MidCentral District Health Board

Midwife B

Midwife C

Midwife D

Midwife E

A Report by the

Health and Disability Commissioner

(Case 07HDC04325)

Health and Disability Commissioner
Te Toihau Hauora, Hauātanga

Overview

Baby A was born at Palmerston North Hospital on 2 July 2003 in apparently normal condition, and transferred to a maternity unit for postnatal care. On 5 July, the baby developed hypoglycaemia and sustained significant neurological damage as a result.

This report considers the adequacy of care provided to Baby A by the midwifery staff of the maternity unit, and MidCentral District Health Board, from 3 to 5 July 2003.

Complaint and investigation

On 19 March 2007, the Health and Disability Commissioner (HDC) received a letter from Mrs and Mr A requesting an investigation into the services provided to their son, Baby A, at a maternity unit in July 2003.

On 15 August, I commenced an investigation, and identified the following issues for investigation:

- *Whether Baby A was provided with an appropriate standard of care on 4 July 2003 by Midwife B.*
- *Whether Baby A was provided with an appropriate standard of care on 4/5 July 2003 by Midwife C.*
- *Whether Baby A was provided with an appropriate standard of care on 4 July 2003 by Midwife D.*
- *Whether Baby A was provided with an appropriate standard of care on 5 July 2003 by Midwife E.*
- *Whether MidCentral District Health Board provided Baby A with an appropriate service from 3 to 5 July 2003.*

On 2 October 2007, I extended the investigation to include:

- *Whether Baby A was provided with appropriate care between 3 and 5 July 2003 by Dr F.*

However, I decided to take no further action against Dr F on 26 March 2008, as I was satisfied that the care he provided to Baby A was of a generally appropriate standard.

The parties involved in this case are:

Baby A	Consumer
Mrs A	Consumer's mother
Mr A	Consumer's father

Names have been removed (except MidCentral DHB/Palmerston North Hospital) to protect privacy. Identifying letters are assigned in alphabetical order and bear no relationship to the person's actual name.

Midwife B	Provider/Midwife
Midwife C	Provider/Midwife
Midwife D	Provider/Midwife
Midwife E	Provider/Midwife
Dr F	Provider/Lead maternity carer and general practitioner
The Unit	Maternity Unit/Hospital 2
Palmerston North Hospital	Public hospital
Hospital 2	Public hospital
MidCentral District Health Board	Provider
Mrs G	Registered nurse
Dr H	Senior house officer
Dr I	Paediatrician

Independent expert advice was obtained from midwife Jacqui Anderson and is attached as Appendix A.

Background

This report describes the care that was provided to Baby A by four midwives at a maternity unit in July 2003. When Baby A was two and a half days old, he developed hypoglycaemia[1] and suffered neurological damage.

Newborns at risk of hypoglycaemia include those who are preterm or small for gestational age, those who suffered intrapartum asphyxia or who are sick, and those born to diabetic mothers. Baby A was 3139 grams[2] at birth, was born at full term and was identified as being well at birth. It is generally accepted that healthy term

[1] The World Health Organisation describes hypoglycaemia of the newborn as follows:

> "The term 'hypoglycaemia' refers to a low blood glucose concentration. Neonatal hypoglycaemia is not a medical condition in itself, but a feature of illness or of failure to adapt from the fetal state of continuous transplacental glucose consumption to the extrauterine pattern of intermittent nutrient supply. It is more likely to occur in conditions where infants become cold, or where initiation of feeding is delayed.
>
> Metabolic adaptation at birth involves mobilisation of glycogen reserves (*glycogenolysis*), hepatic synthesis of glucose from other substrates (*gluconeogenesis*), and production of alternative cerebral fuels such as ketone bodies. The processes which ensure availability of glucose and other fuels are collectively described as *counterregulation*. They are activated principally by glucagon and adrenaline. The concentration of glucose in the blood is only one piece in a complex metabolic jigsaw and cannot be interpreted in isolation."

Recommendations for prevention and management of hypoglycaemia of the newborn. World Health Organisation, Geneva, 1997.

[2] Low birth weight at term is usually recognised as <2500 grams.

newborns who are breastfeeding on demand do not need to have their blood glucose routinely checked or to be given supplementary foods or fluids.

Even in newborns at risk, hypoglycaemia is most likely to occur in the first 24 hours of life, as the infant adapts to extrauterine life. Hypoglycaemia that presents after the first day of life, or that persists or recurs, does not necessarily indicate inadequate feeding. It is, however, one of several conditions that must be assessed and monitored during the first few days of life.

Relevant information

The Maternity Unit
The maternity unit (the Unit) is a primary care unit that operates within Hospital 2 and as a unit of the MidCentral District Health Board. In 2003, it comprised two delivery rooms and six postnatal beds.

Labour and birth
On 2 July 2003, Mrs A went into labour with her first baby, following an uneventful antenatal period. Her Lead Maternity Carer (LMC)[3] was general practitioner Dr F. Mrs A laboured at home and then at the Unit before being transferred to Palmerston North Hospital for slow progress of labour and epidural pain relief. The labour progressed quickly en route, and Baby A was born by spontaneous vaginal delivery at 11.05pm, shortly after admission.

Baby A's Apgar scores were 6 at one minute, and 10 at five minutes.[4] Although Baby A was floppy at delivery and required oxygen briefly, he recovered well.[5] His birth weight was 3130 grams.

Baby A had his first breastfeed in the delivery suite and was offered the breast again at 2am on 3 July, after being transferred to the maternity ward. Although he failed to latch on at 2am, Baby A did latch on and suckle at 3.45am, 7.45am and 11am. These feeds were recorded in a breastfeeding chart, and coded according to a breastfeeding key code.[6]

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

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

[5] Mrs A believes that Baby A may have become distressed in labour, during the transfer to Palmerston North Hospital, and that this may have placed him at risk of developing hypoglycaemia.

[6] See Appendix B.

Mrs A and Baby A were transferred back to the Unit at 1.30pm on 3 July 2003.[7] Baby A had not passed urine while at Palmerston North Hospital.

During his time at the unit, Baby A was cared for by four midwives:

3 July	3.00pm to 11.00pm	Midwife B
3/4 July	10.45pm to 7.15am	Midwife C
4 July	7.00am to 3.30pm	Midwife D
	3.00pm to 11.00pm	Midwife B
4/5 July	10.45pm to 7.15am	Midwife C
5 July	7.00am to 12.20pm	Midwife E

Midwife B was on duty at the Unit on the afternoon of 3 July when Mrs A and Baby A were transferred. Two standard records were set up to record Baby A's progress — a care record and a feeding chart. The care chart is a table with spaces to record details about the mother and baby, the date, the initials of the staff member on duty, a larger section for describing the feed, spaces for recording stools, urine, skin colour, eyes, skin, temperature, cord and a larger section for recording "comments". The feeding chart is a table with spaces to record the date, the baby's age and weight, the timing of feeds, temperatures (of baby, cot and room), whether baby fed from the left breast or the right breast or both, the amount taken from a bottle, vomiting, urine and bowel motions, and remarks.

The care record also refers to other documents — a "care plan" and "progress notes". However, no general care plan or progress notes were provided in relation to Baby A by Mrs A's LMC, Dr F. MidCentral DHB also provided a document headed up "Midwifery Objective 1 Early detection of postnatal and neonatal complications". Under the subtitle "baby", the first intervention listed is "Neonatal assessment PRN [as required]". There is no evidence of an assessment being carried out for Baby A at the time of admission to the unit.

Midwife B assisted Mrs A to breastfeed Baby A at 6.30pm, 7½ hours after his last feed at Palmerston North Hospital. She recorded in the care record that Baby A had latched well and suckled for 15 minutes with audible swallows,[8] that Baby A had passed urine and a small meconium[9] stool, and that he was a "settled wee babe". In

[7] In addition to her concerns about the care Baby A received, Mrs A found the Unit's relaxed approach to visiting hours inappropriate, stating:

> "All I wanted to do was relax and bond with my baby but [visitors] were just walking straight into my room in droves ... I wished [the midwife] would come in and check on me and baby and I would have asked her discreetly to turn any new visitors away."

[8] Although the breastfeeding key code was available at the unit in July 2003, its use was not fully implemented until November 2004.

[9] The consistency of newborn stools are recorded to monitor the normal extrauterine adjustment of the digestive tract.

Baby A's feeding chart, Midwife B erroneously recorded that he had passed urine at Palmerston North Hospital.[10] She then noted that he fed for about 10 minutes at 6pm, passed a stool, although the consistency was not recorded, had one wet nappy and that his temperature was 36.8°C. Midwife B wrote on the feeding chart that Baby A was "snuffly".

Midwife C was on duty at the unit from 10.45pm on 3 July 2003 until 7.15am on 4 July 2003. She documented, in both the care record and the feeding chart, that Baby A breastfed at 11.30pm, 3.30am, and 6.30am. The feeding chart noted that Baby A fed from both breasts for ten minutes each at 10.45pm and 3.15am. The length and quality of the 6.20am feed is not recorded. Midwife C recorded that Baby A did not have any wet nappies and was unsettled during the night. The feeding chart records a stool at 6.20am, but there is no record of the consistency.

On 4 July, the midwife on duty from 7am to 3.30pm was Midwife D. She noted on the feeding chart that Baby A was jaundiced and ordered blood tests for bilirubin levels. Baby A's bilirubin levels were elevated and, after discussing his management with Dr F, phototherapy was commenced at 1.10pm — Baby A's temperature was 37˚C.

Midwife D recorded that Baby A was breastfeeding two hourly throughout her shift from 7.30am. He passed urine and meconium stools twice. Midwife D also noted on the care record that Baby A's bilirubin levels needed to be re-tested on the morning of 5 July. The times of the feeds were noted on the feeding chart, but not in the care record. Neither record indicates the quality or length of the feeds, other than a comment in the care record, "Bfed [breastfed] well".

That afternoon, Midwife B was on duty from 3.00pm to 11.00pm. She recorded on the feeding chart that Baby A had two feeds at 3.20pm and 8.00pm. The quality and length of the feeds were not recorded. However, the care record notes that he was "Bfeeding [breastfeeding] well". Midwife B wrote in the care record that Baby A passed urine and stools twice. However, in the feeding chart, Midwife B documented that Baby A did not pass any urine and only one meconium stool. In the feeding chart, Midwife B recorded that Baby A fed at 3.20pm, when his temperature was 36.8˚C, and at 8pm, when his temperature was 37.5ºC. She noted that Baby A's jaundice was improving and reminded the next shift that Baby A required a repeat bilirubin count in the morning.

Midwife C cared for Baby A overnight on 4/5 July. She noted that he had passed urine and a stool at midnight, but the colour and consistency were not noted. At 12.45am, the feeding chart records "attempts" at both breasts and the care record notes "awake but not interested in BF [breastfeeding]". Baby A's temperature is recorded in the care

[10] The infant discharge summary from Palmerston North Hospital records that Baby A had passed meconium, but no urine, although his progress notes state: "B/feeding well. HNPU [has not passed urine] or mec[onium] since arrival on ward — [the Unit] aware of same."

record as 36.5˚C but it is not clear what time this was taken. Midwife C later stated that she was not too concerned when Baby A was not interested in feeding at 12.45am as he had fed well during the two previous shifts.

Baby A was also reluctant to feed at 4am. Midwife C noted in the care record: "awake but not interested in sucking [therefore expressed breast milk given]" and "not interested in sucking" in the feeding chart. Midwife C noted giving Baby A 20mls[11] of expressed breast milk at 4am in the feeding chart, but Mrs A recalls that "at least half" of the milk spilled down his cheek.

Midwife C noted in the care record that she had "reassured" Mrs A but did not document what reassurance was given, or whether any explanation was provided for Baby A's feeding difficulties. Baby A also had a wet nappy and a stool at 4am. His urine was noted to have "urates".[12]

Midwife C was relieved by Midwife E at 7am on 5 July. Midwife E took blood samples from Baby A to check his bilirubin levels and for the Newborn Metabolic Screening Programme.[13] Baby A awoke spontaneously at 8am but was too sleepy to feed, so Midwife E fed him 20mls of expressed breast milk via syringe (although Mrs A does not recall expressing this milk). Midwife E also noted on the care record that his temperature was 36.9ºC, and his weight was down to 2840grams — almost 90% of his birth weight. Baby A had a wet nappy and a small meconium stool at 8am. Midwife E stated that she advised Mrs A that she would wake Baby A at 10.30am for another feed, but this plan was not documented.

Although Baby A did pass urine twice that morning, he was lethargic and his jaundice persisted. At 10.40am, Dr F visited the Unit. Baby A was noted to be "jittery", and Dr F decided to test his blood glucose levels. Because the equipment was not available, Dr F left Midwife E to obtain a glucocard while he ran some errands, on the understanding that she would contact him with the results. Midwife E noted the "jittery movements at 10.40am" in the care record. She documented Dr F's visit in Mrs A's notes, but did not document his assessment and instructions in Baby A's notes.

Midwife E was able to test Baby A's blood glucose at 10.55am, and it was unrecordable (low). Baby A immediately had an episode of hypoxia, but "pinked up" after receiving oxygen. His respirations were timed at 48–60 breaths per minute and his heart rate 130 beats per minute (bpm).[14] Midwife E instructed the registered nurse,

[11] A newborn would usually be expected to take an average of 14–28mls per feed at day 2–3.

[12] Urates indicate concentrated urine, and are a sign of dehydration.

[13] The Newborn Metabolic Screening Programme (Guthrie test) is a national programme that screens infants' blood for 28 metabolic disorders.

[14] Baby A's heart and respiration rates were rapid for an infant.

Mrs G, to contact Dr F immediately, but she was unsuccessful. Mrs G contacted an ambulance, which was dispatched to the Unit immediately.

Dr H, a Senior House Officer at Hospital 2, was contacted for advice, and she came over to the Unit to assess Baby A; she believed that Baby A had a heart murmur. At 11.15am, Midwife E fed Baby A 10mls of S26 formula via a bottle.

Midwife E then left Baby A in the care of Mrs G and Dr H and contacted Palmerston North Hospital's paediatrician, Dr I. While she was talking to Dr I, the ambulance arrived at the Unit. Dr I recommended inserting an IV line into Baby A, but neither the ambulance officer nor staff at the unit were able to do so.

At 11.35am, Baby A, Mr and Mrs A and Midwife E were transported to Palmerston North Hospital in the ambulance. En route, Baby A continued to deteriorate; his colour was poor, and his respirations were irregular. At 12.07pm, Midwife E administered intramuscular glucagon and commenced respiratory resuscitation. The ambulance arrived at the hospital at 12.20pm, and Baby A's blood glucose was measured at 1.0mmol/L.[15]

Baby A was immediately admitted to the neonatal unit, where Dr I inserted an IV line and administered dextrose. At 1.30pm, Baby A's blood glucose level was 2.7mmol/L. Baby A had a number of seizures, and was administered an anticonvulsant, phenobarbitone. A CT scan demonstrated a subarachnoid haemorrhage[16] and widespread cortical ischemia.[17]

Baby A was discharged from Palmerston North Hospital on 20 July 2003, and returned home. Baby A remains significantly disabled, and has been diagnosed with neonatal hypoglycaemia of unknown cause, with neurological sequelae — epilepsy, developmental delay, behavioural problems and visual impairment.

MidCentral DHB

MidCentral DHB has undertaken a number of changes and improvements to its Women's and Child Health Service in light of this case. They include:

- Breastfeeding charts with Key codes were implemented at the Unit in November 2004, and these charts now include assessment of infants' feeding on arrival at the Unit, and prompts to record stool and urine output.
- The Unit now works with identical documentation to that at Palmerston North Hospital — this includes care plans for mother and baby.

[15] Normal blood glucose levels for infants are between 2.5mmol/L and 10mmol/L.

[16] A bleed into the membranes surrounding the brain, at the base of the skull.

[17] Brain damage to the outer layer of the brain caused by lack of oxygen.

- All mothers transferring from Palmerston North Hospital to the Unit now take their complete clinical notes with them, to ensure that the notes remain contemporaneous and to facilitate continuity of care.
- Phototherapy lights are no longer in use at the Unit.
- Glucose monitoring equipment is now accessible in the Unit.
- In March 2005, the Unit became accredited as a Baby Friendly Hospital Initiative facility. The accreditation process involves auditing of feeding charts and education of midwives and lactation consultants. The accreditation was successfully maintained in June 2008.
- Midwives C, D and E attended the New Zealand College of Midwives Documentation Workshop this year, supported by MidCentral DHB.
- MidCentral DHB is working with the New Zealand College of Midwives to arrange documentation workshops for all midwives employed by the DHB.
- MidCentral DHB Women's Health Unit is currently working to improve the Community Midwife care plans and progress sheets.
- MidCentral DHB's primary maternity group plans to develop a guideline regarding the admission of a woman and her infant to the unit following birth at Palmerston North Hospital.
- The position of Charge Midwife has been established and is currently being advertised. The aim of this role is to strengthen midwifery leadership.

Responses to provisional opinion

The majority of the parties' comments on my provisional opinion have been incorporated into the previous section. Remaining comments are outlined below:

MidCentral DHB
MidCentral DHB accepts that it did not provide adequate systems for documentation, and that this prevented the midwives from communicating effectively, and meeting professional standards for documentation. The DHB stated:

> "Whilst the midwives involved in this case are individually accountable for their practice, MidCentral DHB recognises that systems and processes, particularly documentation systems, which could have more adequately supported those midwives, were not in place. This is recognised as an organisational shortcoming."

MidCentral DHB also advised:

> "MidCentral DHB supports the midwives who remain employed by MidCentral DHB as valued staff who have had to deal with the implications of the events that led to this complaint. They make a strong contribution to the delivery of maternity services in out district and we are committed to supporting them and their ongoing professional development.
>
> …
>
> MidCentral DHB has taken, and continues to take, the issues that arose from the care provided to [Baby A] … very seriously. Every effort has been made to address the shortcomings that have been highlighted by this complaint and your investigation and report."

MidCentral DHB stated that all staff will be informed of the HDC findings, and encouraged to familiarise themselves with the report to assist their education and improve their professional documentation and maintenance of standards.

Midwife B

Midwife B confirmed that she has "reflected on both my personal practise and that of [MidCentral DHB]". Midwife B acknowledged that she should have updated Baby A's special needs care plan and that she did not meet professional standards with respect to her documentation. However, Midwife B noted that she "fully complied with the practice operating at the time" and believed that "any failure is largely systemic rather than individual".

Midwife B advised:

> "At the time, the unit in [town] was isolated and ... [t]he comment by your advisor that the unit was sub-optimal in respect to glucose monitoring equipment could be applied to other aspects of the [U]nit.
>
> ...
>
> During my time at the unit I felt professionally vulnerable and this contributed to my decision to cease practicing as a midwife at [the] Hospital in December 2005."

Midwives C, D and E

Midwives C, D and E provided apologies to Mr and Mrs A in response to the provisional opinion.

Mrs A

Mrs A was critical of the midwives' failure to offer Baby A milk-formula, given the difficulty she was having expressing breastmilk. Mrs A stated:

> "If my baby boy, [Baby A], had been given a little formula during this crucial period at [the] unit, I believe he would have been the normal little five year old boy today that he should be."

Mrs A also commented that she did not feel listened to:

> "My feelings at that time were that he wasn't feeding well as I kept telling them. All the midwives kept 'reassuring' me as the notes reflect. As [HDC advisor] Jacqui Anderson has observed, if their reassurances to me had been based on self questioning of their own practice in relation to the worried mother's baby's condition, then they may have been alerted to a need to pay closer attention to that baby. And once again, could that have meant a far better outcome for [Baby A]? ... Is there perhaps an assumption amongst midwives that new mothers can be worrisome and overly paranoid? A reminder that not all new mothers are like this and a respect for a mother's innate instinct about her newborn might be called for here. I *knew* that something was wrong with my baby — my husband and my mother will confirm that I said this several times — but no one was listening."

Mrs A was also distressed to find that the Unit's procedures, protocols, policies and documentation were not consistent with that at Palmerston North Hospital. She noted:

> "The absence of such consistency in practices would surely be a guaranteed recipe for disaster, given that it would allow for medical staff to act as individuals practising their own methodology and applying their own standards — rightly or wrongly. It would open the door for human error to walk in — as seems to [have been] the case here."

Relevant standards

The relevant standards from the New Zealand College of Midwives *Midwives' Handbook for Practice* (2002) state:

> "Standard four
> The midwife maintains purposeful, ongoing, updated records and makes them available to the woman and other relevant persons.
>
> Standard six
> Midwifery actions are prioritised and implemented appropriately with no midwifery action or omission placing the woman (or her baby) at risk.
>
> *Criteria*:
> The midwife

- Ensures assessment is ongoing and modifies the midwifery plan accordingly.

- Identifies deviations from the normal and after discussion with the woman, consults and refers as appropriate.

Standard seven
The midwife is accountable to the woman, to herself, to the midwifery profession, and to the wider community for her practice.

Criteria:
The midwife

Clearly documents her decisions and professional actions.

Reflects on her practice.

Standard eight
The midwife evaluates her practice.

Criteria:
The midwife

- Utilises results of evaluation in her practice."

Opinion

Overview
Baby A was born on 2 July 2003 at full term with no complications. At 3130 grams, he was a good weight for his age and received satisfactory Apgar scores. Baby A was latching on and breastfeeding by the time he was transferred to the Unit on 3 July 2003.

On the morning of 4 July 2003, Baby A was noted to have developed jaundice. His bilirubin levels were tested and he was placed under phototherapy lights. My expert advisor, Jacqui Anderson, noted:

> "Phototherapy contributes to insensible water loss in the baby and this can result in reduced hydration therefore quality and quantity of output along with sleepiness would be an alerting factor for babies undergoing phototherapy".

Although Baby A fed regularly during the day on 4 July 2003, he became sleepy and uninterested in feeding later that night. By the morning of 5 July 2003, his temperature had dropped, he was reluctant to feed, and he had developed jittery movements — all signs of developing hypoglycaemia.

Communication
A general issue raised by the case is the apparent failure of the midwives to listen carefully to what Mrs A was telling them. I note Mrs A's comment, "I *knew* that something was wrong with my baby ... but no one was listening."

Providers should always treat consumers with respect and listen carefully to their concerns. This case is a reminder of why this is so important.

Documentation
There are often several providers involved in caring for a newborn baby in those important first few days and, although there is usually an additional verbal handover between shifts, the clinical records are key to ensuring that the right information is passed from one provider to another, to allow for continuity of care. While breastfeeding is becoming established, it is particularly important that the duration and quality of feeds and regular digestive output are fully and accurately documented so that those caring for the baby can be satisfied that he or she is receiving adequate fluids and nutrition, and developing as expected.

Although Midwives B, C, D and E recorded the timing of Baby A's feeds and that he passed urine and stools during their shifts, they did not routinely record the duration or quality of his feeds, nor the colour and consistency of his stools. It would have been useful for the midwives to indicate the quality of feeds by describing Baby A's attachment suckle/swallow ratio and whether there was audible swallowing. Clear and objective information about feed quality would have indicated whether Mrs A's milk supply, and the frequency of Baby A's feeding, was increasing within normal ranges. Thorough documentation may have alerted staff to Baby A's decreased feeding and increased sleepiness on the evening of 4 July 2003, and assisted oncoming staff to better plan Baby A's care and management.

The comments on Baby A's feeding and development were confined to the small spaces available on the feeding chart and the care record used at the Unit. Although Midwife D commenced a care plan when Baby A started phototherapy, this was not updated on subsequent shifts, and there was no evidence of a general care plan from Mrs A's LMC, Dr F, nor were any progress notes commenced when Baby A entered the Unit.

It is important to regularly evaluate and update all patients' care plans, particularly those identified with special needs, such as jaundice. A regularly updated care plan would have facilitated better co-operation and continuity of care between the midwives by providing current information on Baby A's condition, and more clearly documenting his change in feeding patterns and increasing lethargy. Mrs Anderson noted:

> "The staff had no reason initially not to treat [Baby A] as a normal term infant but there is no evidence that they were alert to [the need for] increasing vigilance when he required phototherapy. The phototherapy policy in use at the

> time was followed and a care plan commenced. This care plan was brief and not updated during each following shift. This is not appropriate for a baby undergoing a treatment regime."

The documentation in this case was not sufficient to ensure all the necessary information was available to the midwifery staff caring for Baby A, and this may well have contributed to his deteriorating condition. Midwives B, C, D and E recorded their care in the templates in use at the Unit at the time of Baby A's admission. This format did not encourage full documentation of assessments and actions taken, nor did it provide space for care plans to be updated. The format of these documents, and the general culture around documentation apparent at the Unit at the time, is discussed below.

Despite the limitations of the templates available to them, the midwives who cared for Baby A from 3–5 July 2003 were required to meet professional midwifery standards in relation to documentation. The areas where their documentation departed from those standards, and the other issues that arose with Baby A's care, are discussed in the following paragraphs.

3 July 2003 — 3.00pm to 11.00pm
Midwife B was the first to care for Baby A when he arrived at the unit on 3 July 2003. She started a feeding chart and a clinical record for Baby A. However, there is no record of a general care plan or progress notes being started for Baby A's care.

The MidCentral DHB Midwifery Objective 1 states that the midwife can prepare a "neonatal assessment PRN [as required]". This leaves it to the midwife to determine whether the baby requires an assessment. In this case, an assessment was not completed.

I am concerned that no initial assessment or general care plan was provided for [Baby A]. Even if (as occurred here) the LMC does not provide a written care plan at the time of admission, the admitting midwife has a responsibility on a day-to-day basis to formulate a plan of care for the mother and baby to be cared for. In this case, it would have been useful to note, at the time of admission, that [Baby A] had not yet passed any urine since his birth 14 hours earlier, as this was something that needed ongoing monitoring.

[Midwife B] appropriately recorded [Baby A's] willingness to feed and the consistency of stools on 3 July 2003. There is a minor discrepancy in the timing of [Baby A's] first feed at the Unit and whether [Baby A] had passed urine at Palmerston North Hospital. Although they appear to be only minor matters, such discrepancies can be important if they impact on the way subsequent providers interpret a baby's feeding and output patterns.

3 July 2003 — 11.00pm to 7.00am
Midwife C first cared for Baby A on 3 July 2003 when she took over from Midwife B at 11pm. She recorded feeds at 11.30pm and 3.30am, noting that Baby A fed from both breasts for ten minutes at each feed. Although there is no description of Baby A's suckle or swallowing, this gives other team members a good indication of the amount of fluid Baby A would have been likely to receive during these feeds. However, the length and quality of the 6.20am feed was not recorded, nor was the consistency of the stool.

4 July 2003 — 7.00am to 3.00pm
Midwife D took over responsibility for Baby A's care at 7am on 4 July 2003. She promptly noticed that Baby A was jaundiced and ordered blood tests for bilirubin levels. Midwife D discussed Baby A's jaundice with the LMC and commenced a phototherapy treatment plan. Baby A had a number of wet nappies and stools during this shift and Midwife D appropriately recorded the consistency of the stools as meconium.

Baby A fed every two hours from midday and the times of the feeds are noted in the feeding chart. However, Midwife D did not record the length and quality of these feeds. This made it difficult for oncoming staff to assess whether Baby A had received appropriate nutrition and hydration during the afternoon, particularly when he had commenced phototherapy, which has a dehydrating effect.

4 July 2003 — 3.00pm to 11.00pm
Baby A was progressing well when Midwife B took over his care from Midwife D on the afternoon of 4 July 2003 — he had been breastfeeding, regularly passing urine and stools, and had been under phototherapy lights for jaundice.

Midwife B noted in the clinical record that Baby A's jaundice was improving and reminded the next shift that Baby A required a bilirubin count in the morning. However, the phototherapy care plan that had been started by Midwife D was not updated.

Midwife B recorded that Baby A fed twice, at 3.20pm and 8.00pm, but there was no information on the quality or length of those feeds. There was also a discrepancy in the way Baby A's urine and stools were recorded. Midwife B documented in Baby A's care record that he passed two stools and had two wet nappies, but in the feeding chart she noted one meconium stool and no urine. The differences between the records would have made it difficult for oncoming staff to assess Baby A's condition and plan his care.

4 July 2003 — 11.00pm to 7.00am
Midwife C started her shift at 10.45pm on 4 July. She documented that Baby A was too sleepy to feed at 12.30am and 4am and, following the second unsuccessful attempt, she assisted Mrs A to express 20mls of breast milk and fed this to Baby A. Mrs A recalled that Baby A spilled "at least half" of this feed. Midwife C also noted

urates in Baby A's nappy at 4am, but did not attempt to feed him again before her shift ended at 7.15am.

Midwife C stated that she was not too concerned when Baby A was not interested in feeding at 12.45am as he had fed well in the two previous shifts. However, Baby A's reluctance to feed continued for the remainder of the night. By 8.00am on 5 July, he had received only part of a 20ml feed of expressed breast milk over a 12-hour period.

5 July 2003 — 7.00am to 3.00pm
Midwife E took over Baby A's care from 7am on 5 July. She fed him expressed breast milk by syringe at 8am because he was not interested in breastfeeding and, after noting that he had lost almost 10% of his birth weight, planned to wake him in 2½ hours to feed again.

Unfortunately, before Baby A received another feed, he began experiencing jittery movements and Midwife E responded by measuring his blood glucose levels. Baby A deteriorated rapidly and Midwife E cared for him by providing resuscitation and arranged for transfer to Palmerston North Hospital. Midwife E also gave Baby A another 10mls of formula at 11.15am.

Opinion: Breach — Midwives B, D, C, and E

Midwife B
Although the culture around documentation (discussed below) and the documentation templates in use in the Unit in July 2003 did not encourage midwives to keep thorough and appropriate notes, Midwife B was still expected to meet professional midwifery standards. I agree with my expert that Midwife B failed to meet professional standards in relation to documentation, by failing to maintain "purposeful, ongoing, updated records" required by the New Zealand College of Midwives' professional standards.

Midwife B did not prepare a care plan when Baby A was admitted to the Unit on 3 July 2003 and, when a care plan was commenced for Baby A's phototherapy on 4 July 2003, Midwife B did not update it. Although Baby A's feeds were recorded, there was insufficient detail about the quality and duration of feeds and the consistency of stools. This lack of documentation may have affected Baby A's continuity of care, as subtle changes in Baby A's feeding pattern and behaviour were not able to be passed

on to subsequent team members caring for him. Accordingly, Midwife B breached Right 4(2) of the Code.[18]

Midwife D
Midwife D was quick to identify Baby A's jaundice on the morning of 4 July and to arrange appropriate bilirubin testing and treatment. Midwife D also appropriately commenced a care plan for the phototherapy.

Given the dehydrating effect of phototherapy, it was particularly important for the midwives who cared for Baby A to remain alert to the risk of dehydration. Baby A fed regularly during this shift and the times of the feeds were noted on the feeding chart. However, Midwife D did not record the length and quality of those feeds and no records were made of the feeds on the care record. This made it difficult for oncoming staff to assess whether Baby A was receiving appropriate nutrition and hydration, in light of his additional needs under phototherapy.

Although the limitations of the documentation templates used in the Unit in July 2003 are a mitigating factor, Midwife D was nonetheless required to meet professional midwifery standards. By failing to adequately document the length and quality of Baby A's feeds on 4 July 2003 in accordance with professional standards, Midwife D breached Right 4(2) of the Code.

Midwife C
Midwife C maintained good records of Baby A's feeds at 11.30pm and 3.30am on 3 July 2003, noting that Baby A fed from both breasts for ten minutes at each feed. However, the length and quality of the 6.20am feed was not recorded, nor was the consistency of the stool.

When Midwife C cared for Baby A again the next night, on 4 July 2003, he was sleepy and reluctant to feed at both 12.45am and 4am. Urine and stools were noted at 12.00am but no description of amount or consistency was noted. Midwife C attempted to feed Baby A expressed breast milk at 4am, but Mrs A reported that this was largely unsuccessful. Baby A also had urates in his urine by then.

Mrs Anderson advised that the fact that Baby A was undergoing phototherapy and was noted to be very sleepy should have alerted Midwife C to the risk of dehydration:

> "There appears to have been a change in the pattern occurring from the earlier shifts where [Baby A] had been interested in feeding. With sleepiness and resultant lack of feeding the risk of dehydration for babies undergoing phototherapy is increased along with the concomitant risk of hypoglycaemia.

[18] Right 4(2) of the Code of Health and Disability Services Consumers' Rights states: "Every consumer has the right to have services provided that comply with legal, professional, ethical, and other relevant standards."

…

> [I]t would have been more appropriate for a feed to be attempted within 1–2 hours of the attempt at 12.30am, and then again within three hours. At the very least, I believe [Midwife C] should have considered the next feed within 3 hours of the 4am feed."

Mrs Anderson also commented that the identification of urates at 4am should have prompted a reassessment of Baby A's condition, particularly when he had undergone phototherapy earlier that day:

> "Although urates are not uncommon in the first 48 hours they are an indication of the need for an increase in fluid intake. The fact that Baby A had developed jaundice significant enough for phototherapy would also alert the midwife to the need for him to increase his fluid intake."

The discrepancies in the recording of Baby A's output during the previous shift would have made it difficult for Midwife C to accurately assess Baby A's condition. However, I agree with my expert's advice that Baby A's reluctance to feed and sleepiness represented a definite change in behaviour from earlier that day and the previous night, when Midwife C had observed him feeding well.

Given Baby A's change in feeding behaviour, the history of phototherapy and the presence of urates at 4am, Midwife C's decision to allow lengthy periods between feeds was not appropriate — she did not offer Baby A another feed before the end of her shift, and it was not until 8.30am that he received expressed breast milk again.

Mrs Anderson advised that the care Midwife C provided to Baby A was not in accordance with professional midwifery standards, and her departure from these standards would be viewed with "moderate disapproval" from her peers. In my view, Midwife C did not provide Baby A with services with reasonable care and skill, and breached Right 4(1) of the Code.[19] By failing to adequately document the length and quality of Baby A's 6.20am feed on 3 July 2003 in accordance with professional standards, Midwife C also breached Right 4(2) of the Code.

Midwife E

Midwife E was quick to identify that Baby A needed additional nutrition when she assumed responsibility for his care on 5 July 2003 and fed him expressed breast milk by syringe at 8am. At that time, Midwife E was aware of the risks of hypoglycaemia and noted that Baby A had lost almost 10% of his birth weight. She planned to wake him in 2½ hours to feed again, although that plan was not noted in the care record.

[19] Right 4(1) of the Code of Health and Disability Services Consumers' Rights states: "Every consumer has the right to have services provided with reasonable care and skill."

When Baby A's symptoms deteriorated, Midwife E responded appropriately by consulting Dr F, measuring Baby A's blood glucose levels and providing emergency care in transit to Palmerston North Hospital. Mrs Anderson advised:

> "[Midwife E] responded appropriately given [Baby A's] deteriorating condition and called for appropriate assistance. She initiated initial resuscitation efforts in accordance with her Scope of Practice and the relevant standards."

Although Midwife E kept notes on the care she provided to Baby A, she did not update his phototherapy care plan, or document her plan to increase his intake with 2.5-hourly feeds. Nor did she record, in Baby A's notes, the LMC's visit and assessment at 10.40am.

Again, the documentation template in use in the Unit in July 2003 did not encourage midwives to keep thorough and appropriate notes, but this does not abrogate Midwife E's responsibility to meet professional midwifery standards. Accordingly, Midwife E breached Right 4(2) of the Code.

Opinion: Breach — MidCentral District Health Board

Direct liability

The maternity unit is a unit of the MidCentral District Health Board, operated within Hospital 2. The standard clinical documentation template, used to record Baby A's progress while he was admitted to the unit from 3 to 5 July 2003, was supplied by MidCentral DHB.

A district health board has a duty to have appropriate systems in place to ensure that clinical services are documented. On this occasion, the documentation system was clearly inadequate. The documentation templates did not provide sufficient room to record updated information and the forms for recording feeding input and output did not prompt providers to record critical information, such as timing and quality of feeds or quantity and consistency of stools.

In relation to Baby A's feeding, it would have been useful for the midwives to indicate the quality of feeds by describing Baby A's attachment, suckle/swallow ratio and whether there was audible swallowing. A breastfeeding key code similar to that used at Palmerston North Hospital's neonatal unit would have provided an objective description of feed quality. MidCentral DHB advised that the breastfeeding key code was available at the Unit in July 2003, but its use was not fully implemented until November 2004, and it was not used in Baby A's care.

Although the midwives who cared for Baby A also had a responsibility to comply with midwifery professional standards for documentation, the fact that all four midwives adopted similar practices in not adequately completing the entries in the care record, the feeding chart and the phototherapy care plan suggests a culture of inadequate documentation in the Unit at that time.

There was no standard documentation template for general care planning or general progress notes, and none was used to plan and update Baby A's care while he was at the Unit. Despite the reference to a "care plan" and "progress notes" in the care record, MidCentral DHB confirmed that no additional documentation template was used in July 2003. The special care planning document used when Baby A required phototherapy did not provide any space for updating and revising the care plan as the treatment progressed. The feeding chart and care record contained inadequate space for the midwives to fully document their observations. This overall lack of detailed documentation may have led to inconsistent care between shifts, and an inappropriate reliance upon verbal handover, where important details can be forgotten or omitted.

Overall, I consider that the documentation systems in use at the Unit in July 2003 fell below the standard expected and put patients at risk. Accordingly, MidCentral DHB breached Right 4(1) of the Code.

Furthermore, MidCentral DHB's inadequate documentation system prevented effective co-operation among providers to ensure quality and continuity of services for Baby A. Accordingly, MidCentral DHB breached Right 4(5) of the Code. [20]

Vicarious liability
As noted above, Midwives D, B, C and E breached Right 4(2) of the Code by failing to comply with the professional standards in relation to documentation as set out in the New Zealand College of Midwives "Midwives' Handbook for Practice" (2002).

[20] Right 4(5) of the Code of Health and Disability Services Consumers' Rights states: "Every consumer has the right to co-operation among providers to ensure quality and continuity of services."

During the period under investigation, Midwife D, Midwife B, Midwife C and Midwife E were employed by MidCentral DHB. Under section 72 of the Health and Disability Commissioner Act 1994 ("the Act") an employer is liable for acts or omissions by an employee unless the employer proves that it took such steps as were reasonably practicable to prevent the employee from breaching the Code. In this case, MidCentral DHB failed to take reasonably practicable steps to prevent Midwife D, Midwife B, Midwife C and Midwife E from breaching Right 4(2) of the Code by failing to comply with professional midwifery standards in relation to documentation. Therefore, MidCentral DHB is vicariously liable for their breaches of Right 4(2) of the Code.

Actions taken

I commend MidCentral DHB on the actions taken in light of this case to improve services at the Unit, and more generally to its Women's and Child Health Service. Primary birthing facilities are a key part of any district health board's maternity service but must be well linked to, and supported by, secondary services.

Other comment

LMC documentation
Mrs Anderson was critical of Dr F's failure to document his contact with Mrs A and Baby A on 5 July. I agree that Dr F's documentation was not adequate. He has acknowledged this shortcoming and taken steps to significantly improve his clinical records. Dr F is participating in an accreditation process that involves auditing his practice, and he will provide HDC with a copy of the assessor's report.

I am satisfied that Dr F provided generally appropriate care to Mrs A and Baby A, and will maintain more thorough documentation in the future.

Recommendations

I recommend that Midwives B, C, D and E review their practice in light of this report.

I recommend that Midwife B provide a written apology to Mr and Mrs A for her breach of the Code.

I recommend that MidCentral DHB update HDC by 31 January 2009 on progress in implementing the planned improvements in its Women's and Child Health Service, in particular at the Maternity Unit.

Follow-up actions

- A copy of this report will be sent to the Midwifery Council of New Zealand.
- A copy of this report, with details identifying the parties removed (other than MidCentral DHB and Palmerston North Hospital), will be sent to the New Zealand College of Midwives, the Maternity Services Consumer Council, and the Federation of Women's Health Councils Aotearoa, and placed on the Health and Disability Commissioner website, www.hdc.org.nz, for educational purposes.

Names have been removed (except MidCentral DHB/Palmerston North Hospital) to protect privacy. Identifying letters are assigned in alphabetical order and bear no relationship to the person's actual name.

Appendix A

Independent advice to Commissioner

The following expert advice was obtained from midwife Jacqui Anderson:

> "My name is Jacqueline (Jacqui) Alison Anderson. I have been asked to provide an opinion to the Commissioner on case number 07/04325. I have read and agree to follow the Commissioner's Guidelines for Independent Advisors.
>
> My qualifications are Registered Midwife, 1984, Registered General and Obstetric Nurse, 1981 and Master of Midwifery (Otago Polytechnic 2006). I have been practising midwifery since 1984. I have been employed in tertiary obstetric hospitals from 1984–1991 and as the midwifery leader of a stand alone sole charge primary birthing unit from 1991–1995. Since 1995 I have been a self-employed midwife and Lead Maternity Carer (LMC) and I am also a midwifery lecturer and co-Head of Midwifery in the Bachelor of Midwifery programme.
>
> I am a member of the New Zealand College of Midwives. I have been a Midwifery Standards reviewer and was the midwife representative on the NZ College of Midwives Resolutions committee from 1996–2002.
>
> The following information was received and reviewed:
>
> - [Mr and Mrs A's] complaint to the Commissioner, dated 27 February 2007, and associated documentation.
> - Notification letter to [Mr and Mrs A], dated 15 August.
> - Information from general practitioner/LMC [Dr F].
> - Information from midwives [Midwife D, Midwife C and Midwife E].
> - Information from [the] Women's Health Unit, PNH.
> - Maternity records from the hospital to the time of transfer to the unit.
> - [Baby A's] records from the unit.
> - [Baby A's] records from the unit, including ambulance records and hospital records until 7 July 2003.
> - Policies on Breastfeeding, Phototherapy and Management of the Hypoglycaemic Infant.
> - I requested and received [Mrs A's] maternity record pertaining to her admission to the unit following the birth of her baby.
> - 1.5.08 I was sent a copy of a feeding chart beginning with the date 3.7.03 which records feeding times, types of feeds and urine and stool output. This chart appears to finish on the 5.7.03 prior to [Baby A's] transfer back to the hospital.
> - 1.5.08 I was also sent 2 pages of [Baby A's] records that appear to match clinical records I was sent earlier.

I have been requested to provide independent advice to the Commissioner about whether [Baby A] received an overall appropriate standard of care from Midwives [B, C, D and E]. In addition, answer the following questions:

1. What standards apply in this case?
2. Did [Midwife B's] care meet those standards and, if not, how was the care deficient?
3. Did [Midwife C's] care meet those standards and, if not, how was the care deficient?
4. Did [Midwife D's] care meet those standards and, if not, how was the care deficient?
5. Did [Midwife E's] care meet those standards and, if not, how was the care deficient?

(1) What standards apply in this case?

The Standards for Practice in the Midwives Handbook for Practice 2002, NZ College of Midwives apply in this case.

The Midwives Handbook for Practice is published by the NZ College of Midwives and sets out the beliefs and expectations that the midwifery profession, in conjunction with women, has identified as being important for midwifery care.

The Handbook consists of:

Definition of a Midwife

1. The Scope of Practice of a Midwife (as defined by the Midwifery Council of New Zealand).
2. Code of Ethics
3. Standards for Midwifery Practice
4. Decisions Points for Midwifery Care

The Standards which apply in this case are:

Standard Four

The midwife maintains purposeful, ongoing, updated records and makes them available to the woman and other relevant persons.

Standard Six

Midwifery actions are prioritised and implemented appropriately with no midwifery action or omission placing the woman (or her baby) at risk.

Relevant criteria

… ensures assessment is on-going and modifies the midwifery plan accordingly.

… identifies deviations from the normal and after discussion with the woman, consults and refers as appropriate.

Standard Seven

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

Relevant criteria:

… clearly documents her decisions and professional actions.

… reflects on practice.

Standard Eight

The midwife evaluates her practice.

Relevant criteria

… utilises results of evaluation in her practice.

2. Did [Midwife B's] care meet those standards and if not, how was the care deficient?

From the records provided it appears that [Midwife B] was on duty at the unit when [Baby A] and his mother were transferred from the hospital at 1420hrs in the afternoon of 3 July 2003. Prior to the transfer and according to the Hospital Breastfeeding Chart for Full Term Healthy Infants, [Baby A] had breastfed or attempted to breastfeed four times since 2am at the hospital. The breastfeeding key code was used to identify the quality of the feeds. One feed was a code 2 — 'nuzzling, licking and tasting breast milk skin to skin'. The next feed was a code 3–4. A 3 on this code is 'attaches on and off' and this code was used once in conjunction with code 4 which identifies 'good rhythmical suckles'. The following two feeds prior to transfer were identified as code 4. These codes indicate that [Baby A] was demonstrating appropriate feeding behaviour for a term infant in the first 24 hours.

Following transfer to the unit [Midwife B] has noted on [Baby A's] clinical record that he breastfed for '15 minutes at 1830hrs audible swallows'. The summary provided to me identifies a further feed at 2245hrs and this corresponds to the feeding chart. [Midwife B] has written that [Baby A] was alert at the breast. The record identifies that [Baby A] passed a small stool once and passed urine once.

[Baby A] weighed 3130gms at birth and appears to have been identified as a well term infant. His weight was not in the category of low birth weight at term which is usually recognised as <2500gms. It is common for term, normal weight babies to be alert initially after birth and then be sleepy for the rest of the first 24 hours (Pairman, Pincombe, Thoroughgood & Tracy, 2006). [Baby A] fed more often than is commonly expected in the first 24 hours. He fed six times in the first 24 hours. Because of this history I believe [Midwife B's] care of [Baby A] on the 3 July 2003 was of a reasonable standard.

[Midwife B] was on duty on the afternoon/evening of 4 July 2003. She has written on the baby's clinical record that [Baby A] breastfed twice although there appears to be no record of the quality of the feeds e.g. suckle/swallow ratio, audible swallowing on the feed chart. This information would be important in ascertaining whether [Mrs A's] milk supply was increasing. Given that [Baby A] had fed two-hourly over the morning and early afternoon it would appear that his feeds were increasing as would be expected for day 2 postnatal. Babies do not feed with any regular pattern at this stage but it is expected that they are beginning to increase their feeding. Their urine and stool output is also expected to begin to increase (Johnston, Flood and Spinks, 2003). It is usual to note the colour and consistency of stools as they change as the baby begins to take in more fluid. The feeding chart occasionally identifies a meconium stool only. [Baby A] had commenced phototherapy in the early afternoon. As [Midwife B] has not provided a response to the Commissioner it cannot be determined what [Midwife B's] knowledge in this area is. According to the feeding chart completed by [Midwife B] for the afternoon of 4 July 2003, [Baby A] passed a stool twice and passed urine twice. This output would be reassuring at this stage.

Given the documentation available, [Midwife B's] care of [Baby A] appears to be of a reasonable standard. However, the lack of description of colour and consistency of output is not helpful in assisting oncoming staff to plan care. There is a lack of a documented care plan or evidence of updating of the care plan for a baby undergoing phototherapy. This information may have been given verbally but should be documented as well, particularly with a baby receiving treatment for jaundice. This departure would be viewed as moderate by peers.

[Midwife B's] care meets Standard Six but Standards Four, Seven and Eight are not met. The departure from these last three Standards would be viewed with moderate–severe disapproval by her peers.

3. Did [Midwife C's] care meet those standards and if not, how was the care deficient?

[Midwife C] was the midwife on night duty between 10.45pm and 7.15am on 3/4 July 2003. She reported that [Baby A] was 'unsettled' during the night. He fed at 11.30pm, 3.30pm and 6.30am. The frequency of [Baby A's] feeds were

continuing as would be expected of a baby of his age and would be viewed as normal behaviour. The second night after birth is commonly an unsettled night and is to be anticipated in a well newborn as they increase the frequency of feeds to help increase the milk supply and respond to their physiological needs at this stage. [Baby A] had no wet nappies but had passed a stool. It would be reasonable to anticipate output to increase in the following 12 hours and this is what happened. Again there is no documentation of the quality or length of feeds or the colour/consistency of urine and stools. However, the documentation is in the format provided for use at the unit.

In her response to the Commissioner, [Midwife C] has identified that at day 1–2 she would anticipate an increase in feeds and [Baby A's] response was therefore as she expected. She noted on [Baby A's] clinical record that he had not passed urine. This would be expected to alert the oncoming staff to monitor [Baby A's] urine output. [Midwife C's] care and assessment at this stage was of a reasonable standard.

[Midwife C] returned to duty on 4 July 2003 from 10.45pm to 7.15am on 5 July 2003 when [Baby A] was day 2–3, 48–56 hours old. [Baby A] was undergoing phototherapy by this time. [Midwife C] noted that [Baby A] was too sleepy to feed at 12.30am and 4am. At 4am [Midwife C] assisted [Mrs A] to express 20mls of breast milk and this was fed to [Baby A] by cup. She has documented two bowel motions and two episodes of urine output with urates noted at 4am. Although urates are not uncommon in the first 48 hours they are an indication of the need for an increase in fluid intake. The fact that [Baby A] had developed jaundice significant enough for phototherapy would also alert the midwife to the need for him to increase his fluid intake. [Baby A's] temperature was normal. [Midwife C] responded to the lack of interest in feeding and the presence of urates by giving [Baby A] expressed breast milk (EBM).

[Midwife C] has identified that because of the frequency of [Baby A's] feeds in the previous two shifts she was not too concerned when he was not interested in feeding at 12.30am. Although [Baby A] had fed with expected frequency earlier he had only fed twice in the previous eight hours. It would be usual that the timing of the last feed would have been reported at the verbal handover given to oncoming staff. Verbal accounts should reflect the written account in the clinical notes. Given that [Baby A] had developed jaundice significant enough to commence phototherapy it would be reasonable to expect staff to be vigilant to the possibility of a sleepy Baby as this is a recognised side effect of jaundice. Phototherapy contributes to insensible water loss in the Baby and this can result in reduced hydration, therefore quality and quantity of output along with sleepiness would be an alerting factor for babies undergoing phototherapy (Johnston, Flood & Spinks, 2003).

[Midwife C] believed that [Baby A] was exhibiting normal newborn behaviour as his feeds had increased earlier in the day. However, with the complication of

jaundice requiring phototherapy and his documented sleepiness, this should have been an alerting factor to consider to attempt a breastfeed within 1–2 hours from the 12.30[am] unsuccessful feed and give EBM if that feed was not successful. There appears to have been a change in the pattern occurring from the earlier shifts where [Baby A] had been interested in feeding. With sleepiness and resultant lack of feeding the risk of dehydration for babies undergoing phototherapy is increased along with the concomitant risk of hypoglycaemia (Pairman, Pincombe, Thoroughgood & Tracy, 2006). These issues required consideration of what was possibly happening for the Baby and consideration given to trying to increase [Baby A's] fluid intake. If, however, this was considered normal behaviour for a term newborn, the clinical record needs to reflect this and identify the proposed plan if the situation did not improve.

[Midwife C] recognised that [Baby A] required extra food at 4am and acted accordingly. [Mrs A's] milk supply would appear to have been establishing as 20mls of EBM could be expressed. This is a good amount at day 2–3 and a baby would normally be expected to take an average of 14–28mls per feed at day 2–3. The appropriateness of [Midwife C's] response to [Baby A's] lack of interest in feeding depends on the time of the last feed prior to her coming on duty. There is no evidence of a documented plan of care regarding increasing the frequency of feeds. I feel it would have been more appropriate for a feed to be attempted within 1–2 hours of the attempt at 12.30am and then again within three hours. At the very least I believe [Midwife C] should have considered the next feed within three hours after the 4am feed.

Given the information I have, [Midwife C's] care on the night of 4/5 July 2003 does not appear to meet Standard Six and the departure from the standard would be viewed with moderate disapproval by her peers. [Midwife C's] documentation does not meet Standard Four although I note that she recorded her care in the format provided by the unit. The responsibility for this format lies with the district health board in this case. [Midwife C] identifies in her response that changes to the documentation have been made at the unit.

[Midwife C's] response to the Commissioner and her evaluation of the care she provided and the education she has undertaken indicate she has met Standards Seven and Eight.

4. Did [Midwife D's] care meet those standards and if not, how was the care deficient?

[Midwife D] was the midwife on duty from 7am to 3.30pm on 4 July 2003. She noted [Baby A] had developed jaundice. The LMC visited at approximately 8am and requested a serum bilirubin (SBR) sample to assess the level. [Midwife D] carried this out and sent it to the laboratory. She has noted that [Baby A] woke spontaneously for feeds at approximately two-hourly intervals. The times are not recorded on the baby's clinical record but they are on the feeding chart. The

increase in feeding would be expected at this stage. [Midwife D] has identified her expectations of a baby's feeding pattern at day 2 in her response to the Commissioner.[21] [Baby A's] increase in feeding would have been reassuring despite the development of jaundice which occurred within the usual timeframe for physiological jaundice. Once again the documentation does not indicate the quality or length of feeds but the increasing urine and stool output would be reassuring.

The onset of jaundice around day 2 to 3 would be considered common. This reflects the normal pattern for physiological jaundice. Physiological jaundice is not unusual and occurs in 50% of term babies. It is a consequence of the transition from intrauterine to extrauterine life. Physiological jaundice never occurs before 24 hours, peaks at day 3 to 5 and usually resolves by 7 to 10 days (Pairman, Pincombe, Thoroughgood & Tracy, 2006). [Midwife D] recognised that the SBR level was in the phototherapy range for a term baby of [Baby A's] weight and notified the LMC. Phototherapy was commenced in the early afternoon at 1.10pm and it appears the phototherapy policy in place at the time was followed. [Midwife D] commenced a care plan for babies undergoing phototherapy at the unit. This policy was provided to me as part of the documentation. There is no evidence that the care plan was updated or reviewed again, either by the LMC or the midwives, at any time during [Baby A's] treatment. This would not be viewed as an appropriate standard of care.

[Midwife D's] care appears to have been of a reasonable standard. She recognised the need to discuss [Baby A's] jaundice with the LMC and implemented the appropriate actions. [Midwife D] has met Standards Six, Seven and Eight. However, Standard Four has not been met in that the standard of documentation of assessment and ongoing care plan is not adequate but does follow the format used within the Unit at the time.

5. Did [Midwife E's] care meet those standards and if not, how was the care deficient?

[Midwife E] was the midwife on duty on 5 July 2003 from 7am to 3.30pm. She took over the care of [Baby A] from [Midwife C]. [Baby A] had last fed at 4am when he was given 20mls EBM. At 8am [Baby A] woke spontaneously. This would not be usual in a baby who is lethargic and compromised. [Midwife E] assessed his temperature which she states was 36.0 in her response but appears to be recorded as 36.4 on [Baby A's] clinical record. (This is quite difficult to decipher on a photocopy.) The apparent discrepancy in this record is not helpful in determining the credibility of the documentation. The temperature was on the lower side of normal for a neonate but no further comment is made about this. A

[21] Midwife D stated: "I was happy with [Baby A's] feeding. He had been to the breast four times, had two wet nappies and two dirty nappies in eight hours."

temperature of this level, whether 36.0 or 36.4, is on the lower level of normal and would ordinarily be an alerting factor that the baby was possibly not well.

Hypothermia, jitters and poor feeding can be signs of hypoglycaemia. [Baby A] was not interested in suckling so at 8.30am [Midwife E] fed the 20mls of EBM [Mrs A] had expressed. [Baby A] was fed via a syringe as he did not take the EBM well from the cup. The amount of EBM given at this stage was reasonable in that the average amount of breast milk a baby is expected to take at three days is approximately 28 mls. He was replaced under phototherapy. [Midwife E] states that she told [Mrs A] that she would wake [Baby A] in 2½ hours as he had lost almost 10% of his birth weight and he required more feeding. This feed would have been due at 10.30am. [Midwife E] says she told [Mrs A] that she would give [Baby A] EBM and formula. This plan demonstrates [Midwife E's] response to her assessment and recognition of the need for [Baby A's] increased nutritional needs. This plan does not appear in any of the documentation I have received. This plan appears to be appropriate although with the lower temperature it would have been reasonable to consider a blood glucose test at this stage. It is noted that [Baby A] had passed urine twice in the morning and stools once. The feeding chart identifies the 8am stool as being a small meconium stool. At this age it would be expected that the stools are increasing and that there is evidence that the stool is transitioning from meconium (a changing stool). This was another alerting factor that the baby was not receiving enough food.

When the LMC visited he and [Midwife E] and [Mrs A] noted [Baby A] making a 'jittery' movement of one limb. Apparently [Mrs A] had noted this previously both at the hospital and at the unit. As it is not unusual for newborns to make intermittent jerky movements this was not deemed significant at the time. However, [Midwife E] states that while she reassured [Mrs A] that it probably was a transient occurrence, she would do a blood glucose check. Jitteriness is associated with hypoglycaemia. The LMC was present at this time. [Midwife E's] actions were reasonable and she responded appropriately by instituting a plan to increase [Baby A's] nutrition in a short timeframe and to investigate further when he displayed an unusual movement. The lack of a glucocard or other blood glucose recording equipment in a maternity unit is a concern but I note in the responses to the Commissioner that this situation has since been rectified. It is unlikely that the short time it took to have a glucocard delivered to the unit played a significant role in the outcome for [Baby A].

When [Baby A] suffered an episode of cyanosis following the blood test [Midwife E] responded appropriately by commencing facial oxygen and calling for assistance. Her attempts to contact the LMC were unsuccessful. This is a serious concern in that the LMC (or backup) must be available at all times. This would be an even greater expectation when the LMC was aware that a baby he was responsible for was undergoing phototherapy and was not feeding well. I

assume he was made aware of the need for increased feeding when he visited at 10.40am but as there is no LMC documentation of information shared, or confirmation of [Midwife E's] plan in the documentation provided, I cannot confirm this.

As a general practitioner [Dr F's] standards for practice do not relate to this advice. However, under the Advice Notice 2002 pursuant to Section 88 of the NZ Public Health and Disability Act 2000 all LMCs are required to maintain a written care plan and record of any maternity related contacts. These records are expected to be updated at the contact and include in the decision points a full assessment and any actions taken. It would be usual to expect the LMC to write in the documentation provided in the unit.

[Midwife E] then contacted the Senior Medical Officer at [Hospital 2] who made arrangements for [Baby A's] transfer. Paediatrician [Dr I] was informed by [Midwife E]. Dr I requested an intravenous infusion be commenced for [Baby A]. It is not unusual or unexpected that there was no one with the skill to set up an intravenous line in a baby. This is a particularly delicate skill that is usually carried out by paediatricians in a neonatal unit. It is not a skill expected within the Scope of Practice of a midwife. Inserting IVs into babies requires regular practice to be able to do this effectively. As it is unusual to have to do this on a term newborn it is not surprising that there was no one able to do this at the time.

At 11.15am [Midwife E] gave [Baby A] 10mls of S26 (infant formula) which he took by bottle. As [Baby A] would have had to suck this milk from a teat it indicates he was not in a state of collapse at this stage. All this took place in a relatively short time period. The blood glucose was tested after the glucocard arrived at 10.55am, formula was fed at 11.15am, and the ambulance with [Baby A], [Mrs A and Mr A and [Midwife E] left the unit at 11.35am. The ambulance case slip records the ambulance arrived at the unit at 11.20am and reached the hospital at 12.20pm. [Midwife E] administered intramuscular glucagon and gave respiratory resuscitation when [Baby A's] condition deteriorated in the ambulance.

[Midwife E] responded appropriately given [Baby A's] deteriorating condition and called for the appropriate assistance. She initiated initial resuscitation efforts in accordance with her Scope of Practice and the relevant standards. The time between the initiation of referral, call for an ambulance and the ambulance arriving was 20 minutes at the most. This is a very quick response although at the time it would no doubt have been perceived as longer by those waiting for assistance.

[Midwife E's] care meets the midwifery standards for practice. Her care was of a reasonable standard. She recognised [Baby A's] need for increased feeding, identified a plan to [Mrs A], was the only person to identify the need to

investigate [Baby A's] blood sugar level and then did this. [Midwife E] stayed with [Baby A] and initiated the appropriate actions including prompt calls for assistance. Once again I will comment on the lack of documentation. This does not meet midwifery standards. [Midwife E] used the unit format and summarised the care she gave but there is no record of the LMC's visit or assessment.

Additional comments

It is unusual for a well term baby of [Baby A's] weight to develop the degree of hypoglycaemia that he did. There is nothing in the records to indicate that he was compromised in any way eg, growth restricted, baby of a smoker, distress in labour, risk of infection, maternal medication/drug use in pregnancy and therefore at particular risk of hypoglycaemia. While the establishment of breastfeeding appears to have followed a typical route there is no information on the quality of feeds, assessment of milk transfer or assessment of [Mrs A's] milk supply. Well term babies are usually born with enough reserves to cope with the establishment of milk supply over the first two or three days after birth. There is no evidence to explain why this was not the case for [Baby A]. The advent of physiological jaundice can be classed as normal. Because [Baby A] required phototherapy early after the recognition of his jaundice, consideration needed to be given to maintaining vigilance over his general well-being.

It is usual practice to give a verbal 'handover' at each change of shift and it is expected that the information shared reflects what is written in the clinical record. There is no evidence of this. The documentation in this case is not adequate to ensure all the information required was available eg, quality of feeds, amount and consistency of output. The format used in the unit does not encourage full documentation of assessments, advice given and care plans. Identification of the quality of breastfeeds is not available. I note that the hospital used the Breastfeeding Chart for Full Term Healthy Infants (pg 57) which includes the codes to be used to identify the quality of latching and suckling. I have no evidence that this was in use at the unit although they are within the same district health board. It is possible that the use of this type of record would have assisted staff to recognise how [Baby A's] feeding was progressing. [Mrs A's] clinical record gives no account of the advice and support she received except to say she was 'reassured'. The amount [Mrs A] was able to express at day 2–3 would indicate her milk supply was establishing normally.

The staff had no reason initially not to treat [Baby A] as a normal term infant but there is no evidence that they were alert to increasing vigilance when he required phototherapy. The phototherapy policy in use at the time was followed and a care plan commenced. This care plan was brief and not updated during each following shift. This is not appropriate for a baby undergoing a treatment regime.

The lack of the required documentation of the LMC's assessments, advice and plan of care does not meet the requirements of Section 88 of the NZ Public Health and Disability Services Act 2000.

Summary

There is no evidence of the development of a comprehensive ongoing assessment and a plan of care on a shift by shift basis for [Baby A]. This has contributed to a failure to recognise the potential for hypoglycaemia with the deterioration in [Baby A's] feeding while he was receiving phototherapy. There is evidence of review and evaluation of care provided by midwives [Midwife C], [Midwife D], and [Midwife E]. These midwives demonstrate ongoing learning in the area relating to this case.

References

Pairman, S. Pincombe, J. Thoroughgood, C & Tracy, S. (2006) *Midwifery, preparation for practice.* Elsevier: Sydney.

Johnston, P. Flood, K. & Spinks, K. (2003). *The Newborn Child* 9th Ed, Churchill Livingstone: Edinburgh."

Further expert advice

[Mrs A] questioned whether it was acceptable for [Midwife E] to have administered glucagon to [Baby A], while transporting him to Palmerston North Hospital on 5 July 2003.

Mrs Anderson advised that, given the circumstances, [Midwife E's] actions "were not inappropriate".

Appendix B

Breastfeeding Key Code

The following Breastfeeding Key Code was in use at Palmerston North Hospital's Neonatal Unit:

Breastfeeding Key Code...	
B/F Code	**Feeding evaluation**
1	Offered — does not attach/not interested
2	Nuzzling, licking and tasting breastmilk skin to skin
3	Attaches on and off
4	Good rhythmic suckles
5	Good rhythmic suckles with audible swallowing
6	Required complement — EBM via spoon
7	Required complement — EBM via cup