts in care and decision making, and a belief that an individual has not failed themselves or their profession if they seek such help regularly.

The Health and Disability Commissioner is no doubt aware of other cases where the current model of independent practitioner responsibility for pregnancy, labour and delivery has led to breakdown in communications and unfortunate outcomes for babies and their families.

Unless there is systemic change in the expectations of the various craft groups of health professionals and in their deployment within the spectrum of care, particularly those

groups expecting their individuals to function independently, there will be more cases such as [the baby].

A culture change is needed, so that the behaviour of individuals can change to ensure the level of collaboration needed to prevent a repeat of this case."

Midwifery advice
The following independent expert advice was obtained from a midwife, Mrs Chris Stanbridge:

"I consider [Ms B] provided an adequate standard of care but could have met her professional standards more fully.

The standards from the New Zealand College of Midwives Standards for Midwifery Practice pertinent to [Ms B's] actions in not contacting the obstetrician on call as requested, are standard six:

'Midwifery actions are prioritised and implemented appropriately with no midwifery action or omission placing the woman (*or baby*) at risk.' One of the criteria to meet this standard is 'The midwife works collaboratively with other health professionals ...'

And standard seven:

'The midwife is accountable to the woman, to herself, to the midwifery profession and to the wider community for her practice.' The relevant criterion is:

'The midwife, in situations where another dimension of care is needed, ensures negotiation takes place with other care providers to clarify who has the responsibility for the care.'

There are different time frameworks and sequences of action described in the various notes.

The Clinical Notes, presumably written as events unfolded and written by the LMC, show IV cannulation by 5.15pm. At 6.15pm it records [Mrs A] returning to the pool and the entry timed 6.30pm records:

'Got [Mrs A] out of bath to get a better trace of FHR (*foetal heart rate*) – FHR 93 – Rang for CHE (*Crown Health Enterprise*) staff (*ie core midwife*) Repositioned and gave O_2 to [Mrs A]. I Requested to call obstetrician ...'

The next entry is timed at 7pm when she records having 'Assisted with foetal scalp *electrode*. ARM (*artificial rupture of membranes*) ...'

The fullest notes are those of [Mrs A] written in retrospect in response to the Sentinel Investigation Report, and the 'Time Line'.

[Mrs A] is clear her LMC asked [Ms B] (about 6.20pm) to call the obstetrician but she 'instead started to attach CTG (*cardiotocograph*) straps to me'.

[Mrs A] recalls her LMC again asking [Ms B] to call the obstetrician. She recalls her LMC leaving the room about 6.25pm to call the obstetrician. She recalls her and her husband noting the time of the obstetrician's arrival being between 6.35 and 6.40pm. The Time Line records the LMC inserting the IV (intravenous) cannula at 5pm.

[Ms B], in her retrospective 'Statement Report' (and 'Retrospective Midwife Report' 3 1 02) recalls the LMC ringing for core staff assistance at 6.30pm. She records 'I took over'. Further attempts were made at getting the foetal heart rate and an appropriate internal examination was performed.

At 6.45pm she said the obstetrician should be called.

6.50pm 'Obstetrician contacted by LMC …'

LMC 'proceeded to ... insert IV cannula ….'

The obstetrician records in the Clinical Notes :

'2000 hrs (*8pm*) – retrospectively written

I was telephoned at 6.50pm wrt (*with relation to*) \I/ FH ~ 80 bpm

Arrived on L/W (*Labour Ward*) ~ 1900 hrs (*7pm*) ...

... urgent LSCS (*Lower Segment Caesarean Section*) called ~ 1903 hrs (*7.03pm*) ...'

It seems unlikely these times are accurate in that he records doing an internal examination, breaking the waters, attaching an electrode to the baby's head, and getting a trace of baby's heart rate between arrival in Labour Ward and the decision to perform a Caesarean Section. These investigations and procedures would take considerably longer than 3 minutes, especially if some difficulties were encountered.

His report to the Commissioner recalls being called at 6.50pm by the [first public hospital] (first public hospital, i.e. core) midwife.

The CTG shows a trace from approximately 6.38pm with intermittent recordings of the baby's heart rate until 7.01pm when it's probable the foetal scalp electrode was attached giving a consistent reading. By this time the baby's heart rate is being recorded at a very low rate of 55-80.

The role of the charge / core midwifery staff is ideally to be available for consultation, to coordinate the activities of the unit, to liaise with other staff on behalf of the LMC to allow the LMC to remain with the woman she's caring for, to provide midwifery support when requested, and often to triage (sort out the priority of care) the needs of various

midwives, guiding medical staff about which women need the most urgent attention when there are a number of calls on his / her services.

The interaction between LMCs and core midwives ideally is one of collaboration, and should have a seamless interface when care needs to be handed over. In some units the core midwife still performs a gate-keeping role and I assume [Ms B] felt a responsibility ('I took over') to confirm the LMC's findings before contacting the obstetrician.

By [Mrs A's] times, the 5 minute interval between the core midwife being called and the obstetrician being called, is not unreasonable. By [Ms B's] times – twenty minutes – this is becoming a significant time in what could be happening to a baby with possible foetal distress.

In this situation the ideal would have been for [Ms B] to have respected the LMC's apparent concern and contacted the obstetrician when / if she was asked. In some units it would still be seen as acceptable to have attempted to get a clearer picture of the situation i.e. clearer assessment of the baby's heart beat (not necessarily with a CTG but could be with a sonic aid or fundoscope), and an internal, to check the lowered heart rate was not from the pressure of passing through the pelvis, before contacting the obstetrician.

I consider [Ms B] provided an adequate standard of care but could have met her professional standards more fully.

Hopefully this situation will give rise to an improvement in the communication between LMCs and core midwives, and the need for the role of core midwives to be more clearly defined to reflect the LMCs' abilities to make good assessments and requests for help to be actioned promptly."

Code of Health and Disability Services Consumers' Rights

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

RIGHT 4
Right to Services of an Appropriate Standard

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

…

5) *Every consumer has the right to co-operation among providers to ensure quality and continuity of services.*

Opinion: No breach – Dr C

Under Right 4(1) of the Code Mrs A had the right to obstetric services provided with reasonable care and skill. Mr and Mrs A were concerned by several aspects of Dr C's care which they considered were not of an appropriate standard.

Familiarity with equipment
The first concern was Dr C's apparent inability to apply the foetal scalp monitor. In Mr and Mrs A's view Dr C spent too long trying to attach the electrode and this delayed his decision to perform a Caesarean section.

Dr C acknowledged that he was not familiar with the particular CTG equipment. However, he said he had placed many CTG electrodes over the years and did not believe the minute or so he took to familiarise himself with the equipment caused an undue delay. My obstetric advisor agreed that it would have taken only a short time because the general principles of CTG recording are much the same regardless of the type of equipment and the time taken could not be regarded as "unduly protracted".

Mrs A had a low risk pregnancy with mild thrombocytopaenia and spontaneous labour at term, but suddenly experienced severe acute continuous pain accompanied by signs of foetal distress when she was 3-4cm dilated. When Dr C arrived in the delivery suite there was not a good reliable CTG tracing available and he considered he needed one for an accurate assessment of foetal health. My obstetric advisor said that it is not unusual to record abnormal foetal heart rates in an otherwise healthy baby; that provided the abnormal recordings are transitory in nature they are likely to respond to conservative measures such as changing the mother's position, administering oxygen and rehydration. However, abnormal foetal heart rates accompanied by pain such as Mrs A was experiencing are more sinister and Dr C had to assess how urgent it was to deliver the baby. My obstetric advisor also noted that Dr C acted swiftly to assess the situation and decide a Caesarean section was required.

While it appeared to Mrs A that Dr C's actions in taking steps to obtain a CTG tracing contributed to an overly long delay in taking her to theatre because he was unfamiliar with the particular model of CTG machine, I am satisfied that was not the case. Dr C had sound clinical reasons for attempting to obtain a reliable CTG reading. In my opinion Dr C provided services with reasonable care and skill in obtaining a CTG tracing and did not breach Right 4(1) of the Code in relation to this matter.

Delivery immediately following ARM
Mr and Mrs A's second concern was that Dr C should have taken immediate steps to deliver the baby when the artificial rupture of membranes revealed blood-stained liquor.

My obstetric advisor noted that the appearance of blood-stained liquor is reasonably common and is rarely indicative of a serious problem. This feature alone did not warrant emergency management. Dr C had to consider other signs and symptoms before deciding whether emergency action was required and acted swiftly to assess the situation and decide a Caesarean section was required.

I accept the advice of my advisor. In my opinion Dr C acted promptly and with reasonable care and skill and did not breach Right 4(1) of the Code in relation to this issue.

Immediate LSCS
Mr and Mrs A's third concern was that Dr C acted too slowly to deliver their baby. They believe he arrived in the delivery suite between 6.35 and 6.40pm and the baby was not delivered until 7.25pm – a delay they consider too long.

I asked my obstetric advisor to comment on the amount of time Dr C took to deliver the baby if, as Mr and Mrs A believe, Dr C arrived in the delivery room between 6.35pm to 6.40pm and delivered the baby by Caesarean section at 7.25pm. He advised that even if this were the case Dr C's actions would be considered reasonable.

Having considered all the evidence, I am satisfied that Dr C was contacted at approximately 6.45pm and arrived in delivery suite shortly before 7.00pm. It is clear from the clinical records that Mrs A was in theatre and anaesthetised at 7.12pm. It follows that Dr C's assessment and management – including performing an abdominal and vaginal examination and artificial rupture of membranes before deciding a Caesarean section was required – occurred in a short space of time. I accept the advice of my advisor that Dr C's management was appropriate and swift.

Accordingly, in my opinion Dr C provided services with reasonable care and skill and did not breach Right 4(1) of the Code in relation to this matter.

Opinion: No breach – Dr D

Oxygenation from time of birth
Under Right 4(1) of the Code the baby had the right to paediatric services provided with reasonable care and skill. Mr and Mrs A complained that Dr D did not immediately provide oxygen to the baby after he was born and delayed intubating him despite his obvious breathing difficulties.

Mr A was waiting for news outside theatre when Dr D wheeled the baby to ICU. Dr D paused briefly to give Mr A a report on the baby's condition. Mr A knew the baby had difficulty breathing and was able to describe his breathing efforts. Mr A could not understand why Dr D did not give immediate attention to treating the baby's breathing problems and considered that Dr D displayed no urgency in taking the baby to ICU.

Dr D initially resuscitated the baby at birth with bag, mask and oxygen but then intubated the baby in theatre. The baby responded within about 10 minutes. He was able to breathe on his own and maintain good colour and circulation. Dr D removed the intubation tube. My paediatric advisor said that the baby's "resuscitation immediately after birth was to an appropriate standard, with intubation, administration of oxygen, and assisted ventilation". The decision to extubate the baby was a clinical one made by Dr D at the time.

Dr D said that as soon as the baby was able to maintain respiration unaided he quickly transferred him. He did not think it necessary to give the baby oxygen during transfer because he remained pink and had not been cyanosed (blue) since the initial resuscitation. At no time did the baby's oxygen levels fall for a significant length of time; when that occurred, he quickly responded with oxygen supplements. The most alarming sign was the baby's gasping respiration, as noted by Mr A, which Dr D considered an indication of brain damage rather than lack of oxygen.

Dr D commenced the baby on CPAP at 9pm and stayed with him until he considered he was stable. Dr D said he considered CPAP earlier but the baby was maintaining reasonable oxygen levels through his own respiratory efforts. However, as time passed the baby became more dependent on oxygen and a chest X-ray revealed signs of lung disease. This led Dr D to place the baby on CPAP.

I have carefully considered my paediatric advisor's comments about the baby's oxygenation, after leaving theatre, including the time it took for him to be transported from the operating theatre to ICU. I have noted my advisor's comments that although the baby's pinkness and oxygen saturations in ICU when he was spontaneously breathing may have been reassuring, there are suggestions that more aggressive and earlier respiratory support may have been appropriate (although my advisor did not consider that this would have affected the baby's prognosis).

My advisor also commented that it is easy, with the benefit of hindsight, to suggest either that the baby's resuscitation "could have been more intensive, either with earlier CPAP or intubation and mechanical ventilation". He suggested that telephone communication between Dr D and the Neonatal Unit at the second public hospital during the period before the retrieval team from this hospital arrived may have been beneficial. Nevertheless, Dr D stayed with the baby for three hours and gave him increased concentrations of inspired oxygen when needed.

I share my paediatric advisor's concerns about making judgments with the benefit of hindsight. I am satisfied that although Dr D could have instigated more aggressive treatment earlier, he acted with reasonable care and skill both in his initial resuscitation of the baby and subsequently. Accordingly, in my opinion Dr D did not breach Right 4(1) of the Code.

Opinion: Breach – Ms B

Under Rights 4(1) and 4(5) of the Code respectively every consumer has the right to services delivered with reasonable care and skill and to co-operation between providers to ensure quality and continuity of services.

It is apparent there was confusion and lack of clarity between Ms E and Ms B from their conflicting accounts. This led to delay in calling the obstetrician. Ms E said she called Ms B to the delivery suite at 6.30pm and asked her to contact Dr C. Mr and Mrs A also recalled

that Ms E asked Ms B to call Dr C. Ms B accepted that Ms E called her at 6.30pm but said Ms B asked her, "Should I call the obstetrician?" Ms B, by her own account, "took over" and checked Ms E's observations to assure herself an obstetric opinion was needed as Ms E seemed to be having problems getting a reliable foetal heart tracing. Time was spent obtaining CTG tracings and doing another vaginal examination, which delayed Dr C being called. Dr C was eventually called by Ms E at around 6.45pm.

Ms E was the lead maternity carer and had responsibility for labour management. At the time she called for assistance Mrs A was experiencing sudden acute continuous pain and, although it was difficult to detect the foetal heart rate by CTG machine, Ms E knew the foetal heart rate had fallen below 100. On the basis of this information she wanted an obstetric assessment urgently; she did not want Ms B to take over care or to confirm the findings before calling the obstetrician.

My midwifery advisor considered that there was no reason for Ms B to "take over" from the LMC. The ideal would have been for Ms B to have "respected the LMC's apparent concern and contacted the obstetrician".

My midwifery advisor advised that Ms B's role as hospital midwife was a collaborative one – to be available for consultation, to co-ordinate the activities of the unit, liaise with other staff on behalf of the LMC and provide midwifery support. My advisor warned that, contrary to the collaborative approach to maternity care, in some maternity units the hospital midwife maintains a "gate-keeping role". In my view this is what occurred in this instance.

Whether Mrs A's symptoms were of sufficient concern to warrant immediate Caesarean section could only be determined by an obstetrician and Ms E was sufficiently concerned to seek help urgently. Ms B's decision to "take over" led to a delay in contacting Dr C while she checked the LMC's findings.

In my opinion, by failing to call the obstetrician when requested, and by deciding to take over from the LMC to check the observations before calling the obstetrician, Ms B did not exercise reasonable care and skill, nor did she demonstrate co-operation between providers to ensure quality and continuity of services. Accordingly, in my opinion Ms B breached Rights 4(1) and 4(5) of the Code.

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Vicarious liability
Section 72(2) of the Health and Disability Commissioner Act 1994 states that employers are vicariously liable for ensuring employees comply with the Code of Health and Disability Services Consumers' Rights. Under section 72(5) it is a defence for an employing authority to prove that it took such steps as were reasonably practicable to prevent the employee from doing or omitting to do the thing that breached the Code.

Ms B was an employee of the hospital. Ms B took over Mrs A's care from the LMC. While this was a clinical decision by Ms B, the hospital has advised me that at the time of this event it had no policies in place to ensure that the hospital midwife understood clearly the interface between hospital midwifery staff and the LMC in such situations. My midwifery advisor described Ms B as a gatekeeper and said that in some maternity units the core midwife functions in that capacity. In my opinion, by not having a clear policy in place clarifying the responsibilities of hospital midwives, the hospital had not taken reasonable steps to prevent the interface problem that occurred in this case. Accordingly, the hospital is vicariously liable for Ms B's breach of the Code.

Actions taken

The hospital advised me that it has made the following changes since this incident:

"i. Emergency telephones have been installed in the delivery rooms that automatically call 777 (the emergency number – no dialling required)

The emergency call and the room it is ringing from are activated at the main telephone switchboard.

The person making the call states what the emergency is:

a) Obstetric
b) Paediatric
c) Medical

The telephonist then activates the call to the appropriate team.

ii. Regular fortnightly meetings and in-service training sessions are held involving LMC midwives, hospital midwives and obstetricians to discuss issues including the interface between LMC and hospital staff.

iii. There is a formal process for handover to secondary LMC when the woman comes under the care of an obstetrician for example; for Caesarean section a stamp is used

or the notes noted, transferred to secondary care and then transferred back to primary care.

iv. The roles of the hospital midwives have been clarified and the care plans for the women should be made available to the hospital midwifery staff by the LMC at the time of admission to enable the staff midwife to act in a 'care taker' role on behalf of the LMC, and according to the care plan.

Consultation with the LMC must take place before any changes in the plan are enacted.

The hospital will be documenting guidelines to clarify the interface between the LMC and hospital midwife staff."

Follow-up actions

- A copy of this report will be sent to the Medical Council of New Zealand, the Nursing Council of New Zealand and Quality Health New Zealand.

- A copy of this report, with details identifying the parties removed, will be sent to the Nursing Council of New Zealand, the New Zealand College of Midwives, the Royal Australian and New Zealand College of Obstetricians and Gynaecologists, and the Paediatric Society of New Zealand, and placed on the Health and Disability Commissioner website, www.hdc.org.nz, for educational purposes.