Obstetrician, Dr B

Midwife, Ms C

Midwife, Ms D

Midwife, Ms E

Nelson Marlborough District Health Board

A Report by the

Health and Disability Commissioner

(Case 04HDC03530)

Health and Disability Commissioner

Parties involved

Baby A	Consumer
Ms A	Complainant/Consumer's mother
Dr B	Provider/ Obstetrician and gynaecologist
Ms C	Provider/ Midwife
Ms D	Provider/ Midwife
Ms E	Provider/Midwife
Nelson Marlborough District Health Board	Provider
Dr F	Paediatrician
Ms G	Midwife
Dr H	House Surgeon

Complaint

On 24 February 2004 the Commissioner received a complaint from Ms A about the services provided to her son, Baby A, at Nelson Maternity Unit. The following issues were identified for investigation:

Dr B
Whether Dr B:
- *properly managed Ms A's condition following her admission to Nelson Hospital on 15 August 2002*
- *properly communicated with other providers involved in Ms A's care on 15 August 2002.*

Ms C, Ms D and Ms E, midwives
Whether Ms C, Ms D and Ms E:
- *properly managed Ms A's condition following her admission to Nelson Hospital on 15 August 2002*
- *properly communicated with other providers involved in Ms A's care on 15 August 2002*

Nelson Marlborough District Health Board
Whether Nelson Marlborough District Health Board:
- *had in place adequate guidelines and procedures to manage Ms A's condition following her admission Nelson Hospital on 15 August 2002*
- *provided adequate training to staff about any guidelines and procedures*

An investigation was commenced on 23 July 2004.

Information reviewed

Information from:
- Ms A
- Ms C, Senior Midwife
- Ms D
- Ms E
- Dr B
- Nelson Marlborough District Health Board, including:
  - Document titled "Standard – Administration / Use of Antibiotics in Group B Strep & At Risk Pregnancies" (undated)
  - Document titled "Procedure – Premature Rupture of Membranes" Approval date 29 November 2002
  - Document titled "Policy – Group B Streptococcus" Approval date 12 February 2004
  - Ms A's medical records
  - Sentinel Event Review Report
  - Letter of apology to Ms A dated 22 February 2005
- ACC
- A second District Health Board, including Baby A's clinical records
- The Maternity Unit Manager, Nelson Hospital Maternity Unit
- 4 Registered Midwives, Nelson Hospital Maternity Unit
- A paediatrician

Independent expert advice was obtained from Ms Terryll Muir, midwife, and Dr Michael East, obstetrician and gynaecologist.

Information gathered during investigation

Overview
Ms A, a 32-year-old woman, was at 34.5 weeks' gestation in her pregnancy. She was admitted to a rural maternity unit on 15 August 2002, as her membranes had spontaneously ruptured at home. Following assessment at the rural maternity unit she was transferred to the Nelson Hospital Maternity Unit. On admission, Ms A was examined, and a high vaginal swab taken. The swab cultured a moderate growth of GBS (Group B Streptococcus).[1]

[1] GBS infection is the most common serious infection of newborn babies.

Ms A went into premature labour, and delivered a male baby, Baby A, who initially appeared well. However, approximately one to two hours following his birth, Baby A developed respiratory complications that later necessitated his transfer to a hospital in another city. He was diagnosed with overwhelming septicaemia presumed secondary to GBS infection acquired during labour. After several weeks in the city hospital, and then Nelson Hospital, Baby A was discharged home and made a full recovery.

Protocols/Policies

At the time of Ms A's admission, Nelson Marlborough District Health Board (NMDHB) had a policy in place in relation to the administration of antibiotics, for women who were to be transferred to the city hospital for delivery of their children. Up until 2002, the administration of antibiotics for other women (such as Ms A) was dealt with on a case-by-case basis, and no formal policy was in place regarding antibiotics for Streptococcus B infection. The Board advised that this was because there is a much lower rate of Streptococcus B infection in the general population in Nelson. During 2002, the need for a policy was reviewed and discussed at regular meetings, where it was agreed that the document "Standard – Administration/Use of antibiotics in Group B Strep and At Risk Pregnancy" would be introduced. A copy of the policy is set out in Appendix 1. At-risk patients needing antibiotic cover are identified in the policy as including those in premature labour, and those whose membranes ruptured earlier than 37 weeks. Actions to be taken include a "rapid Group B swab" and then giving antibiotics during labour.

The unit manager of Nelson Hospital Maternity Unit (the Unit), was to arrange for the policy to be signed off by one of the obstetricians, and for it then to be circulated to the Unit staff. The DHB initially advised that at the time Baby A was born, this protocol was in place and kept on the ward in a policy file, and had been discussed at regular department meetings. It remains unclear exactly when the policy was signed off.

On 29 November 2002, a document entitled "Procedure – Premature Rupture of Membranes" was approved. A copy is set out in Appendix 2. It was reviewed in November 2003.

A further document entitled "Policy – Group B Streptococcus" was approved on 12 February 2004. A copy is set out in Appendix 3. This policy appears to replace the 2002 policy.

Obstetric history

In 1996 Ms A had a prolonged labour and Neville Barnes forceps delivery. In 1998 she experienced a miscarriage. On 8 May 2002 Ms A saw an obstetrician, for this, her third pregnancy. The obstetrician suggested that she deliver at Nelson Hospital as she was moving to a nearby town. When she moved to the rural town, her lead maternity carer (LMC) was Ms G, midwife, who was employed by NMDHB in the rural town. On 27 May 2002, Ms G referred Ms A to an obstetrician at Nelson Maternity Services, to discuss her delivery options. The obstetrician saw Ms A on 11 June 2002, and reassured her regarding the low risk of her next labour following the same pattern as the previous one. He

considered that Ms A could labour and deliver at Nelson Hospital with immediate access to consultant care if there were any problems. The plan was for Ms A to continue receiving care from the rural maternity unit in the meantime. An ultrasound scan performed on 14 August 2002 indicated that the fetus appeared normal.

15 August 2002

Ms A's uterine membranes spontaneously ruptured at 2.45am on 15 August 2002, when she was at home. At this point she was midway through week 34 of her pregnancy. She phoned Ms G, who advised her to go to the rural maternity unit for assessment. At 4.00am Ms A was admitted to the rural maternity unit and assessed by Ms G. Her amnicator[2] tested positive and she was draining a large amount of clear fluid. Her clinical records state:

> "O/P [on palpation] – Cephalic [head], LOL [left occipitolateral position of fetus] – P [? posterior], head at pelvic brim, FHR [fetal heart rate] 130-140bpm [beats per minute]. Discussed with [the ward], for transfer."

Ms A was transferred by Ms G to the care of Nelson Maternity Secondary Services Unit, and she was admitted to the labour ward at 5.20am. Ms C, midwife, took her temperature, pulse and blood pressure, which were satisfactory. Ms C asked Ms A about the events leading up to her admission, and proceeded to examine her. When Ms C palpated Ms A's uterus she found that the baby's head was down in the pelvic brim. The fetal heart rate was normal.

A cardiotocograph (CTG)[3] was commenced at 5.45am, and continued for 27 minutes. The CTG indicated a reactive trace with good fetal movements, and the occasional mild tightening. A speculum examination was performed to confirm the ruptured membranes, and a high vaginal swab ("the swab") was taken and sent to the laboratory for GBS and any other bacterial presence. The swab was received at the laboratory at 9.27am. Ms C recorded in Ms A's notes:

> "Cervix posterior [posterior is the normal position], 25% effaced,[4] OS [the ring of muscle at the end of the cervical canal which dilates to allow passage of the baby] admits 1 finger [approximately 1cm dilated at the end but not effaced]."

Ms C observed that Ms A drained copious amounts of clear, non-offensive liquor.

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[2] A sterile indicator swab that is introduced into the vagina to detect ruptured amniotic membranes.

[3] Electronic monitoring of the fetal heart rate and rhythm.

[4] Effacement is the shortening of the vaginal portion of the cervix and thinning of its wall as it is stretched and dilated by the fetus during labour.

Ms A settled into the antenatal area, as Ms C did not feel she was in labour. Ms C explained that she did not notify the night on-call obstetrician about Ms A, as she thought there was no need for an urgent referral at that time. Ms C thought that Ms A could be seen by Dr B, another on-call obstetrician, when he made his ward rounds between 8.00am and 8.30am.

At 6.45am Ms C was going off duty, so she discussed with Ms D, midwife, Ms A's admission, her pregnancy history and her care since arrival at the Unit. Ms A informed Ms D that she had been able to get some sleep since being admitted.

At approximately 8.00am Ms D accompanied Dr B when he visited Ms A on his ward round. Dr B recorded in Ms A's notes:

> "Slight niggly contractions
> Wait and see
> For CTG
> Do FBC [full blood count]
> [Dr B]"

Dr B did not consider Ms A to be labour, but thought that she possibly had Braxton-Hicks contractions.[5] Dr B was aware that the swab had been taken by Ms C. He asked Ms D whether antibiotics were used and she replied that they were prescribed on a case-by-case basis. Dr B did not prescribe antibiotics but instructed Ms D to take a blood sample and send it to the laboratory, carry out a CTG, and continue observing maternal and fetal vital signs.

Ms A said that there was no discussion between Dr B and Ms C regarding antibiotics, and no such conversation was noted in the records. Ms A said that "[Dr B] asked [Ms D] 'what do we normally do in these cases?' (meaning do we try to stop the labour or let it continue) and she replied 'let it continue'".

Ms D did not consider it unusual for Dr B not to prescribe antibiotics, as there was only minimal use of them in the Unit at that time. She advised that Dr B did not instruct her to contact him if Ms A went into labour, or to follow up the blood test or swab results, or to contact him when the results were back. Ms D indicated that she would definitely have contacted Dr B if the blood test or swab results were abnormal, or if there were any concerns about Ms A's labour.

Ms D advised that her treatment plan was to carry out regular CTG monitoring; undertake a four-hourly check of Ms A's temperature, pulse, blood pressure and fetal heart rate; note

[5] Near term strong, irregular tightenings of the pregnant uterus that are often difficult to distinguish from the contractions of true labour.

any tightenings/contractions; and check that the draining liquor was normal and had no odour, which could indicate infection.

At 9.30am Ms D recorded that she had taken the blood sample and sent it to the laboratory. The bloods were received by the laboratory at 10.21am, and reported at 12.20pm. The results indicate that Ms A's white cell count was 12.3, neutrophils 8.5, haemoglobin 110, and haematocrit 0.33.[6] These results are within normal limits for pregnancy. Ms D advised that she did not follow up the swab results and other examinations because it was not usual practice to do so, as the laboratory always telephoned the results through to the Unit when they were ready. If the results were abnormal, the laboratory would contact them immediately.

A CTG was commenced, and the clinical records indicated "reactive, good variability, baseline 150bpm". Ms D reassessed Ms A at 1.15pm. She was continuing to have the odd tightening and was draining clear liquor. She had a small show, and her temperature and pulse were satisfactory. Ms D suggested to Ms A that she visit the Newborn Baby Unit (NBU) as it was likely that her baby would be transferred there when he was born (because of his prematurity) and it would be useful for her to familiarise herself with the NBU before the birth of her baby.

By 2.30pm Ms A was experiencing an increasing number of tightenings and, as she looked a bit uncomfortable, Ms D suggested she have a spa bath for pain relief and comfort. The fetal heart rate at this time was 140bpm.

Ms D informed me that Dr B, as the obstetrician on call, was responsible for co-ordinating Ms A's care. Ms D did not inform Dr B that Ms A had gone into labour. She advised that he had not requested her to do so, but that she would have contacted Dr B if she had had any concerns about Ms A's labour.

Ms A said that there was huge confusion as to who was in charge, and whether she was under primary or secondary care.

At approximately 2.45pm Ms D handed over the care of Ms A to Ms E, midwife. Ms D could not recall her discussion with Ms E, but her usual practice was to hand over a summary of all the information she had, so she would have told Ms E that Ms A had been seen by Dr B, a swab had been taken, and blood samples were with the laboratory.

Ms E recalled that Dr B had not communicated any plan of treatment in relation to Ms A's premature rupture of membranes, and had not prescribed antibiotics, but that she did not

[6] White blood cells protect the body against foreign substances; neutrophils are white blood cells that remove and destroy bacteria, cellular debris and solid articles; haemoglobin is the substance within red blood cells that transports oxygen through the body; haematocrit is the packed cell volume.

consider this unusual as antibiotics were used only minimally at that time. Ms E's treatment plan was to monitor Ms A's temperature and blood pressure; check the liquor; monitor the fetal heart rate and strength and frequency of contractions by CTG; and make the necessary arrangements for delivery of a premature neonate, including notification of the paediatrician on call, paediatric house surgeon, and second support midwife to attend at the birth.

By 3.40pm Ms A was out of the spa and experiencing contractions at five-minute intervals. Ms E completed a vaginal examination and found the cervix was soft effacing three to four centimetres dilated. The presentation (the part of the fetus closest to the rim of the pelvic outlet) was minus one (one centimetre above the rim of the pelvic outlet), and the fetal heart rate was 120–140bpm. Ms A was started on nitrous oxide[7] as she was requesting pain relief. A CTG was applied.

Ms E performed another vaginal examination at 4.00pm and found that the cervix was 8 centimetres dilated, with the presenting part plus one. Ms A continued to use nitrous oxide. At 4.45pm Ms A was fully dilated and starting to push. Ms E asked another midwife to assist her. The assisting midwife telephoned Dr F, a paediatrician, and organised set-up of the delivery room and resuscitation room. She also informed the neonatal staff and arranged for transport of an incubator.

Dr F and Dr H, a house surgeon, arrived at 5.00pm. Dr B was not called. Dr B had no further contact with the midwives after his initial assessment of Ms A at 8.00am. He advised that he was not informed that Ms A had gone into labour, that the baby had been born, or that the baby had been sent to a hospital in another city.

Ms A was given an episiotomy[8] and, at 5.09pm, spontaneously delivered her son, Baby A. One minute after his birth, Baby A's Apgar score[9] was 8, and five minutes after his birth his Apgar was 9. The third stage of labour (when the placenta and membranes are pushed out of the vaginal opening) was completed at 5.20pm.

Dr F asked Ms E whether swabs had been taken and the result received. She also asked whether Ms A had been given antibiotics. Ms E responded that the swab results were not back, and that Ms A had not received antibiotics. Ms E recalled that Dr F said that antibiotics would be given if necessary, if Baby A appeared to be becoming septic.

[7] A gas administered by inhalation, in conjunction with oxygen, to provide analgesia in childbirth.

[8] An incision into the tissues surrounding the opening of the vagina during a difficult birth.

[9] A method of rapidly assessing the general state of a baby immediately after birth, with a score of 10 indicating optimum condition.

Ms A held her baby for a short time following his birth. Ms E repaired Ms A's episiotomy. At 6.00pm Ms A's temperature was 37.2, pulse 82 and blood pressure 120/70. She was transferred to the postnatal ward at 7.40pm.

Baby A was taken to the Special Care Baby Unit because of his prematurity. He developed respiratory complications approximately one to two hours following his birth. His condition deteriorated and he suffered increasing respiratory distress. He was commenced on antibiotics. Arrangements were made to transfer him to the care of the city hospital neonatologists. The city hospital neonatal unit transport team arrived at Nelson Hospital at 11.30pm. Following stabilisation, Baby A was transferred to the city hospital neonatal unit, arriving at 3.00am.

Ms A's swab results were reviewed at 3.38pm on 16 August 2002. The city hospital neonatal unit was informed by NMDHB that the swab was Group B Strep positive. Baby A's CRPs[10] rose markedly over the next 48 hours. Swabs taken from Baby A were also Group B Strep positive. Baby A was diagnosed with overwhelming septicaemia presumed secondary to GBS infection acquired during labour, and he was treated with antibiotics.

On 25 August 2002 Baby was transferred back to Nelson Hospital, and on 26 September 2002 he was discharged home. Since then, he has been followed up by Dr F, and his development appears to be within normal limits.

Dr B's, Ms D's and Ms E's usual practice in August 2002

Dr B

Dr B's usual practice, in relation to premature rupture of membranes, was to wait for 12 hours before starting antibiotics; if there were any clinical signs of infection or blood tests showed an increased white cell count and increased C-reactive protein, antibiotics would be commenced earlier. Dr B was not aware of any protocol in the hospital outlining the management of premature rupture of membranes and the use of antibiotics in Group B Streptococcal infection. Dr B was responsible for the overall management and supervision of the team providing care for Ms A's labour and delivery. He thought that the midwives would give him advice regarding antibiotic therapy, as they would know the protocols regarding premature rupture of membranes, and he would have accepted their advice. He also understood that the midwives would contact him when labour commenced and when the swab results were received.

[10] C-reactive protein – a protein not normally detected in the serum but present in many acute inflammatory conditions and with necrosis. CRP appears in the serum often within 24–48 hours of the onset of inflammation.

Ms D
Ms D advised that the clinical procedure for premature rupture of membranes in August 2002 was to carry out a speculum vaginal examination to confirm ruptured membranes, take a swab specimen for laboratory testing of Group B Streptococcus, and monitor for signs of infection, as well as carry out the usual checks on maternal and fetal well-being.

It was not Ms D's usual practice to chase up swab results, as the laboratory would telephone the results through to the Unit when they were ready, and would fax through abnormal results and contact the midwives about them. If the results were abnormal, she would contact the obstetrician immediately.

Ms D said that normal practice at that time was for midwives to care for all women experiencing a normal progression of labour and delivery, even where the woman was under the care of an obstetrician because of premature rupture of membranes or premature labour. The obstetrician on call was responsible for co-ordinating the woman's care.

Ms D further advised that in August 2002, antibiotics were not routinely prescribed, and there was minimal use of them. At the time, obstetricians would decide on a case-by-case basis whether antibiotics would be used.

Ms E
Ms E advised that the usual practice was that the midwives would not contact the obstetrician unless labour was abnormal or instructions had been given to do so. She would also have informed the obstetrician about the laboratory results when they were notified to the Unit.

Ms E advised that, at the time, antibiotics were only administered on a case-by-case basis as assessed by the obstetrician. It was not unusual for antibiotics not to be prescribed, and their use was minimal.

Subsequent events
On her return from the city hospital following Baby A's hospitalisation at the city hospital neonatal unit, Ms A met with Dr B to express her concerns regarding her and Baby A's care. In February 2003, Ms A lodged a formal complaint with NMDHB. On 20 August 2003, NMDHB met with Ms A and her partner. At the meeting the Board apologised to Ms A and her partner for the problems she and Baby A had experienced, and for failing to manage her complaint effectively. The Board then undertook to complete a Sentinel Event Review of the circumstances of the labour and delivery. On 3 September 2003 the DHB met with the clinical staff involved in Baby A's care. The Sentinel Event Investigation Report contained three action points, including updating pre-labour antibiotics policies to reflect contemporary practice. There was also to be a review of after-hours requests for rapid Group B Streptococcus tests, and a clarification of responsibilities on transfer by the LMC.

In November 2003 NMDHB advised Ms A that the policy relating to the administration of antibiotics for women with premature labour and ruptured membranes had been updated, and after-hours access to laboratory testing had been reviewed. The DHB told Ms A that the antenatal midwifery and obstetric care she received was appropriate, given the normal development of her labour.

In October 2004, NMDHB advised the Commissioner that it had identified areas for system improvement and had implemented the following:

- All policies in the Unit are reviewed on a regular basis.
- Notification of a new or revised policy is e-mailed to all Unit staff by the Clinical Midwife Leader.
- All staff are expected to sign a "policy sign-off form" indicating that they have read the new or revised policy – these forms are subsequently filed.
- New or revised policies are also sent to other relevant Lead Maternity Carer practitioners who access Nelson Hospital facilities, and to rural maternity facilities.
- The Unit convenes a monthly "Maternal and Perinatal Review Committee Meeting". This is a multidisciplinary meeting with recorded minutes.
- Any draft policy for consultation and comment is communicated by posting on notice boards in the Unit offices; posting to other relevant Lead Maternity Carer practitioners who access Nelson Hospital facilities, eg, independent midwives; and discussion with other relevant health professionals, eg, paediatricians.
- The distribution of policies is a requirement of the Clinical Midwife Leader role.
- The process is audited as part of the functions of the Maternal and Perinatal Review Committee.

On 17 February 2005, representatives of NMDHB met with Ms A and her advisors, and reached an agreement in relation to her complaint. This included the provision of a personal apology and reimbursement of some of her costs. Ms A advised me that, notwithstanding this agreement, she had some outstanding concerns and requested that this investigation be continued. Ms A remains unhappy at the delay and the manner in which the NMDHB dealt with her complaint about the care she received at Nelson Hospital. Ms A states that she is still out of pocket for $1,121 legal fees paid in pursuing her complaint.

Dr B

Dr B advised that he has made changes to his practice since Ms A's complaint. Any patient under his care who has a premature rupture of membranes is now put on antibiotic therapy immediately, rather than waiting for the laboratory results. Dr B accepts that what happened to Ms A and Baby A was very unfortunate. He acknowledges his responsibilities as the consultant on call and apologises to Ms A.

Ms D
Ms D advised that the current practice is routinely to give antibiotics when there has been premature rupture of the membranes. She now makes sure that she advises all the locum obstetricians on call of this policy.

Ms E
Ms E advised that she now brings the NMDHB policy that was approved in November 2002, and reviewed in February 2004, to the attention of any locum obstetrician and ensures that antibiotics are prescribed by them.

ACC
Ms A lodged a claim for medical misadventure on behalf of Baby A on 14 July 2003. The claim was for the alleged failure to diagnose and treat maternal Streptoccus B infection with ensuing neonatal infection causing persistent pulmonary hypertension and prolonged hypoxia.

Independent advice was provided to ACC by Ms Ann Yates, midwife, Dr D M J Barry, paediatrician, and Dr David Davidson, specialist gynaecologist. At the time advice was provided, the independent advisors had been informed that the document "Procedure – Premature Rupture of Membranes" was in place when Baby A was born.

In his advice to ACC, Dr Davidson commented that midwives should be aware of the protocols in their hospital and bring them to the attention of any other person involved in a woman's care. He commented that a specialist obstetrician acting as a locum should be up to date with current thinking, aware of the debate about the role of antibiotics in relation to premature ruptured membranes, and should at least discuss this with the woman. Dr B should have been familiar with Nelson Hospital guidelines. In Dr Davidson's view, the failure to give antibiotics to Ms A while she was in labour was a clear breach of Nelson Hospital guidelines.

In her advice to ACC, Ms Yates commented that the administration of intra-partum antibiotics in "at-risk" women has been shown to reduce the onset of GBS disease in neonates and reduce maternal infection. She stated that accountability or management of secondary patients where transfer of clinical responsibility has taken place is with the obstetrician managing the case. It would be a reasonable expectation that an obstetrician would direct midwifery staff in the management of care, and take responsibility for follow-up on tests they have requested or delegated. She would have expected Dr B to have communicated to the midwives his expectations regarding the need to be updated on Ms A's progress, and requested to be kept informed. However, Ms Yates also commented that there is no documentation questioning or justifying the lack of direction by Dr B, which is of concern. Ms Yates noted the lack of discussion with Ms A regarding the possible cause of her premature rupture of membranes and the attendant risk factors.

In his advice to ACC, Dr Barry commented that there was clear failure to implement a sensible standard at Nelson Hospital to prevent early onset GBS disease. He thought that a standard similar to the hospital guidelines is used in many obstetric hospitals in New Zealand. Effective guidelines to reduce morbidity and mortality need to be fully publicised and implemented. Baby A suffered a very serious illness, which could well have been prevented or mitigated by the use of intra-partum antibiotics at the onset of labour.

On 11 February 2004 ACC issued a decision accepting the claim on the basis of medical error on the part of Dr B, Ms D and Ms E. However, Nelson Marlborough District Health Board later advised that the guidelines for administration/use of antibiotics for at-risk patients who needed antibiotic cover, including patients with premature rupture of membranes at less than 37 weeks' gestation and patients in premature labour, were not approved until 29 November 2002. Therefore, the information provided to the independent advisors regarding established Nelson Hospital guidelines at the time of Baby A's birth was incorrect.

Accordingly, on 18 April 2004, Ms E and Ms D sought review of the medical error decision. Dr B did not seek review of the finding. In support of the review, the midwives submitted that there was no medical error on their part, as Ms A had been referred to Dr B prior to labour commencing. They further submitted that they did not deviate from a hospital protocol, as there was no hospital protocol in place, and a protocol was not brought to their attention. A review hearing was held on 5 October 2004. Following review, the medical error finding against Ms D and Ms E was reversed. The reviewer held that since the protocol/policies were not in force, and Dr B had overall clinical responsibility, the midwives were not guilty of medical error. The medical error finding in respect of Dr B was upheld.

Independent advice to Commissioner

Initial midwifery advice
The following expert advice was obtained from Ms Terryll Muir, midwife:

> "My name is Terryll Muir; I am a registered midwife and have been working as a midwife for 21 years. For 16 years I worked as an Independent midwife caring for women in a variety of settings: Home births, primary facilities and at the secondary base hospital. Following that I spent two years working as a hospital midwife at the base hospital, then two years as a midwifery lecturer and for the past four months I have been working as the clinical midwife leader at our secondary base hospital. I was working as a hospital midwife during the time in question.

I have been asked to give advice to the Health and Disability Commissioner on the care given to [Ms A] during her labour and birth to [Baby A] while at Nelson Hospital Maternity Unit on the 15th August 2005.

I acknowledge that I have read the following documents that were sent to me:

- Letter of complaint from [Ms A] (pages 1–160)
- Notification letters to parties (pages 161–176)
- Information from ACC (pages 177–516)
- Information from [a second District Health Board] (page 517–517a)
- Information from Nelson Marlborough District Health Board (pages 518–555)
- Information from [Ms C] (pages 556–561)
- Information from [Dr B] (pages 562–564)
- Information from [Ms E] and [Ms D] (pages 565–585)
- Information from [the unit manager] (page 586)
- Information from [a registered nurse] (page 587)
- Information from [Ms C] (page 588)
- Information from [a registered midwife] (page 589)
- Information from [a registered midwife] (page 590)
- Information from [a registered midwife] (page 591)
- Information from [a paediatrician] (page 592)

I have been asked to comment on the following:

1. What standards of practice apply in this case?
2. Did [Ms C] appropriately manage [Ms A's] labour? If not, why not?
3. Did [Ms D] appropriately manage [Ms A's] labour? If not, why not?
4. Did [Ms E] appropriately manage [Ms A's] labour? If not, why not?
5. Should [Ms A] have been prescribed antibiotics? If so, who was responsible for prescribing these? What was the role of the midwifery team in respect of this issue?
6. Who was responsible for following up the vaginal swab results? Were these required urgently? If so, who was responsible for ensuring this?
7. Was communication and co-operation between [Ms C], [Ms D] and [Ms E], and between the midwives and the obstetric/paediatric team, of an appropriate standard? If not, why not?
8. If, in answering any of the above questions, I believe that [Ms C], [Ms D], and/or [Ms E] did not provide an appropriate standard of care, please indicate the severity of their departure from that standard.
9. Are there any aspects of the care provided by [Ms C], [Ms D], and/or [Ms E] that I consider warrant additional comment?

[Ms A]
32 years
G3P1
EDD 20/09/02
[Ms A's partner]

[Ms G] – LMC midwife ([the rural maternity unit])
[Ms C] – hospital midwife on night shift
[Ms D] – hospital midwife on morning shift
[Dr B] – obstetrician on call 15/08/02
[Ms E] – hospital midwife on afternoon shift

Background
At 0250 hours on the 15th August 2002 [Ms A's] membranes ruptured. [Ms A] was 34.5 weeks' gestation. Ms G, her LMC midwife, assessed her at [the rural maternity unit], ruptured membranes were confirmed. [Ms G] phoned Nelson Hospital and after a discussion with [Ms C] a decision was made for [Ms A] to go to Nelson Hospital. [Ms A] arrived at Nelson Hospital at 0520 hours, [Ms C] was the midwife who assumed responsibility for [Ms A] at this time.

A speculum examination was performed, a high vaginal swab (HVS) taken and sent to the laboratory, amniotic fluid was seen and confirmed as such by a positive amnicator test. Maternal observations were taken and a CTG was performed. [Ms A's] temperature was 36.5°C at this time.

At the end of [Ms C's] shift (0645 hours) care was handed over to [Ms D]. [Ms D] was with [Dr B] when he came in to do a ward round. [Ms A] was under the care of [Dr B] on the 15th August 2002 and as such he was ultimately responsible for decisions that needed to be made. The midwives were responsible for providing [Ms A] with the care she required and making decisions on when to contact [Dr B] to update him or ask for any further advice.

The decision was made to let nature take its course. [Ms A's] gestation was far enough along to not stop the labour if it occurred. The membranes had only recently ruptured and it appears that [Dr B] was willing to leave any further management decisions until the next day, unless the midwives were concerned. The following day would then be 24 hours following membrane rupture and further decisions would be necessary.

[Ms D] has stated that [Ms A's] labour became established about 1330 hours. [Ms A's] temperature at this time was 36.5°C.

At the end of her shift [Ms D] handed midwifery care over to [Ms E]. [Ms A] progressed quickly. She was assessed at 1540 hours to confirm that labour was progressing and was found to be 3–4cm dilated. A CTG was applied to monitor the

FHR as was expected in a premature labour. [Ms A] was using entonox at this stage to help her with pain management. [Ms E] reassessed [Ms A] at 1600 hours and found her to be 8cm dilated.

The labour progressed well. [Ms E] called the paediatrician and the house surgeon to be present at the birth. A live male infant was delivered at 1720 hours following an episiotomy. [Ms A's] temperature following delivery was 37.4°C.

[Baby A] was initially well, with Apgars of 8 & 9. His condition deteriorated quickly and his condition warranted transfer to [the city hospital]. Two days later the swab results showed positive for GBS and following this [Baby A] was diagnosed with septicaemia secondary to GBS infection. [Baby A] had been commenced on antibiotics at 3 hours of age as infection was being suspected as a cause of his respiratory distress.

Answers to questions:

1. What standards of practice apply in this case?
There seems to be an acceptance that the policy given to the three advisors for ACC was not in place on the 15th August 2002. All practitioners are responsible for making sure that their knowledge is up to date and that no act or omission on their behalf places a woman or baby at risk.

In 2002, prior to the GBS guidelines that are now in place, there was a lot of discussion occurring throughout the country on management of premature rupture of membranes and GBS infection as literature and research was becoming available.

Practices varied throughout the country and among individual practitioners. Some practitioners were very aggressive with the use of antibiotics and prescribed them to every woman with premature rupture of membranes regardless of any risk assessment. Some practitioners were very reluctant to give antibiotics and only prescribed them to women whose membranes had been ruptured for a period of time. Some considered this to be 12 hours, some 18 and some 24. 24 hours had been the standard figure for some time but with research that was coming out some practitioners were altering their practice to suit the research, while others were happy to follow guidelines until the research was proven to be sound enough to warrant the guidelines to be changed. *As long as antibiotics were given to any women whose membranes had been ruptured for more than 24 hours or who had a raised temperature I would say that that practice was within reasonable standards at the time in question.* The research that became apparent during 2003 quite strongly showed premature babies to be very vulnerable to GBS infection, thus the vigorous treatment of them in current policies.

I would expect the practitioners to know that an infection in the mother could be a possible cause of premature rupture of membranes. [Ms C] has shown by taking the HVS that she understood this. She has not shown any urgency in this, as the swab was not marked for rapid testing. To send the test for a rapid screen may not have been normal practice and therefore not something [Ms C] would naturally do.

Both [Dr B] and [Ms D] knew the swab was taken. As neither of them was in a hurry to chase up the result I would presume that a rapid test was not the normal procedure at this time and they were expecting to have to wait 48 hours for the result. It was usual practice for the paediatric team to commence prophylactic antibiotics (in cases they felt concern over) until swab results. If [Ms A] were not delivered 24 hours after her membranes were ruptured she would have been commenced on antibiotics. To do a rapid GBS test is not normal practice at the hospital where I work, nor has it been in the past.

2. Did [Ms C] appropriately manage [Ms A's] labour? If not, why not?
'A speculum examination was performed, a high vaginal swab (HVS) taken and sent to the laboratory, amniotic fluid was seen and confirmed as such by a positive amnicator test. Maternal observations were taken and a CTG was performed. [Ms A's] temperature was 36.5° C at this time.'

[Ms C] has performed all the tests necessary at this stage in [Ms A's] care. There was no urgency to call in an obstetrician in the middle of the night. [Ms C] has performed a speculum examination not a vaginal examination, which reduces the risk of infection. *Apart from the possibility that swabs were routinely sent for rapid testing, which I presume they were not, [Ms C's] care was within reasonable standards.*

3. Did [Ms D] appropriately manage [Ms A's] labour? If not, why not?
[Ms D] has accompanied [Dr B] on his rounds. It was an appropriate decision to let the labour establish if it was going to. It was reasonable for [Dr B] to leave [Ms A] for the day and for him to reassess the management the following day. It was reasonable of him to expect the midwives to only contact him if they were concerned about anything. If [Ms D] felt that [Dr B's] management was not within expected guidelines she is responsible for discussing that with him. The fact that she did not makes me presume that his management was acceptable and normal at that time.

[Dr B] had been working at Nelson Hospital for one year at this time, even though he was a locum, I would expect a year as ample time to know the guidelines well and to know the staff well.

Midwives are quite capable of managing a labour and birth without the presence of an obstetrician; they are also capable of knowing when to call for assistance. It was perfectly reasonable for [Ms D] not to have contacted [Dr B] again to let him know that labour was established. This is normal practice at the hospital in which I work.

I would have expected [Ms A] to be on 4 hourly temperature recordings to monitor her for signs of infection. [Ms A's] temperature has been taken at 0520 and 1330 hours, it should have also been taken at approximately 0930 hours, and I can find no record of this occurring.

Apart from the regular monitoring of the temperature the care given by [Ms D] is of reasonable standard. As [Ms D] took [Ms A's] temperature at 1330 hours and it was normal I would view this as a mild deviation from normal.

4. Did [Ms E] appropriately manage [Ms A's] labour? If not, why not?

'At the end of her shift [Ms D] handed midwifery care over to [Ms E]. [Ms A] progressed quickly. She was assessed at 1540 hours to confirm that labour was progressing and was found to be 3–4cm dilated. A CTG was applied to monitor the FHR more closely. [Ms A] was using entonox at this stage to help her with pain management. [Ms E] reassessed [Ms A] at 1600 hours and found her to be 8cm dilated.

The labour progressed well; [Ms E] called the paediatrician and the house surgeon to be present at the birth. A live male infant was delivered at 1720 hours following an episiotomy. [Ms A's] temperature following delivery was 37.4° C.'

When [Ms E] took over care [Ms A] was in established labour. It was [Ms E's] role to manage this efficiently which she appears to have done appropriately. Because of the prematurity, CTG monitoring of the FHR is recommended. [Ms E] did this. Because of the prematurity it is recommended to have paediatric presence at the birth. [Ms E] did this. There is no evidence to suggest an obstetrician needed to be called to the birth.

The care given by [Ms E] was within reasonable standards.

5. Should [Ms A] have been prescribed antibiotics? If so, who was responsible for prescribing these? What was the role of the midwifery team in respect of this issue?

Answered in question 1

6. Who was responsible for following up the vaginal swab results? Were these required urgently? If so, who was responsible for ensuring this?

Answered in question 1

7. Was communication and co-operation between [Ms C], [Ms D] and [Ms E], and between the midwives and the obstetric/paediatric team, of an appropriate standard? If not, why not?

With regards communication with the obstetric team: Answered in question 3.

With regards communication with the paediatric team: Answered in question 4.

8. Are there any aspects of the care provided by [Ms C], [Ms D], and/or [Ms E] that you consider warrant additional comment?
No."

Further midwifery advice
Further expert advice was obtained from Ms Terryll Muir, midwife:

"A blood test was ordered [on 15 August 2002]. Blood was received in the laboratory at 1021 hours and reported at 1220 hours.

Haemoglobin 110
White blood cell count 12.3
Neutrophils 8.5

It is not clear who ordered the blood test nor whose responsibility it was to check on the results. Generally it is the responsibility of the person who ordered the test.

…

Answers to questions:

1. Should [Ms C] have followed up on the blood results?
No, [Ms C] had finished her shift before the blood had even been taken.

2. Should [Ms D] have followed up on the blood results?
Generally it is the responsibility of the medical team to follow up on results. They are the ones who order the tests and are the ones who will interpret and prescribe management based on the results. [Dr B] was ultimately responsible for following up on the results or asking someone to do this on his behalf. This is usually a junior doctor rather than a midwife. In the absence of a junior doctor a midwife may be asked to look up the results. A midwife would not generally do this.

3. Should [Ms E] have followed up on the blood results?
Generally it is the responsibility of the medical team to follow up on results. They are the ones who order the tests and are the ones who will interpret and prescribe management based on the results. [Dr B] was ultimately responsible for following up on the results or asking someone to do this on his behalf. This is usually a junior doctor rather than a midwife. In the absence of a junior doctor a midwife may be asked to look up the results. A midwife would not generally do this.

4. Does the presence of the blood results alter my previous advice?
Both the white blood cell count and the neutrophils are raised slightly; the white blood cell count is generally raised during pregnancy anyway. A white blood cell count of up to 20 can be considered normal for pregnancy. Neither are raised enough to have caused a concern or raise the suspicion of an infection being present. If the blood results had been checked at 1230 hours it is unlikely that antibiotics would have been commenced based on these results."

Obstetric advice
The following expert advice was obtained from Dr Michael East, gynaecologist and obstetrician:

"**Opinion re complaint file 04/03530**

I have been asked to give an opinion as to whether [Dr B] properly managed [Ms A's] condition following admission to Nelson Hospital and properly communicated with other providers involved in [Ms A's] care. I have also been asked to comment whether Nelson Marlborough District Health Board had in place adequate guidelines and procedures to manage [Ms A's] condition following her admission to Nelson Hospital on 15 August 2002 and had provided adequate training to staff about any such guidelines.

Supporting information

- Letter of complaint from [Ms A] (pages 1–160)
- Notification letters to parties (pages 161–176)
- Information from ACC (pages 177–516)
- Information from [the second District Health Board] (page 517–517a)
- Information from Nelson Marlborough District Health Board (pages 518–555)
- Information from [Ms C] (pages 556–561)
- Information from [Dr B] (pages 562–564)
- Information from [Ms E] and [Ms D] (pages 565–585)
- Information from [the unit manager] (page 586)
- Information from [a registered midwife] (page 587)
- Information from [Ms C] (page 588)
- Information from [a registered midwife] (page 589)
- Information from [a registered midwife] (page 590)
- Information from [a registered midwife] (page 591)
- Information from [a paediatrician] (page 592)

Opinion requested

1. What standards of practice apply in this case?

2. What was [Dr B's] role and responsibility in terms of managing [Ms A's] condition at 8am?

3. Should [Ms A] have been prescribed antibiotics? If so, who was responsible for arranging this, and when? What was [Dr B's] role, if any, in respect of this issue?

4. Who was responsible for following up the vaginal swab results? Were these required urgently? If so, who was responsible for ensuring this?

5. Was the level of communication and co-operation between [Dr B], and the midwifery team; and between [Dr B] and the obstetric/paediatric team appropriate? If not, why not?

Opinion

It is my opinion that Nelson Marlborough District Health Board did not have in place adequate guidelines and procedures to manage [Ms A's] condition following her admission to Nelson Hospital on 15 August 2002. It is clear that the protocol supplied within the information that I have been given to read is not dated until 29 November 2002. I also feel that because of lack of appropriate antibiotic guidelines, adequate training to staff could not follow.

With regard to [Dr B], I believe that he should have been better informed regarding the widespread practice of the use of antibiotics in pre-term labour advocated in North America, Europe and Australasia. I accept that no national guideline existed at the time 15.8.2002 but nonetheless I still hold the view that the use of antibiotics in pre-term labour would have been considered in 2002 to be normal practice. I believe the body of medical opinion would support this statement. I can accept that opinion would have been divided at that time as to whether antibiotics should have been given at the onset of premature rupture of membranes or instead at the onset of labour.

I believe that a management plan should have been written in the notes by [Dr B] regarding the use or non-use of antibiotics at the time of admission and detailing the need to administer antibiotics if labour ensued. I sympathise with [Dr B] in that he was not advised that [Ms A] had indeed established into labour and I do believe that the midwives concerned in the care of [Ms A], namely [Ms E] and [Ms D], should have informed [Dr B] that labour had established and I thus believe that they should share some of the responsibility for the outcome of this case. Pre-term labour is not a normal event and midwives are not sanctioned to care for women suffering pre-term labour without medical involvement.

With regard to obtaining the vaginal swab culture result, I do not think that this was required on an urgent basis given that for a full culture to be obtained it can often take 24–48 hours and the results can also be misleading and should not have altered the

requirement for antibiotics in labour as even in the event of a negative swab for beta-haemolytic streptococcus, antibiotics ought to be prescribed.

Summary:

I believe there has been a general system failure. Although I have not been asked to comment so widely, I would like to state that the following deficiencies are clear from the documents supplied for me to view.

1. That on 15 August 2002 no adequate protocol was in place provided by Nelson Marlborough District Health Board re the management of pre-term rupture of membranes and premature labour.

2. That [Dr B] failed to implement antibiotic therapy in accordance with accepted practice at the time. It would constitute the body of medical opinion in 2002 that antibiotic therapy be given at the very least to cover a pre-term labour and many would have started antibiotics prior to such, at the onset of premature rupture of membranes. I consider this a moderate departure from standard care as [Dr B] was to some extent compromised in his ability to provide care because of the issues stated in point 3 below. However he did not check to see for himself as to whether the labour eventually established over and above the niggly contractions that he had observed.

3. That there was failure of the hospital midwives [Ms E] and [Ms D] to inform [Dr B] of the fact that [Ms A] had established into pre-term labour.

4. There is a documented delay of failure of the paediatric team at Nelson Hospital to institute antibiotic therapy to [Baby A] until 3½ hours post partum when clearly he was exhibiting signs of becoming unwell prior to this time."

Responses to provisional opinion

Ms D
In response to my provisional opinion, Ms D's lawyer provided the following further information:

"Registered Midwife [Ms D] has been found to have breached Right 4(1) of the Code for 'failing to take [Ms A's] temperature more than once on her shift'. In his opinion the Commissioner states:

'given the potential for infection in this case it is of particular concern that [Ms D] monitored [Ms A's] temperature only once during her shift. An elevation in [Ms A's] temperature would have put the midwife on notice of the possibility of maternal

infection. It is likely she would have sought a review of [Ms A's] care by [Dr B] had a raised temperature been noted.'

However, there is no evidence that [Ms A] ever had a raised temperature at all and she never had a maternal infection. Even though there is no documented record of a temperature being taken more that once by Registered Nurse [Ms D], at page 5 of his provisional opinion the Commissioner states that [Ms D] advised that her treatment plan was to '… undertake a four hourly check of [Ms A's] TP, BP & FHR …'.

Failing to document in the body of the notes does not mean failure to carry out the temperature recording – as this is normally recorded on a TPR chart – the clinical notes provided by Nelson Marlborough District Health Board, do not include a TPR chart. It is of concern that the clinical notes do not appear to be the full record.

The temperature at 0530 hours had been normal and it was normal again at 1330. [Ms A] never developed a maternal infection at all and it can thus be strongly inferred that her temperature had never been elevated or deviated from normal between 0530 and 1330 hours. Thus even if she had taken it, [Ms D] would not have been put on notice of the possibility of maternal infection.

There are other indices of raised temperature besides an actual recording and the independent advice to the Commissioner that the lack of documentation of the temperature recording indicating it might not have been taken at 0930 is a mild deviation from normal – especially given that [Ms A] never developed a maternal infection – should not mean that [Ms D] has breached Right 4(1) of the Code.

Re: Breach of Right 4(5)

The Commissioner states that '[*Ms D] had 8 hours to contact [Dr B] regarding [Baby A's] progress particularly at the onset of labour and it is of concern that she made no attempt to do so.'*

[Ms D] has been found in breach of Right 4(5) of the Code for being part of the obstetrics team and not communicating effectively and co-operating with other team members. The Commissioner says that '*she should not have made assumptions about her role and [Dr B's] role in the care of [Ms A]*.'

In the view of the Commissioner's independent advisor [Ms D] was entitled to make an assumption that her role was to manage a normal labour and communicate with [Dr B] only if she was concerned about anything. (See independent advisor's report at page 15 of the Commissioner's opinion.) As the independent advisor states, midwives are quite capable of managing a labour and birth without the presence of an obstetrician and also capable of knowing when to call for assistance. '*It was perfectly reasonable for Registered Midwife [Ms D] not to have contacted [Dr B] to let him know that labour was established' (at page 15).*

The Commissioner should be guided by this independent advice. It is unreasonable for midwives to have to contact an obstetrician to let them know that labour has commenced unless there is a deviation from normal for example a raised temperature or that labour was not progressing normally. Neither of these matters occurred. The independent advisor states that it is normal practice at the hospital in which she works not to contact the obstetrician.

The independent advisor's advice should be followed by the Commissioner: Registered Nurse [Ms D] should not be found in breach for not letting [Dr B] know that labour had commenced, what would [Dr B] have been able to do? There was no evidence that he would [have] done anything other than let the labour take its normal course as there was no raised temperature or sign of infections in [Ms A] at that time."

Ms C
Ms C confirmed that it was her understanding that swabs were not routinely sent for rapid testing.

Dr B
Dr B responded that he was happy with the findings and did not have any comments to add.

Nelson Marlborough District Health Board
The DHB responded that it did not have any further comments.

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.*

Names (other than Nelson Marlborough District Health Board and Nelson Hospital, HDC's independent expert advisors and ACC's independent advisors) have been removed to protect privacy. Identifying letters are assigned in alphabetical order and bear no relationship to the person's actual name.

Relevant Standards

Section 88 of the New Zealand Public Health and Disability Act 2000

The Notice pursuant to section 88 which sets out the terms and conditions for the provision of Maternity Services states:

> APPENDIX I Guidelines for Consultation with Obstetric and Related Specialist Medical Services
>
> 5.0 LEVELS OF REFERRAL
>
> **Level 2**
> The Lead Maternity Carer must recommend to the woman (or parents in the case of the baby) that a consultation with a specialist is warranted given that her pregnancy, labour, birth or puerperium (or the baby) is or may be affected by the condition. Where as consultation occurs, the decision regarding ongoing clinical roles/responsibilities must involve a three way discussion between the specialist, the Lead Maternity Carer and the woman concerned. This should include discussion on any need for and timing of specialist review. The specialist will not automatically assume responsibility for ongoing care. This will depend on the clinical situation and the wishes of the individual woman.

CODE	CONDITION	DESCRIPTION	
	Medical Conditions		
4023	Premature rupture of membranes	<37 weeks and not in labour	2
4025	Premature labour	34-36 weeks	2

Opinion: Breach – Dr B

Failure to implement a management plan
Dr B saw Ms A during his ward round at 8.00am. Dr B was aware that a swab had been taken. However, he did not discuss or document a management plan for Ms A and he gave no instructions to the midwives regarding the administration of antibiotics, or the follow-up of the blood or swab results.

Dr East commented that pre-term labour is not a normal event and that midwives are not authorised to care for women suffering pre-term labour without medical involvement. In contrast, my midwifery advisor commented that midwives are "quite capable of managing a labour and birth without the presence of an obstetrician, they are also capable of knowing when to call for assistance".

It is regrettable that not infrequently there is an uneasy tension between midwives and obstetricians regarding who controls the care of women in pre-term labour. There are signs of that tension in this case. However, in my view Dr B should have formulated a clear management plan for Ms A's care. Dr B should not have assumed that the midwives would contact him with Ms A's blood and swab results and when Ms A went into labour. Dr B has acknowledged that Ms A's treatment plan should have been specifically set out in her clinical notes.

Dr B advised that his usual practice in relation to premature rupture of membranes was to wait for 12 hours before starting antibiotics, or earlier if there were any indications of an infection, such as an increased white cell count or an increased CRP on blood testing. Dr B assumed that the midwives would have advised him about antibiotic therapy as they were experienced midwives who should have known the protocols regarding premature rupture of membranes. He said that he would have accepted their advice.

Dr East commented that, although no national guidelines existed at the time of the events in question, the use of antibiotics in pre-term labour would have been considered normal practice. Antibiotic therapy should have been given at the least to cover pre-term labour, although many obstetricians preferred to start antibiotics at the onset of premature rupture of membranes.

In August 2002 Nelson Hospital did not have in place an adequate protocol regarding women with premature rupture of membranes and the administration of antibiotics in at-risk pregnancy. Notwithstanding this, considering that Dr B had been a locum at Nelson Hospital since November 2001, he should have been better informed about accepted practice regarding antibiotic use in premature rupture of membranes and pre-term labour. Moreover, he should not have made assumptions about the midwives' knowledge regarding the administration of antibiotics. Dr B acknowledges that it was an oversight not to discuss prescribing antibiotics with the midwives. I agree with Dr East that Dr B's failure to prescribe antibiotics was a moderate departure from standard care.

In my opinion, by failing to put in place a proper management plan that included the administration of antibiotics (either immediately or when labour commenced), Dr B breached Right 4(1) of the Code.

Failure to communicate effectively with midwives
Following his discussion with Ms D at 8.00am regarding the use of antibiotics, Dr B made no further attempts to follow up on Ms A's progress between 8.00am and 5.20pm, when

her baby was delivered. Dr B did not request to be informed when Ms A went into labour and said that he assumed the midwives would tell him.

Dr East commented that Dr B's ability to provide appropriate care to Ms A was compromised to some extent because of the failure of midwives Ms E and Ms D to inform him that Ms A had progressed into labour. In my view, as the on-call obstetrician, Dr B was a member of a team involved in Ms A's care, and he therefore shared responsibility for ensuring effective communication and co-operation between the midwives and himself about Ms A's condition. Effective communication and co-operation between obstetric team members would have helped ensure that Ms A received properly co-ordinated services and continuity of care during her labour and the delivery of her baby. In the hours following Dr B's assessment of Ms A, there were many opportunities for Dr B to communicate with Ms D and Ms E about Ms A's progress. Dr B failed to avail himself of those opportunities or to make it clear that he expected to be informed when Ms A went into labour.

In these circumstances, Dr B breached Right 4(5) of the Code.

Opinion: No Breach – Ms C

Ms A was admitted to Nelson Hospital's Maternity Unit, under the care of Ms C, at 5.20am. Ms C's shift ended at 6.45am. Ms C advised that she carried out her treatment plan for Ms A and that there was no need to refer to the on-call obstetrician over this time.

Ms Muir advised that Ms C performed all the necessary tests for Ms A's care. I accept my expert's advice that, in the circumstances, Ms C's care was within reasonable standards.

While the overall care provided by Ms C was acceptable, there is no evidence that she identified the issues regarding the administration of antibiotics, follow-up of the swab results, and notification of the on-call obstetrician about Ms A's management plan. It would have been good practice for Ms C to have identified these issues and discussed them with Ms D. This would have assisted the obstetric team's care and treatment of Ms A.

Opinion: Breach – Ms D

Following the commencement of her duty at 6.45am, Ms D received a handover from Ms C regarding Ms A's care. At approximately 8.00am Ms D accompanied Dr B on his ward round when he saw Ms A.

Failure to monitor temperature and consider antibiotics

Ms Muir advised that she would have expected the midwives to know that an infection in the mother could be a possible cause of premature rupture of membranes, as there had been a lot of discussion amongst practitioners about the management of premature ruptured membranes and GBS infection. She further advised that it was reasonable practice in August 2002 for only those women whose membranes had been ruptured for more than 24 hours, or who had a raised temperature, to be offered antibiotics.

I consider it likely that, as an experienced midwife who has worked in the Unit since 1993, Ms D was aware that infection in the mother could be a possible cause of premature rupture of membranes and of the issues surrounding antibiotics and GBS infection. For this reason it was important that Ms D regularly assess Ms A's temperature.

Although Ms D advised me that she told Dr B that antibiotics were prescribed on a case-by-case basis, in my view, she should have clarified this important issue with Dr B at an early stage in her shift (rather than merely provide information about the usual practice concerning the use of antibiotics in this situation). She should also have clarified with Dr B who would take responsibility for the follow-up of the swab and blood test results, and at what point he expected to be contacted regarding Ms A's progress. Furthermore, Ms D commenced duty at 6.45am, and handed over the care of Ms A to Ms E at 2.45pm. Ms D had eight hours to contact Dr B regarding Ms A's progress (particularly at the onset of labour). It is of concern that she made no attempt to do so.

Ms Muir advised that she would have expected Ms A's temperature to have been recorded every four hours, to monitor her for signs of infection. Ms D's failure to take Ms A's temperature more than once on her shift was a mild deviation from usual practice.

Given the potential for infection to be present in this case, it is of concern that Ms D monitored Ms A's temperature only once during her shift. An elevation in Ms A's temperature would have put Ms D on notice of the possibility of maternal infection. It is likely that she would have sought a review of Ms A's care by Dr B had a raised temperature been noted.

Ms D's lawyer submitted that the failure to document the temperature in the body of the notes does not mean that Ms D failed to assess Ms A's temperature. Ms D's lawyer explained that temperature is usually recorded on a Temperture Pulse Respirations (TPR) chart. However, the only temperature recorded by Ms D was in the body of the records, at 1.15pm. There is no evidence of a TPR chart in the records, nor has Ms D referred to a separate TPR chart in the body of the records. Ms D assessed Ms A at 9.30am and should have recorded her temperature at this time.

It is a fundamental requirement that health professionals keep accurate patient records. Accurate records assist by confirming the key details of the care and treatment provided, and follow-up actions. More importantly, as noted in *Cole's Medical Practice in New*

Zealand (2001),[11] keeping a proper medical record is "a tool for management, for communicating with other doctors and health professionals, and has become the primary tool for continuity of care". The medical record contains vital information relevant to a patient's history, care and treatment, which may be needed if the patient receives subsequent care from other health professionals.

It is often stated by medical defence lawyers that "if it isn't documented, it didn't happen". Baragwanath J made comments to similar effect in his recent decision in *Patient A v Nelson-Marlborough District Health Board*.[12] Justice Baragwanath noted that it is through the medical record that doctors have the power to produce definitive proof of a particular matter (in that case, that a patient had been specifically informed of a particular risk). In my view this applies to all health professionals, including midwives, who are obliged to keep appropriate patient records. Health professionals whose evidence is based solely on their subsequent recollections (in the absence of written records offering definitive proof) may find their evidence discounted.

By not recording the temperature in the body of the records at 9.30am, as she did at 1.15pm, or referring to a separate TPR chart, Ms D has left herself open to the allegation that she did not assess Ms A's temperature every four hours, as required when monitoring for signs of infection. In my opinion, Ms D failed to provide services of an appropriate standard and breached Right 4(1) of the Code.

Failure to communicate effectively with Dr B
Ms Muir advised that if Ms D felt that Dr B's management was not within expected guidelines, she was responsible for discussing this with him. As Ms D did not contact Dr B, my expert presumed that Ms D was satisfied with Dr B's management and that his management was acceptable and usual practice at that time.

Ms Muir further advised that midwives can manage a labour and birth without an obstetrician and that it was reasonable for Ms D not to call Dr B about Ms A's care and progress. Ms D's lawyer quotes my expert on this point and states that Ms D was entitled to make an assumption that her role was to manage a normal labour, and communicate with Dr B only if she was concerned about anything.

However, in my view Ms Muir's advice relates to midwives managing a normal labour and birth, or where there is an agreed management plan with the specialist. There does not appear to have been such a plan in this case. Dr B's note in the records was to "wait and see". Any changes, including onset of labour, should therefore have been communicated to him.

[11] Edited by Dr Ian St George, and published by the Medical Council of New Zealand.
[12] *Patient A v Nelson-Marlborough District Health Board* (HC BLE CIV-2003-204-14, 15 March 2005).

In addition, this was not a normal labour. Ms A's pregnancy was at only 34 weeks, five days. According to the section 88 guidelines, the Lead Maternity Carer (LMC) of a woman who experiences premature rupture of membranes at less than 37 weeks, or goes into pre-term labour between 34 and 36 weeks, *must recommend* to the woman that *consultation* with a specialist is warranted.

In this case Ms A was referred to Nelson Hospital and reviewed by Dr B after her membranes had ruptured, in accordance with the guidelines. However, Dr B's plan was to "wait and see", and Ms D should have informed him when Ms A went into labour.

Ms D was part of the obstetric team and needed to communicate effectively and co-operate with the other team members. She should not have made assumptions about her role and Dr B's role in the care of Ms A. Ms D and Dr B should have discussed and clarified their respective involvement and responsibilities. Ms D should also have discussed these issues during her handover with Ms C and Ms E. Clarification of these issues through effective communication is likely to have assisted the obstetric team in ensuring that there was both quality and continuity of care for Ms A.

In these circumstances, Ms D breached Right 4(5) of the Code.

Opinion: No Breach – Ms E

Following the commencement of her duty at 2.45pm, Ms E received a handover from Ms D regarding Ms A's care. Ms E assessed Ms A at 3.40pm and found that she was in established labour. The labour progressed quickly and Baby A was born at 5.20pm.

Ms Muir advised that Ms E managed Ms A's labour appropriately. In particular, Ms E acted appropriately when, due to the prematurity of the baby, Ms E called the paediatrician and house surgeon to be present at the birth.

I accept Ms Muir's advice that the overall care provided by Ms E was of an appropriate standard. As Ms D had not formulated a clear management plan for Ms A's care with Dr B, Ms E did not receive an adequate handover from Ms D. Ideally, Ms E should have raised and clarified with Ms D the issues regarding the administration of antibiotics, and the follow-up of the swab and blood test results. However, I accept that Ms A's labour progressed quickly, and there was relatively little time available for Ms E to clarify these issues. Accordingly, in my view, Ms E did not breach the Code.

Opinion: Breach – Nelson Marlborough District Health Board

Direct liability

I commend the Board for the steps it has taken to resolve Ms A's complaint. However, I considered it appropriate to undertake my own investigation. I have concluded that the Board breached Right 4(1) of the Code, for the reasons set out below.

The Board was subject to a legal duty to provide obstetric services at a level of care and skill reasonably to be expected of a district health board. The evidence, and my expert advice, indicates that the Board fell short of its responsibility as a provider of publicly funded obstetric services.

Dr East advised that in August 2002 the Board did not have in place adequate guidelines and procedures that reflected standard practice for the use of antibiotics in premature rupture of membranes and pre-term labour. The Board was clearly aware of the need for such guidelines as it had produced a policy on the use of antibiotics in GBS and at-risk pregnancies; however, the policy had not been signed off or circulated. Dr B, Ms C, Ms D and Ms E were all unaware of any policy on antibiotic use in this situation, and the Board's representatives have not been able to ascertain when the policy was signed off.

Clear guidelines on the use of antibiotics where there is a premature rupture of membranes and pre-term labour would certainly have assisted Dr B and the midwives involved in Ms A's care. Giving antibiotics would have reduced the potential for Ms A's baby to be compromised by GBS infection.

The Board later took steps to remedy the situation, and has introduced appropriate policies as well as a procedure for ensuring that staff are aware of the policies. It is commendable that the Board has taken steps to improve the quality of its obstetric care.

In my opinion, by failing to have in place a written policy concerning the use of antibiotics in cases of premature rupture of membranes and premature labour, the Board breached Right 4(1) of the Code.

Recommendation

I recommend that Dr B, Ms C, Ms D, Ms E and the DHB review their practice in light of this report, in particular in relation to the management of premature delivery.

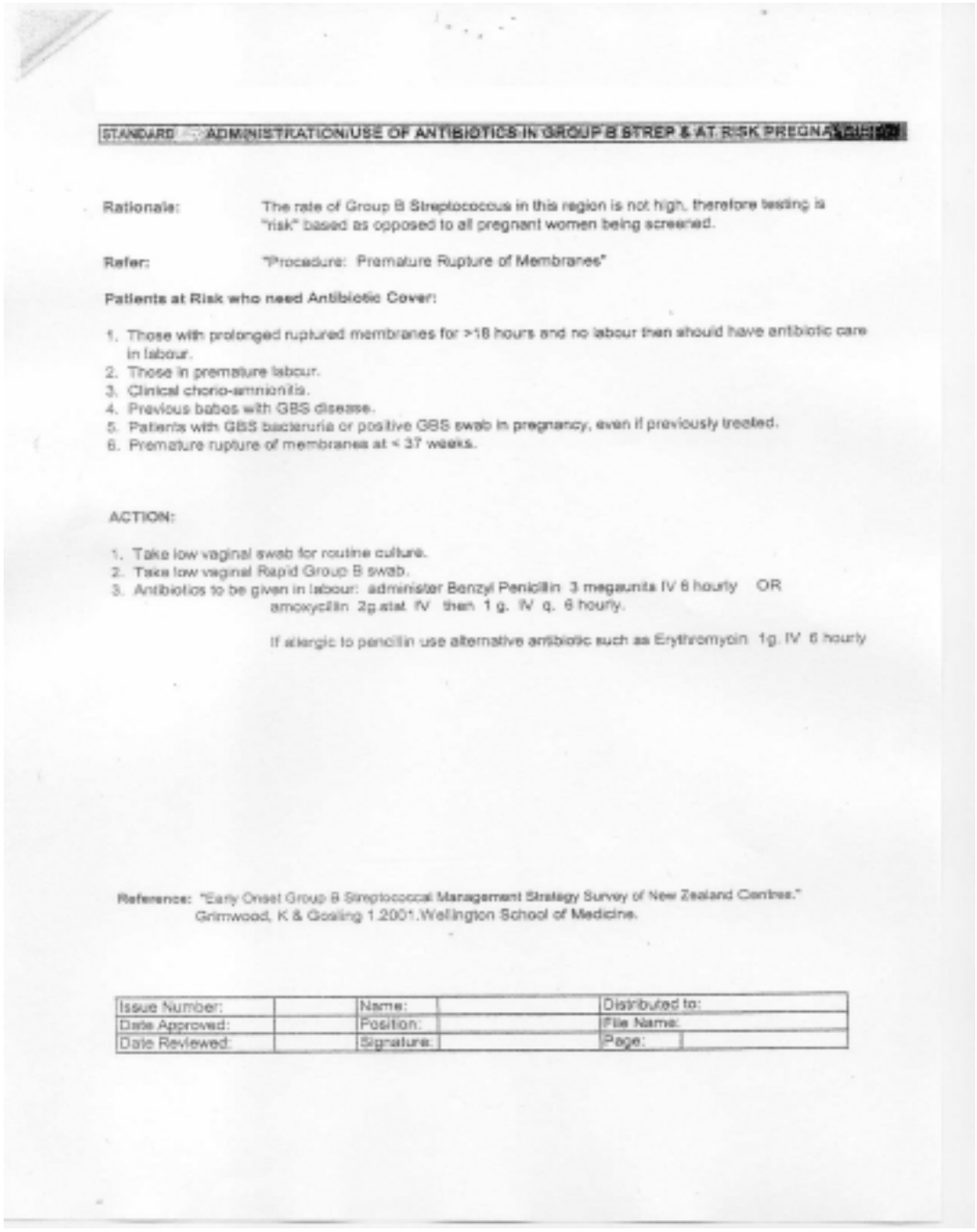
Follow-up actions

- A copy of this report will be sent to the Medical Council of New Zealand, the Midwifery Council of New Zealand, the New Zealand College of Midwives, and the Royal Australian and New Zealand College of Obstetricians and Gynaecologists.

- A copy of this report, with details identifying all the parties removed, (except Nelson Marlborough District Health Board and Nelson Hospital), will be sent to the Maternity Services Consumer Council and placed on the Health and Disability Commissioner website, www.hdc.org.nz, for educational purposes.

Names (other than Nelson Marlborough District Health Board and Nelson Hospital, HDC's independent expert advisors and ACC's independent advisors) have been removed to protect privacy. Identifying letters are assigned in alphabetical order and bear no relationship to the person's actual name.

Appendix 1



STANDARD: ADMINISTRATION/USE OF ANTIBIOTICS IN GROUP B STREP & AT RISK PREGNANCIES

Rationale: The rate of Group B Streptococcus in this region is not high, therefore testing is "risk" based as opposed to all pregnant women being screened.

Refer: "Procedure: Premature Rupture of Membranes"

Patients at Risk who need Antibiotic Cover:

1. Those with prolonged ruptured membranes for >18 hours and no labour then should have antibiotic care in labour.
2. Those in premature labour.
3. Clinical chorio-amnionitis.
4. Previous babes with GBS disease.
5. Patients with GBS bacteruria or positive GBS swab in pregnancy, even if previously treated.
6. Premature rupture of membranes at < 37 weeks.

ACTION:

1. Take low vaginal swab for routine culture.
2. Take low vaginal Rapid Group B swab.
3. Antibiotics to be given in labour: administer Benzyl Penicillin 3 megaunits IV 6 hourly OR amoxycillin 2g stat IV then 1 g. IV q. 6 hourly.

   If allergic to penicillin use alternative antibiotic such as Erythromycin 1g. IV 6 hourly

Reference: "Early Onset Group B Streptococcal Management Strategy Survey of New Zealand Centres." Grimwood, K & Gosling 1.2001.Wellington School of Medicine.

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References

"Early Onset Group B Streptococcus Management Strategy Survey of New Zealand Centres", Grimwood, K & Gosling, I 2001, Wellington School of Medicine, New Zealand.

Technical Report, GBS New Zealand Consensus Working Party, 2003

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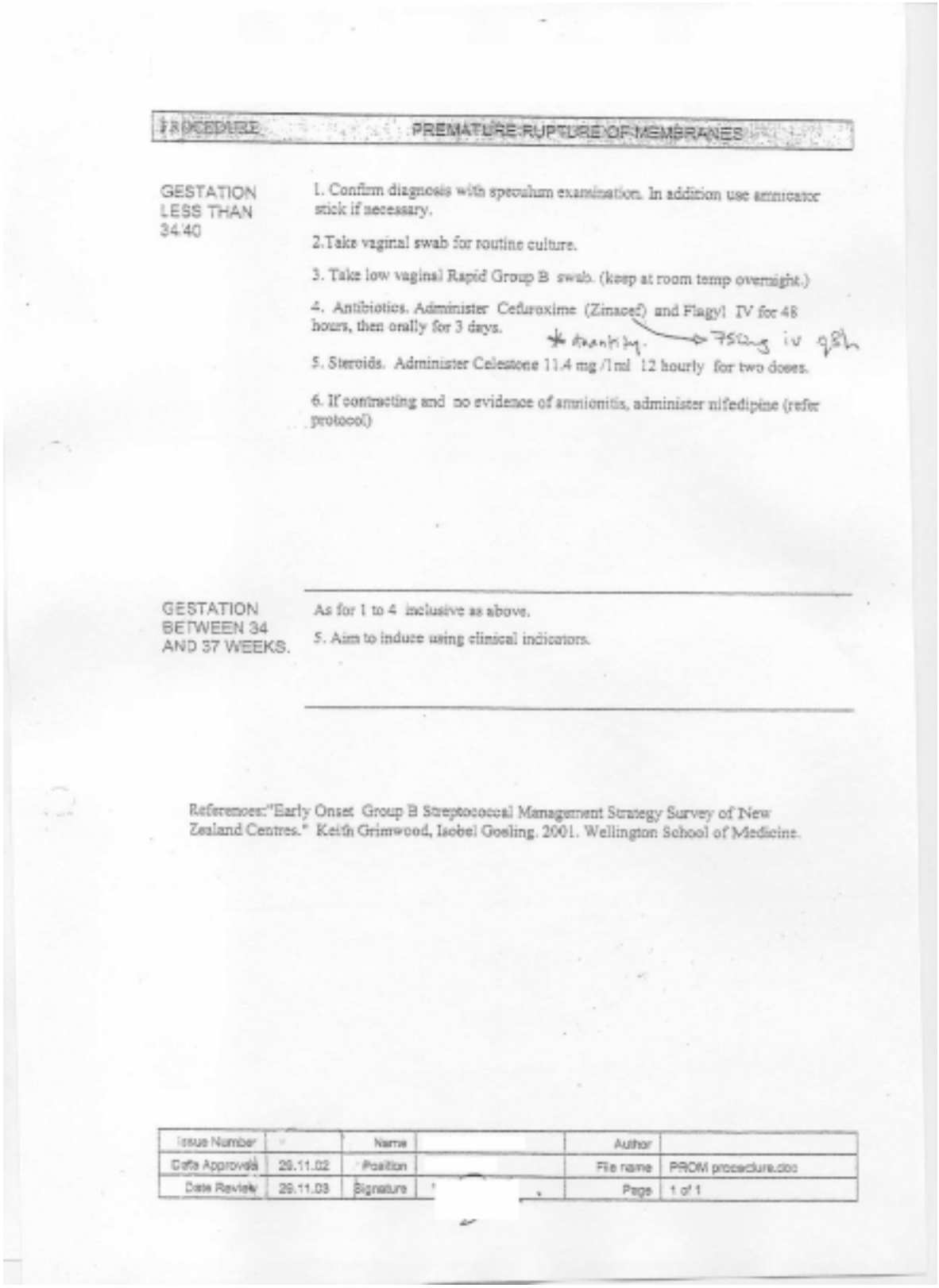
Appendix 2



PROCEDURE: PREMATURE RUPTURE OF MEMBRANES

GESTATION LESS THAN 34/40

1. Confirm diagnosis with speculum examination. In addition use amnicator stick if necessary.

2. Take vaginal swab for routine culture.

3. Take low vaginal Rapid Group B swab. (keep at room temp overnight.)

4. Antibiotics. Administer Cefuroxime (Zinacef) and Flagyl IV for 48 hours, then orally for 3 days.

* thankin hy. → 750mg iv q8h

5. Steroids. Administer Celestone 11.4 mg /1ml 12 hourly for two doses.

6. If contracting and no evidence of amnionitis, administer nifedipine (refer protocol)

GESTATION BETWEEN 34 AND 37 WEEKS.

As for 1 to 4 inclusive as above.

5. Aim to induce using clinical indicators.

References:"Early Onset Group B Streptococcal Management Strategy Survey of New Zealand Centres." Keith Grimwood, Isobel Gosling. 2001. Wellington School of Medicine.

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Date Approved	29.11.02	Position		File name	PROM procedure.doc
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Appendix 3

POLICY	Group B Streptococcus
Overview	This policy outlines the way in which women accessing the and who are at risk of adverse outcomes from Group B Streptococcus (GBS) are clinically evaluated and effectively cared for.
Background	Due to the risk that GBS poses for the baby, and due to the low occurrence of GBS, testing is "risk" based as opposed to all women being screened.
Purpose	The purpose of this policy is to ensure that all women are screened to identify and treat those at risk from the effects of GBS
Scope	It is recommended that this policy be followed by LMCs and Obstetricians who have clients accessing the for labour and delivery care.
Policy	That women with the following conditions should receive antibiotic cover during labour: 1. Previous history of baby with GBS disease 2. Premature labour at less than 37 weeks gestation 3. Premature rupture of membranes at less than 37 weeks (even if no labour) 4. Prolonged rupture of membranes greater than 18 hours once in labour 5. Women with GBS bacteuria or positive GBS vaginal swab from pregnancy, even if previously treated 6. Clinical evidence of chorioamnionitis or T>38.5
Procedure	1. Take low vaginal swab prior to commencement of antibiotics in ***all*** of the above. 2. Take low vaginal *Rapid Group B* swab ***only*** if ruptured membranes at term greater than 18 hrs and not in labour 3. Antibiotics are to be administered during labour
Definitions of Antibiotic Cover	Benzyl penicillin 3 mega units IV 6hrly until baby delivered **OR** Amoxycillin 2gm IV stat then 1gm IV q 6hrly until baby delivered **OR** Cefuroxine 750 mg IV q 8hrly & flagyl 500mg IV q 12hrly if less than 37 weeks or clinical chorioamnionitis. If the woman is allergic to penicillin use an alternative antibiotic such as clindamycin 600mg IV q 6hrly.

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