Hutt Valley District Health Board

Medical Officer, Dr E

Obstetric Registrar, Dr D

Registered Midwife, RM B

A Report by the

Health and Disability Commissioner

(Case 16HDC00144)

Health and Disability Commissioner
Te Toihau Hauora, Hauātanga

Table of contents

Executive summary

1. In 2014, Ms A became pregnant. During her antenatal care, Ms A's lead maternity carer, registered midwife (RM) RM B did not recommend Ms A attend a consultation with an obstetrician owing to risk factors of high body mass index and inconclusive Hepatitis C status.

2. Ms A's waters broke when she was at 39 weeks and two days' gestation. She was admitted to the public hospital's birthing suite and cared for initially by RM B's back-up midwife, then overnight by an obstetrics registrar and the hospital core midwives.

3. Ms A's risk factors were not handed over to the on-call registrar, Dr E, or the on-call senior medical officer, Dr D, at the morning handover of 17 Month8.[1] Dr E and Dr D agreed that syntocinon could be commenced for poor progress if required.

4. RM B commenced syntocinon at 10.20am after consulting with Dr E. At 11.10am, RM B noted an increase in the fetal heart rate, so attempted to contact Dr E. There were issues in getting hold of Dr E to review Ms A. Dr E attended Ms A at 12pm and planned for a category 2 Caesarean section owing to fetal distress. Dr E discussed this plan with Dr D, and Dr D agreed with it. At the time, Dr D was conducting a clinic elsewhere in the hospital.

5. Attempts were made to insert a spinal anaesthetic for the Caesarean section; however, these were unsuccessful. Dr E contacted Dr D at 1.20pm to advise that a general anaesthetic was required, and Dr D agreed with this decision. The Caesarean section proceeded under general anaesthetic. Tragically, Baby A was stillborn.

Findings

6. The Commissioner found that RM B failed to advise Ms A of the recommendations in the Referral Guidelines in relation to her obesity and inconclusive Hepatitis C status. He considered that this was information that a reasonable consumer would expect to receive in Ms A's circumstances. Accordingly, RM B breached Right 6(1) of the Code of Health and Disability Services Consumers' Rights (the Code).[2]

7. Hutt Valley DHB had a responsibility to provide services to Ms A with reasonable care and skill. It failed to do so, because it did not create an environment that ensured that resident medical officers were supervised appropriately, its handover practice was suboptimal, there were deficiencies in internal communication, and its policy relating to syntocinon was inappropriate. For these reasons, the Commissioner considered that the care provided

[1] Relevant months are referred to as Months 1–8 to protect privacy.
[2] Right 6(1) of the Code states that every consumer has the right to information that a reasonable consumer, in that consumer's circumstances, would expect to receive.

to Ms A was seriously compromised, and found that Hutt Valley DHB breached Right 4(1) of the Code.[3]

8. The Commissioner was very concerned that Dr E was left to manage Ms A's case without direct senior medical officer oversight. However, he also considered that Dr E was by all accounts a competent second-year registrar, and therefore should have been able to identify the extent of fetal compromise and correctly assess the level of urgency required for delivery, particularly given Ms A's presenting risk factors.

9. The Commissioner considered that as the specialist responsible for supervising Dr E, Dr D must bear some responsibility for the deficiencies in the care provided to Ms A. The Commissioner stated that Dr D should have done more to satisfy himself that Dr E was not continuing to manage a situation where he was potentially out of his depth.

Recommendations

10. The Commissioner recommended that RM B undertake training on informed consent and the Referral Guidelines, and provide a written apology to Ms A.

11. In the provisional opinion, the Commissioner recommended that Hutt Valley DHB review its handover process, implement daily consultant-led ward rounds, take steps to ensure that staff are aware of the on-call registrar mobile phone, and confirm that the following implemented changes remain in place: the associate clinical midwifery manager role, CTG interpretation cards, and weekly CTG meetings. These recommendations have been met.

12. The Commissioner recommended that Hutt Valley DHB provide a written apology to Ms A.

13. The Commissioner recommended that Dr E undertake training on fetal surveillance.

Complaint and investigation

14. The Commissioner received a complaint from Ms A about the services provided to her during the pregnancy and birth of her son, Baby A. The following issues were identified for investigation:

- *The appropriateness of the care provided to Ms A by Hutt Valley District Health Board in 2015.*
- *The appropriateness of the care provided to Ms A by Dr E in 2015.*
- *The appropriateness of the care provided to Ms A by Dr D in 2015.*
- *The appropriateness of the care provided to Ms A by RM B in 2015.*

[3] Right 4(1) of the Code states that every consumer has the right to have services provided with reasonable care and skill.

15. The parties directly involved in the investigation were:

Ms A	Consumer
RM B	Lead maternity carer (LMC)
RM C	Back-up midwife
Hutt Valley District Health Board (DHB)	Provider
Dr D	Medical officer special scale
Dr E	Obstetric registrar
Dr F	Obstetric registrar
RM G	Core midwife

16. Dr H, an obstetrician, is also mentioned in the report.

17. Independent expert advice was obtained from an obstetrician and gynaecologist, Dr John Short (**Appendix A**), and a midwife, Emma Farmer (**Appendix B**).

Information gathered during investigation

Introduction

18. This report concerns the antenatal care provided by an LMC to Ms A during her pregnancy and labour. It also concerns the obstetric care provided by Hutt Valley DHB and its staff during the labour and birth of Ms A's stillborn son, Baby A.

Background

Antenatal care

19. In 2014, Ms A (then aged in her thirties) became pregnant. Ms A attended a booking appointment with her LMC, RM B. RM B noted that Ms A had one child, and that she had an inconclusive Hepatitis C[4] status. RM B documented that Ms A "refuses further investigation around this as is 'sick' of being inconclusive". RM B stated that she advised Ms A that with an inconclusive result, Ms A would be treated as positive for Hepatitis C, and that some procedures would not be able to be done because of this, giving lactate[5] and fetal scalp electrodes as examples. In responding to the provisional opinion, Ms A said that she was not informed of this. RM B did not recommend that Ms A attend a consultation with an obstetrician owing to her inconclusive Hepatitis C status.

[4] An acute or chronic hepatitis that is often asymptomatic in its early stages but may be marked by fatigue, fever, nausea, loss of appetite, abdominal tenderness, and muscle and joint pain, and is usually transmitted by infected blood.
[5] Blood sample from fetal scalp.

20. RM B recorded that Ms A's weight was 100–105kg, her height was 165cm, and her body mass index (BMI) was 38.[6] RM B also told HDC that Ms A had advised that her weight was 110kg at booking (which would give a BMI of 40.4). RM B requested a first trimester combined screening test for Down syndrome and other conditions. This was undertaken on 16 Month2, and the form noted Ms A's weight to be 120kg and height to be 160cm (which would give a BMI of 46.9).

21. The *Guidelines for Consultation with Obstetric and Related Medical Services* (the Referral Guidelines — discussed further below)[7] require that the LMC must recommend to the woman, if her BMI is above 35, that a consultation with a specialist is warranted, and if the woman's BMI is above 40, that the responsibility for her care be transferred to a specialist, given that the pregnancy, labour, birth or puerperium (or the baby) is or may be affected by the condition.

22. RM B documented that as Ms A had an increased BMI, she discussed "healthy choices and being aware of sugary drinks". RM B stated that she informed Ms A that the expected weight gain during the pregnancy should be five to nine kilograms. RM B said that Ms A advised her that she had begun eating well as she was pregnant, and that she was intending to go for walks. Screening for gestational diabetes was undertaken, and the results were within the normal range.

23. Ms A had three growth scans. On each occasion the report notes that the scan was difficult owing to the maternal body habitus. RM B recorded in the notes on each occasion that Ms A was unhappy about her weight being noted as a difficult factor.

24. Ms A told HDC that she was worried about the birth because of her BMI, and she told RM B that she was concerned. However, RM B did not recommend to Ms A that she attend a consultation with an obstetrician, or have her care transferred to an obstetrician, owing to her high BMI. RM B told HDC:

> "I believe I should have encouraged [Ms A] to have a consult[ation] for her increased BMI … I did not push this with [Ms A] as after her morphology scan which reported how technically difficult it was due to maternal body habitus [Ms A] was insulted and very embarrassed."

25. On 20 Month7, RM B recorded that there was a trace of protein on dipstick analysis.[8] RM B recorded that she discussed doing a mid-stream urine test (MSU) to rule out a urinary tract infection (UTI) and encouraged Ms A to have a blood test at the same time. RM B documented: "[Ms A] is adamant if she has a UTI she will not take [antibiotics] as she feels

[6] A measure of body fat based on height and weight. A BMI between 18.5 and 24.9 is classified as normal weight. A BMI between 25 and 25.9 is classified as overweight, and a BMI above 30 is classified as obese.

[7] Ministry of Health, *Guidelines for Consultation with Obstetric and Related Medical Services* (Referral Guidelines). Wellington: Ministry of Health, 2012. The Referral Guidelines, previously appended to the Section 88 Maternity Services Notice 2002, are to be used in conjunction with the Primary Maternity Services Notice 2007.

[8] A basic diagnostic tool used to determine pathological changes in a patient's urine.

she is allergic to all of them. Ms A reports she will have treatment via her GP based on results."

26. On 3 Month8, RM B recorded that the MSU test results were positive for *E. coli*.[9] She recorded in the midwifery notes: "[Ms A] declined [antibiotics] script and was adamant that as she was asymptomatic she would not require [treatment] and if she did she would arrange via GP." RM B stated that she advised Ms A that "the UTI would not go away untreated and could lead to preterm labour and possible kidney infections if left untreated". In responding to the provisional opinion, Ms A explained that she did not refuse all antibiotics; rather, she did not want to take the one she was allergic to. She also disputes that RM B advised her that the UTI could lead to preterm labour and kidney infections.

16 Month8

27. Ms A's waters broke at 1pm on Sunday 16 Month8, when she was at 39 weeks and 2 days' gestation. Ms A said that she immediately felt that something was wrong, and her body went numb and she could not put a sentence together. Her partner telephoned RM B. Back-up midwife RM C answered RM B's telephone and advised that RM B had every second weekend off. Ms A said that this was the first they had heard of this arrangement.

28. RM B told HDC that she had informed Ms A of this arrangement on 5 Month1, and had given her documentation about this. RM B had recorded in the midwifery notes at that time: "[S]chedule discussed, card given with back-up details, and discussed time off." However, in responding to the provisional opinion, Ms A advised that this arrangement was not discussed.

29. Ms A said that RM C eventually agreed to meet them at the public hospital, but that she strongly suggested to Ms A's partner that he not bring in Ms A yet, as she was not in labour. RM C told HDC: "The patients of our group are made aware antenatally that usually one need not go to hospital until labour establishes — and I believe that is all I confirmed to [Ms A]."

Admission to the public hospital

30. Ms A and her partner attended the birthing suite at 4.30pm, where they met RM C and a midwifery student. Cardiotocography (CTG) taken from 5pm–5.24pm showed that the fetal heart rate had a reactive trace, the baseline was 140–145 beats per minute (bpm) with accelerations present to 160bpm, and there were no decelerations. At 6.15pm a urine dipstick test indicated that Ms A had a UTI.

31. At 6.30pm, a senior obstetric registrar, Dr F, assessed Ms A. Dr F documented that she reviewed Ms A's history and vital signs, and discussed antibiotic options to treat the UTI. Dr F prescribed amoxicillin, as Ms A advised that she had taken this previously without adverse effect. Dr F, RM C, and Ms A discussed Ms A's care. The record of this conversation notes: "[Ms A and partner] not keen to go home and are considering induction in

[9] A bacteria found in the digestive tract that can cause UTIs.

morning." Dr F also documented that in the afternoon Ms A had experienced a panic attack, which had resolved.

32. Ms A was admitted to the birthing suite at 7pm. RM C stated that the bed occupancy was nearly full. Accordingly, she advised Ms A that if the labour ward got busier and there were no more beds available, she could elect to go home, or move from the delivery suite to another maternity bed and wait for things to progress. A plan was made for Ms A to be cared for overnight by the core (hospital) midwives, and for RM B to attend at 8am to continue Ms A's care.

33. At 8.15pm, Ms A was given 500mg amoxicillin to treat her UTI. At 9.30pm, it was noted that Ms A had mild irregular tightenings. At 11pm, Ms A's temperature was noted to be raised (37.4°C). At 11.50pm, a further CTG was commenced by a core midwife, who noted one deceleration to 110bpm[10] for less than 15 seconds.

17 Month8

34. At 4am on 17 Month8, Ms A went into active labour.[11] At 4.54am a further CTG was commenced. At 5am Ms A was given further amoxicillin. The CTG was stopped at 5.30am. It was recorded that the baseline fetal heart rate was 130bpm, accelerations were noted, and there were no decelerations.

35. RM C telephoned RM B that morning to advise that Ms A had been admitted to the delivery suite the previous evening after her membranes had ruptured, Ms A was not in active labour, and RM C had not been contacted to advise that active labour had established. RM C requested that RM B attend the delivery suite at 8am to begin augmentation.[12]

36. RM B attended the delivery suite and took over Ms A's care. RM B performed a vaginal examination and documented that Ms A's cervix was 50% effaced[13] and 6cm dilated, and the fetal heart rate was 130bpm. RM B told HDC that she agreed with Ms A to assess her progress again in two hours' time, and that if there was no cervical change, she would proceed to augmentation. In responding to the provisional opinion, Ms A recalls asking to have a Caesarean section, but said that RM B responded that it was not an option.

37. Dr E was the obstetrics registrar on duty on the birthing suite that day. A medical officer special scale, Dr D, was the on-call senior medical officer (SMO) for the birthing suite that day. Concurrently, Dr D was working in the gynaecology outpatient department.

[10] Features of fetal well-being include a heart rate of 110–160 beats per minute.
[11] Active labour is defined by regular painful contractions accompanied by cervical dilation.
[12] Augmentation is the act of stimulating labour contractions to speed up the birthing process when labour slows down or stops.
[13] Effacement is the process that occurs during the last month of pregnancy, extending through the first stage of labour, in which the cervix becomes thinner and shorter.

Morning handover

38. Morning handovers on the birthing suite occur at about 8am. Dr D advised that women are presented by their LMC or the outgoing resident medical officer (RMO) to the SMO on call, all RMOs, core midwives, and LMCs. Women under LMC care who have no risk factors identified are not seen during the ward round unless the LMC requests a consultation. There are no clinical records of the morning handover to confirm who presented Ms A's case. RM B confirmed that she was not present at the morning handover, as she was with Ms A.

39. Hutt Valley DHB stated that at the time of the morning handover, Ms A was still under the care of her LMC, and the core midwives were responsible for caring for Ms A overnight with the information that had been handed over to them by the back-up LMC. Hutt Valley DHB said that RM B was responsible for ensuring that her patient was brought to the attention of the on-call team.

40. Dr E recalls being told at handover that Ms A was in her second pregnancy at term, had pre-labour rupture of membranes, and was receiving antibiotics. He documented retrospectively that he was made aware of "↑ BMI" at handover. However, Dr D recalls that no risk factors were presented at handover about Ms A (in particular, her high BMI, equivocal Hepatitis C status, and recurrent UTI). Dr D stated that Ms A was not classified as high risk, was not in need of induction, and advice and assistance were not asked for.

41. Dr D and Dr E planned to allow Ms A to labour and then review her progress at midday to consider whether augmentation was required. It was decided that syntocinon[14] could be administered for poor progress if required. Dr D stated that had they been made aware of Ms A's risk factors, she would have been classified as high risk and reviewed at that time.

Care from 8.30am–12.30pm

42. At 8.30am, RM B noted that the fetal heart rate was 138bpm following a contraction. At 9.10am the fetal heart rate was 122bpm following a contraction, and at 10am the fetal heart rate was 134bpm following a contraction.

43. At 10.15am, RM B undertook a vaginal examination and noted that there was no change. She recorded: "CTG reactive." RM B left the room to discuss her findings with Dr E, and reiterated that Ms A had an increased BMI and had a non-conclusive Hepatitis C status. In retrospect,[15] Dr E documented that this was when he was made aware of Ms A's inconclusive Hepatitis C status.

44. Dr E noted that a syntocinon infusion was being prepared, and stated that he "okayed" this decision but did not discuss it with Dr D. Dr E planned to sign the medication chart when he was next available. The Hutt Valley DHB "Oxytocin infusion for induction and

[14] Syntocinon is a synthetic version of the hormone oxytocin, which is used for induction and/or augmentation of labour.
[15] The retrospective note was made at 2.55pm on 17 Month8.

augmentation of labour policy" (June 2013) did not require that the obstetric team physically review the patient prior to prescribing syntocinon.

45. At 10.20am, RM B commenced the syntocinon infusion at 0.3ml/hour, and increased this at 15-minute intervals. At 10.35am, RM B documented that Ms A was requesting an epidural, and noted that a full set of maternal observations were within normal range.

46. At 10.40am, the fetal heart rate was 154bpm. At 11am, RM B documented: "[Ms A] contracting [three times in ten minutes], difficult to pick up on CTG (palpating [three times in ten minutes])."

47. At 11.10am, the fetal heart rate was 180bpm. RM B noted that this was an increase of 30bpm from the baseline. RM B stopped the syntocinon infusion and took Ms A's observations, which included a rising temperature (37.9°C). RM B told HDC that she paged Dr E several times, the first being at approximately 11.12–11.15am. RM B said that she advised Dr E via pager that Ms A had a "tachycardic[16] trace" and a raised temperature, and that a review of her plan was required. She said that, unusually, Dr E did not attend promptly.

48. At 11.30am, RM B documented: "[S]till waiting on [obstetrician] on call to rev[iew]." Ms A recalls RM B saying that she had tried to get hold of the doctor to do a Caesarean section but she had not heard anything.

49. RM B asked core midwife RM G to page Dr E, which she did twice, with no reply. RM G told HDC that she had not viewed the CTG trace, but was told by RM B that it was tachycardic. RM G asked another midwife to enquire whether RM B required an urgent obstetric review, as Dr D could be called directly.

50. RM G told HDC that she was not aware that there was an on-call registrar mobile phone. Dr E stated that he expected clinicians to know that he was available to take calls, and said that the telephone number was written on a whiteboard in the delivery suite.

51. At approximately 11.45am, RM B telephoned Dr D to ask him to review Ms A, as Dr E could not be reached. Dr D told HDC:

> "As I was carrying out a gynaecological procedure at that time in the outpatient department, I asked if it was urgent — I was told that they were contacting me because they could not contact [Dr E]. I told them to give me a call in 15 minutes if still no contact was made with [Dr E]. [Dr E] then called me after 5 minutes to say his pager battery had run down and that he was going to assess the patient."

52. Dr E recorded retrospectively that at around 11.50am he received a text message from a senior house officer colleague. Dr E documented: "[A colleague sent a text] informing

[16] An abnormally rapid fetal heart rate recorded on the CTG.

unable to locate me on [delivery] suite via pager. Flat battery. No call on on-call phone. Apparently SMO contacted. I attended ~1min later."

53. At 12pm, Dr E attended Ms A. He noted that the fetal heart rate was 180bpm and that Ms A was contracting five times in ten minutes. He documented:

> "Apologies for late review, on-call pager flat battery, on-call phone not rung … [increased] BMI, inconclusive [Hepatitis C] status … distressed w/ pain, obese, [abdominal palpation] inconclusive … Impression — fetal distress — unable to lactate.[17] Plan [category 2 Caesarean section][18] [discussed with Dr D]."

54. Dr E stated that ideally he would have liked to undertake direct fetal monitoring via a scalp electrode to be certain of the fetal heart rate, but he could not do this owing to Ms A's inconclusive Hepatitis C status and the potential for vertical transmission of a blood-borne virus. He also stated that ideally a fetal blood sample would have been done at this stage, but this was "absolutely contraindicated" for the same reason.

55. In retrospect, Dr E documented that he explained to the room that, following consultation with Dr D, he would like the baby delivered within about 1–1.5 hours, and explained that this should be a category 2 Caesarean section. Dr D told HDC:

> "[Dr E] informed me that he was taking [Ms A] for a category 2 caesarean section because of 'variable decelerations'. Given the information provided, I agreed to Dr E's suggested course of action and his classification of the caesarean as category 2. I offered him assistance for the surgery but he indicated that he was comfortable performing the procedure on his own. I knew that he was credentialed to perform caesarean sections and had been performing unsupervised caesarean sections on a regular basis."

56. Dr E stated that he then left the room to start organising the Caesarean section, and on his return Ms A was in increased distress (vomiting and writhing on the bed). At 12.15pm, Dr E noted a prolonged deceleration on the CTG. He told HDC that the contact with the external fetal heart rate transducer was very poor, but when they moved Ms A onto her left-hand side the CTG returned to a normal quality recording with normal baseline rate and variability. Dr E said he did not consider that a "stat Caesarean section with General Anaesthesia was indicated given that the fetal heart rate resolved and the need to balance putting [Ms A] at high risk of anaesthetic complications".

57. RM G notified the paediatrics senior house officer that Ms A was for a category 2 Caesarean section and was probably septic. Ms A was prepared for theatre.

[17] Take a fetal blood sample to determine the lactate level.

[18] The Caesarean section categories developed by the Royal Australian and New Zealand College of Obstetricians and Gynaecologists are: Category 1: Immediate threat to the life of a woman or fetus; Category 2: Maternal or fetal compromise but not immediately life threatening; Category 3: Needing early delivery but no maternal or fetal compromise; Category 4: At a time to suit the woman and the Caesarean section team.

Caesarean section

58. A consultant anaesthetist met Ms A in the operating theatre holding bay at approximately 12.30pm. The anaesthetist noted that Ms A seemed extremely distressed from pain. The anaesthetist took a brief history and noted that Ms A's estimated BMI was >44. He stated that he discussed general and spinal anaesthetic procedures, and Ms A signed the consent form.

59. At 1pm, Dr E saw Ms A in the operating theatre holding bay. He noted that the fetal heart rate was 160bpm with good variability and no decelerations for approximately 15 minutes.

60. In the operating theatre, Ms A was seated and positioned to receive a spinal anaesthetic. Dr E attempted to find the fetal heart rate with a Doppler but this was not possible owing to body habitus. Dr E informed the anaesthetist that if the first spinal anaesthetic was unsuccessful he would like to reposition Ms A to assess the fetal heart rate. Dr E documented: "First attempt fails, quick request for longer needle made without consultation. I felt at this stage continuing with spinal was probably safer than delay to reposition as already sterile etc and last [fetal heart rate] 160."

61. The second spinal anaesthetic was also unsuccessful, and Dr E asked for Ms A to be repositioned to assess the fetal heart rate. Dr E said that it was not possible to be sure whether the fetal heart rate was being heard, and noted that both the maternal heart rate and the fetal heart rate were recorded at 170bpm. Dr E decided that a general anaesthetic was required, given that there was increasingly less assurance about the baby's condition, and insufficient time to attempt another spinal anaesthetic.

62. Dr E informed Dr D of this assessment at 1.20pm. Dr E said that Dr D agreed with the decision, and did not indicate that the procedure should be escalated or should not proceed without him. Senior registrar Dr F attended to assist.

63. The birth of Baby A was completed in 40 seconds by Caesarean section. Dr E recorded that this was "through clearly infected waters with thick meconium". He noted that Ms A's estimated blood loss was 1,200ml, and that the placental bed was hot.

64. Resuscitation of Baby A was commenced immediately and continued for 30 minutes without success. The post-mortem findings show that Baby A was stillborn. The post-mortem examination demonstrated a small placenta with features of villous dysmaturity. The pathologist commented that this is associated with both morbidity and mortality, and that adverse outcomes associated with this pathology are likely to reflect the reduced opportunity for gas exchange between mother and baby.

65. Dr D was requested to attend the operating theatre after Baby A had been born, and he completed the surgery.

Further information

RM B

66. RM B stated:

> "I have changed my practice around BMI referrals and without trying to scare women I share the risks more completely associated with an increased BMI and put the referrals in at booking with BMI over 35 and offer women the chance to attend the secondary care appointment and offer to attend with them so they feel supported and less intimidated or embarrassed."

67. RM B stated that she now weighs women at booking and encourages them to weigh themselves every four to six weeks during their pregnancy, and gives them a personalised healthy weight gain card. RM B advised that she attended a workshop at Hutt Valley DHB regarding the journey for pregnant women with increased BMIs, and now fully discusses the Referral Guidelines. RM B also advised that she has attended a documentation workshop.

68. The Midwifery Council of New Zealand undertook a formal review of RM B's competence and required her to undertake specific training and practice under supervision from November 2015. The Council advised that RM B completed the programme of education satisfactorily, and that the monthly supervision reports indicated good progress against various goals. Supervision ceased in November 2016.

Dr D

69. Dr D stated that he had worked with Dr E for three months and found him to be very professional, thorough, and an excellent communicator. Dr D told HDC that Dr E's CTG interpretation had never been raised as a concern by the Hutt Valley DHB training supervisor or any other SMO, and that Dr E's surgical skills had been assessed favourably. Dr D said that on 17 Month8, he was never more than two floors away from the birthing suite, and was contactable.

70. Reflecting on these events and the Hutt Valley DHB internal review, Dr D advised that he has made the following changes to his practice:

- He encourages junior doctors to update him constantly on all cases in delivery suite, and readily attends when called.
- He examines/directly supervises all high-risk cases presenting to the delivery suite in the morning handover and at any time thereafter.
- He now personally attends all Caesarean sections done under general anaesthetic or where patients have a high BMI.
- He participates in weekly CTG meetings and perinatal mortality reviews.

71. Dr D noted that the documentation he reviewed suggested that Ms A's BMI was 46.9, and he considers that she should have been transferred to the care of an obstetrician much earlier.

Dr E

72. Dr E stated that he had a good relationship with Dr D and felt supported by him. Dr E said that at no time did he feel, or had felt, any reluctance on Dr D's part to attend when required, or any barriers to communication. Dr E said that he operated sincerely in best faith, and was mindful of all aspects of the case, at times prioritising maternal health over what he thought was transient fetal risk.

73. In Dr E's view, the service at Hutt Valley DHB was chronically under-resourced, which led, for example, to Dr D being rostered on as Dr E's supervising consultant, and simultaneously rostered on for a clinic list. Dr E stated that, as a consequence, there was never an SMO available exclusively for supervision, regardless of the level of experience of the RMO on shift. Dr E told HDC:

> "[T]his scarcity of senior resource led to an unspoken expectation that registrars would 'step-up' and the threshold for calling consultants away from other important work (such as a clinic list) was high. Things might have played out differently if the Hutt Valley unit was one which had a consultant obstetrician at the unit working alongside the junior staff."

74. Having reflected on this case, Dr E's practice is now always to review a patient in person before starting syntocinon.

Report from obstetrician — Dr H

75. Dr E sought an expert opinion from an obstetrician, Dr H, and provided this to HDC. Dr H acknowledged that there were errors of judgement that led to a delay in delivering the baby. However, Dr H stated:

> "[Dr E] kept the SMO informed, which fulfilled his obligation. The fact that [Ms A] had a BMI of 46, the fact that the CTG was abnormal, and the fact that a scalp clip, or fetal blood sampling, could not be performed, a more senior obstetrician than a second year trainee should have been involved in determining the urgency in which the baby should have been delivered."

76. Dr H concluded that there should have been much more SMO involvement in this case.

Hutt Valley DHB

Internal review and changes to service

77. Hutt Valley DHB conducted an internal review of this case. The following is a summary of the key findings:

1. Antenatally, Ms A should have been referred to secondary care for review given her co-morbidities.

2. On the morning of 17 Month8, there was no handover of Ms A's risk factors to Dr D.
3. Syntocinon was commenced without medical review. Medical review would have been advisable given the risk factors present.
4. The existence of the on-call mobile phone was not widely known about by midwifery staff.
5. It would have been advisable for Dr D to review Ms A prior to the commencement of the Caesarean section owing to co-morbidities and variations in the CTG readings.
6. Despite 20 minutes of non-reassuring CTG, this was not escalated to Dr D for urgent delivery.
7. In the operating theatre transfer bay, it is likely that the CTG was picking up the maternal heart rate.

78. Hutt Valley DHB advised that it has put in place the following measures to minimise the possibility of a similar situation occurring:

1. Two additional SMOs have been recruited, allowing the on-call SMO to be free of clinic duties.
2. All women with a BMI over 40, and anaesthesia high-risk patients, are highlighted on the birthing suite whiteboard to ensure that they are reviewed during the ward round.
3. Junior medical staff and resident medical officers are freely advised to contact SMOs if in doubt.
4. An associate clinical midwifery manager (senior midwife) role has been introduced during week days. This covers the delivery suite and postnatal areas.
5. CTG interpretation cards are now attached to all CTG machines.
6. An SMO escalation policy has been made available in case an SMO is busy or not contactable.
7. The "Oxytocin infusion for induction and augmentation of labour policy" (revised June 2016) now clearly states that syntocinon is prescribed by the obstetric team, following review of the woman.
8. The maternity unit holds weekly CTG education meetings, which include discussion on the outcomes of recent Caesarean sections and instrumental delivery cases. The meeting is attended by midwifery and medical staff.

79. In addition, the following recommendations were made in the internal review:

1. Doctors are to check their pager battery level at the commencement of a shift.
2. Ward phones are to be enabled to make calls to mobile phones.
3. If an SMO is called to attend a patient, the SMO will attend in person rather than send a registrar.

4. When a CTG is in progress, maternal pulse is to be monitored concurrently.
5. All practitioners in maternity care will undertake refresher fetal surveillance education.

80. The Hutt Valley DHB "CTG interpretation and response" guidelines (current at the time of these events) state that factors requiring immediate management or urgent delivery include:

- where the baseline fetal heart rate is greater than 170bpm;
- there are complicated variable decelerations with reduced or absent variability; and
- if fetal blood sampling is contraindicated.

81. In 2016, the Hutt Valley DHB maternity unit was assessed by RANZCOG for reaccreditation as a training unit. It met all required standards, including "training and support given to trainees by consultants [SMOs]". However, the reaccreditation team noted that the consistency of consultant-led ward rounds is variable, and that consultants rostered to the birthing suite also have other responsibilities, including oversight of gynaecology emergencies. RANZCOG recommended that daily consultant-led ward rounds be conducted, and encouraged wider consultant participation to ensure that trainees are exposed to a breadth of experience on a regular basis.

82. The "RMO supervision in obstetrics policy" was introduced in Month8. Hutt Valley DHB confirmed that there was no preceding "RMO supervision in obstetrics policy". Dr D stated:

> "[The policy] was not in place at the time of the index event and was created after the index event and because of it. The policy was obtained from Christchurch Hospital and was discussed amongst the SMOs and adopted immediately after the unfortunate events in [Ms A's] case."

83. The policy outlines the circumstances when an RMO is expected to consult the on-call SMO. The policy requires the attendance of an SMO, regardless of the seniority of the registrar, for complex Caesarean sections, including when the maternal BMI is greater than 40.

Responses to provisional opinion

84. Ms A was given an opportunity to comment on the "information gathered" section of the provisional report. Hutt Valley DHB, RM B, Dr E, and Dr D were given an opportunity to comment on the relevant parts of the provisional opinion. Where appropriate, comments have been incorporated above.

85. RM B stated that she accepted the provisional findings and recommendations.

86. Hutt Valley DHB acknowledged the provisional findings and stated that it accepted the provisional recommendations. Hutt Valley DHB has undertaken steps to meet the provisional recommendations; these are detailed in the recommendations section of this report. It also stated:

> "[Hutt Valley DHB] is sincerely apologetic for the tragic outcome the [family has] suffered and we also acknowledge our systems failed to protect [Ms A] and [Baby A]. We are confident the system improvements and staffing processes we have changed will support staff to provide safe and appropriate care."

87. Ms A told HDC that she considers patients with high BMI should be made aware of all of the associated risks, even if they are scary. She stated that she does not want what happened to her to happen to anyone else. Ms A expressed concern that high risk factors were not handed over to the medical staff, and that there were procedures in place that were not followed.

88. Dr D acknowledged that registrar supervision is ultimately part of an SMO's duty of care to their patients. However, he submitted that if the deficiencies in supervision were due to the requirements of his employer and/or information that was never communicated to him, with no policy in place, he should not be criticised for not leaving the clinic he was undertaking at the time to attend the delivery suite when he did not have the information that would have caused him to do so.

89. Dr D submitted that he had to evaluate what he was told by Dr E in the context of Dr E's ability and training, and decide whether it was necessary for him to leave clinic to assist or to determine the appropriate care and treatment. Dr D asked Dr E if he required assistance on two occasions, but Dr E believed he was capable of undertaking the Caesarean section. Dr D noted that the HDC independent advisor stated that he "would expect a year 2 registrar who has completed fetal surveillance to correctly identify the degree of fetal compromise apparent from the CTG and act appropriately in response — in this case to expedite delivery of the baby in consultation with senior colleagues", and in those circumstances Dr D submitted that he was entitled to rely upon what he was told by Dr E to determine the category of Caesarean section and whether he needed to be involved directly.

Opinion: introduction

90. I acknowledge the absolute tragedy Ms A and her family suffered in losing Baby A. There were serious deficiencies in many parts of Ms A's care journey, which unfortunately collectively contributed to the poor outcome. Ms A's case highlights how important it is that all people involved in a woman's care communicate clearly and openly about key risk factors that have the potential to affect the safety of the woman or baby. It is also a clear

reminder that district health boards must have in place good systems to support their staff to provide the appropriate standard of care.

Opinion: RM B — breach

Referral Guidelines

91. The Referral Guidelines provide for circumstances in which an LMC must recommend a consultation with, or transfer of clinical responsibility to, a specialist. The Referral Guidelines require that if the mother's BMI is above 35:

> "The LMC must recommend to the woman … 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."

92. The Referral Guidelines require that if the mother's BMI is above 40:

> "The LMC must recommend to the woman … that the responsibility for her care be transferred to a specialist given that her pregnancy, labour, birth or puerperium (or the baby) is or may be affected by the condition."

93. The Referral Guidelines also provide that if the mother has acute or chronic active hepatitis: "The LMC must recommend to the woman … that a consultation with a specialist is warranted …"

94. The guiding principles of the Referral Guidelines include that the woman has the right to receive full, accurate, unbiased information about her options and the likely outcomes of her decisions. The woman has a right to make informed decisions on all aspects of her care, including the right to decline care, and to decline referral for specialist consultation or transfer of clinical responsibility. Transfer of clinical responsibility is then a negotiated three-way process involving the woman, her Lead Maternity Carer, and the practitioner to whom clinical responsibility is to be transferred.

Failure to recommend consultation or transfer for BMI and inconclusive Hepatitis C status

95. RM B documented that Ms A weighed 100–105kg at the booking visit, and was 165cm tall. RM B calculated Ms A's BMI as 38. RM B also told HDC that Ms A advised that her weight was 110kg, and the screening test form from 16 Month2 stated that Ms A was 120kg and 160cm tall. These other measurements would equate to a BMI above 40. In these circumstances, I am not able to make a finding of exactly what Ms A's BMI was at the time of her booking visit. However, given the variety of measurements in the clinical records, I am not convinced that RM B took adequate steps to assess Ms A's BMI accurately in the early stages of her pregnancy.

96. RM B did not recommend that Ms A attend a consultation with an obstetrician owing to her raised BMI. RM B acknowledged that she should have encouraged Ms A to have a consultation for this, but told HDC that she did not do so as Ms A was insulted and embarrassed about her weight being noted as a difficult factor during the growth scans.

97. Ms A had an inconclusive Hepatitis C status. RM B stated that she advised Ms A that with an inconclusive result, she would be treated as positive for Hepatitis C, and that some procedures would not be able to be done because of this. RM B did not recommend that Ms A attend a consultation with an obstetrician owing to her inconclusive Hepatitis C status.

98. The Referral Guidelines required RM B to at least recommend to Ms A that a consultation with an obstetrician for her raised BMI was warranted. While Ms A did not necessarily have active or chronic active hepatitis, given that her Hepatitis C status was inconclusive, she was treated as positive because of this. Accordingly, a consultation with an obstetrician should have been discussed with Ms A, given that her pregnancy, labour and birth might have been affected by the condition. My expert advisor, RM Emma Farmer, advised that the failure to recommend a consultation for obesity, and the failure to recommend a consultation for hepatitis would be viewed with mild disapproval.

99. In my view, the Referral Guidelines are a crucial part of maternity care, and compliance with them by midwives is not optional. The Referral Guidelines are a critical safety net for mothers and their babies, and non-adherence to the Referral Guidelines can reflect both standard of care and informed consent issues. Informed consent lies at the very heart of the Code. By not discussing with the woman the recommendations in the Referral Guidelines, the midwife is failing to ensure that the woman is at the centre of decision-making, and denies the woman the information necessary to make an informed decision about her care and treatment.

100. It is understandable that RM B had reservations about further discussing with Ms A the areas of obesity and Hepatitis C status, given that these were clearly sensitive subjects for Ms A. However, Ms A had the right to receive full, accurate, unbiased information about her options and the likely outcomes of her decisions. Regardless of how difficult the conversation may have been, it was RM B's responsibility to recommend that Ms A have an obstetric consultation, because of the risks that obesity and inconclusive Hepatitis C status could have posed to Ms A and her baby.

101. I find that RM B failed to advise Ms A of the recommendations in the Referral Guidelines in relation to her obesity and inconclusive Hepatitis C status. I consider that this was information that a reasonable consumer would expect to receive in Ms A's circumstances. Accordingly, I find that RM B breached Right 6(1) of the Code.

Opinion: Hutt Valley District Health Board — breach

102. DHBs are responsible for the operation of the clinical services they provide, and are responsible for any service failures. It is incumbent on all DHBs to support their staff with systems that guide good decision-making and promote a culture of safety. In my view, there were a number of failures on Hutt Valley DHB's part to ensure that its staff were adequately supported to provide safe and appropriate care.

RMO supervision

103. On 17 Month8, Dr E was the registrar on duty on the birthing suite. Dr D was the on-call SMO for the birthing suite, but was also working in the gynaecology outpatient department that day. Dr D was only remotely involved in Ms A's care until he attended theatre to assist following Baby A's birth.

104. Dr E told HDC that there was never an SMO available exclusively for supervision, regardless of the level of experience of the RMO on shift, and that the scarcity of senior resource meant that the threshold for calling consultants away from other important work (such as a clinic list) was high. Dr E's advisor, Dr H, commented that a more senior obstetrician than a second-year trainee should have been involved in determining the urgency with which the baby should have been delivered.

105. My expert advisor, obstetrician and gynaecologist Dr John Short, commented:

> "[T]here was a conspicuous lack of senior medical involvement in the patient's care … This inevitably raises concerns regarding the supervision of junior doctors in the Obstetrics and Gynaecology department at [Hutt Valley] DHB."

106. Dr Short advised:

> "The service appears to have been relying on inexperienced doctors, often working in isolation with barriers to them obtaining help from their seniors. The organisation failed to create an environment that ensured RMOs were appropriately supported by more experienced specialists. As a result patient safety was compromised. In the case of [Ms A] my opinion is that this constitutes a severe departure from the expected standard of care. Whilst DHBs should be able to expect a certain level of competence from RMOs, they inevitably make more mistakes than more experienced doctors and DHBs should ensure there is a culture and systems in place that minimises the risk of harm arising from this."

107. I accept Dr Short's advice, and I am very concerned at Dr E's comments about the culture at Hutt Valley DHB in respect of calling the SMO away from clinic duties. I do not consider it to have been appropriate or conducive to patient safety for Hutt Valley DHB to have had the on-call SMO rostered away from the birthing suite. In my view, this was a barrier that contributed to Dr D not being more involved in Ms A's care. In my opinion, Hutt Valley DHB did not create an environment that ensured that RMOs were supervised appropriately.

108. I note that very soon after this event, Hutt Valley DHB introduced an RMO supervision in obstetrics policy, and that two additional SMOs have been recruited, allowing the on-call SMO to be free of clinic duties. I consider these changes to be completely necessary in the circumstances.

Handover

109. Ms A's care was handed over at 8am on 17 Month8. It is not clear from records or statements who presented Ms A's case at handover. RM B confirmed that she was not present, as she had just arrived and was with Ms A. Hutt Valley DHB said that RM B was responsible for ensuring that her patient was brought to the attention of the on-call team.

110. Dr E documented retrospectively that at handover he was made aware of Ms A's increased BMI, but he was not informed about Ms A's Hepatitis C status until later in the morning. Dr D recalls that no risk factors were presented, in particular Ms A's high BMI, equivocal Hepatitis C status, and recurrent UTI.

111. Dr Short advised that he is particularly concerned about the handover practice at Hutt Valley DHB. He stated:

> "[I]t seems that insufficient information was presented to Dr D and Dr E which had a significant influence on their involvement in [Ms A's] care. Based on the information provided it appears that [Ms A] was incorrectly assessed to be low risk when in fact she was high risk."

112. Dr Short also advised:

> "The system in place encourages the doctors to take a passive role in assessing patient risk. A better system would be one that encourages them to take an active role to ensure all relevant information is reviewed. Such a system may have helped identify the significant risk factors in this case."

113. In the absence of documentation and because of different recollections, I am unable to conclude who handed over Ms A's case. However, I am satisfied that it would have been a Hutt Valley DHB birthing suite staff member, given that care had been handed over by RM C to the core midwives overnight, and that RM B was not present at handover. I also cannot determine exactly what information was provided to Dr E and Dr D. However, I agree with Dr Short, and consider that it was insufficient information for them to consider Ms A to be high risk, and in need of a physical obstetric review at that time.

114. I acknowledge Hutt Valley DHB's view that it was RM B's responsibility to bring Ms A's case to the attention of the on-call team. However, Ms A had been cared for overnight by core midwives, and the previous evening she had been reviewed by an obstetric registrar, who documented having reviewed Ms A's history. Given that RM B was not present at handover, Hutt Valley DHB had a responsibility to ensure that its handover procedures on the birthing suite allowed for key clinical information, particularly relating to risk factors, to be handed over to the obstetric team. I am concerned at the lack of detail and formality

in the handover procedure on the birthing suite, and consider that this contributed to Ms A being considered as low risk.

Communication

115. Two communication issues contributed to there being a delay from the time Dr E was initially paged at around 11.12–11.15am, until he reviewed Ms A at 12pm. These were that Dr E's pager batteries were flat, and that the core midwife was unaware that there was an on-call registrar mobile phone that could have been used to contact Dr E. It was Hutt Valley DHB's responsibility to ensure that there was an effective way for midwifery staff to contact the on-call registrar immediately, as well as a viable back-up option, of which all staff were aware. I am concerned that the back-up option of the on-call phone was not widely known about.

Policy

116. At the time of these events, the "Oxytocin infusion for induction and augmentation of labour" policy did not require physical review of the labouring patient prior to the commencement of syntocinon. Dr Short advised:

> "[Syntocinon] use in the multiparous labouring patient is associated with more risk than in the Primiparous patient. As such, a senior doctor should be involved in the decision to prescribe this and ensure appropriate dosing. In my opinion this decision should only be made following a thorough review of the patient by a member of the obstetric team."

117. Dr Short concluded that the policy in place at the time of these events was not appropriate, and I accept his advice.

Conclusion

118. Hutt Valley DHB had a responsibility to provide services to Ms A with reasonable care and skill. It failed to do so, because it did not create an environment that ensured that RMOs were supervised appropriately, its handover practice was suboptimal, there were deficiencies in internal communication, and its "Oxytocin infusion for induction and augmentation of labour" policy was inappropriate.

119. I consider that the care provided to Ms A was seriously compromised, and I accept Dr Short's advice that the care provided by Hutt Valley DHB constitutes a severe departure from the expected standard of care. Accordingly, I find that Hutt Valley DHB breached Right 4(1) of the Code.

Opinion: Dr E — adverse comment

120. Dr E was informed of Ms A's case at handover on the morning of 17 Month8, and at 10.15am was consulted by RM B about the use of syntocinon for augmentation. Dr E first physically reviewed Ms A at 12pm after being contacted because of the tachycardic CTG trace. My expert advisor, obstetrician and gynaecologist Dr John Short, provided the following advice about Dr E's care from that point:

> "[T]he care provided was below an acceptable standard. In my opinion [Dr E] failed to appropriately interpret and act upon the abnormal CTG and was falsely reassured by what was probably a recording of the maternal heart rate. He himself describes a CTG with complicated variable decelerations and reduced variability, which indicates a need for more urgent delivery (the [Hutt Valley] DHB CTG guidelines state this requires 'immediate management or urgent delivery'). He also states several times that he would have liked to do a fetal blood sample but that this was contraindicated. If one accepts his rationale for this (ie. the potential maternal Hepatitis C infection) then one must also consider that if one cannot confirm fetal wellbeing by doing this test then one must assume the baby is significantly compromised and proceed with a more urgent delivery. Soon afterwards he considered the CTG to have improved, when in actual fact he was probably monitoring the maternal heart rate. The characteristics of the improved recording are extremely different from the earlier abnormal recording and the improvement so dramatic that this possibility should have been immediately considered."

121. Dr E was in his second year as an obstetrics and gynaecology training registrar with RANZCOG. Dr Short advised that he would expect a second-year registrar who has completed fetal surveillance training to correctly identify the degree of fetal compromise apparent from the CTG and act appropriately in response — "in this case to expedite delivery of the baby in consultation with senior colleagues". I accept Dr Short's advice.

122. Dr E told HDC that there was never an SMO available exclusively for supervision, regardless of the level of experience of the RMO on shift, and that the scarcity of senior resource meant that the threshold for calling consultants away from other important work (such as a clinic list) was high. Dr E's advisor, Dr H, commented that a more senior obstetrician than a second-year trainee should have been involved in determining the urgency in which the baby should have been delivered. I agree with Dr H's comments.

123. Dr Short acknowledged the significant mitigating factors that Dr E was a registrar in his second year of specialist obstetric training (and not a fully qualified specialist), and that Dr E was acting largely in isolation without any direct supervision from a more senior doctor. For these reasons, Dr Short considered Dr E's actions to be a mild departure from acceptable standards.

124. I am very concerned that Dr E was left to manage Ms A's case without direct SMO oversight. While I acknowledge Dr Short's views on the mitigating factors, I consider that Dr E was by all accounts a competent second-year registrar, and therefore should have been able to identify the extent of fetal compromise and correctly assess the level of

urgency required for delivery, particularly given Ms A's presenting risk factors. I am critical that he did not do so.

Opinion: Dr D — adverse comment

Supervision

125. On 17 Month8, Dr D was the on-call SMO for the birthing suite, but was also working in the gynaecology outpatient department that day. Dr D was only remotely involved in Ms A's care until he attended theatre to assist following Baby A's birth. Dr Short stated that registrar supervision is ultimately part of the senior medical officer's duty of care to their patients, and I agree. Dr Short advised:

> "[Dr D's] ability to appropriately supervise [Dr E] was somewhat hindered by the established handover practice at [Hutt Valley] DHB, which prevents a more thorough assessment of patient risk, and the fact that he was running an outpatient clinic whilst on call. Therefore any deficiency in supervision is not entirely his fault. He was also otherwise entirely reliant on information provided to him by [Dr E]. [Dr D] clearly had a high opinion of [Dr E] and his abilities and felt he could cope with the situation as it was described. The level of supervision was clearly influenced by this."

126. Dr Short considered it to be highly relevant that Dr D was conducting a clinic whilst being responsible for the birthing suite, and stated: "This inevitably will have had an impact on his ability to directly contribute to patient care."

127. I accept Dr Short's advice, and agree that Dr D's ability to effectively supervise Dr E was hindered by the fact that he was working in a clinic. However, I also consider that as an experienced SMO, and the specialist responsible for supervising Dr E that day, he must bear some responsibility for the deficiencies in the care provided to Ms A. I acknowledge Dr D's submissions, but remain of the view that Dr D should have done more to satisfy himself that Dr E was not continuing to manage a situation where he was potentially out of his depth. I also note the comments of Dr E's advisor, obstetrician Dr H, that a more senior obstetrician than a second-year trainee should have been involved in determining the urgency in which the baby should have been delivered. I agree.

Syntocinon

128. At handover, Dr D and Dr E decided that syntocinon could be administered to Ms A for poor progress if required. I note that Dr Short is of the opinion that syntocinon should not have been commenced without a physical review of Ms A by a member of the obstetric team. He stated that "whilst it would not necessarily be for [Dr D] to do this himself, it was his responsibility to ensure it happened regardless". I note that the Hutt Valley DHB "Oxytocin infusion for induction and augmentation of labour" policy did not require physical review by the obstetric team, and that Dr D's understanding from handover was

that Ms A was low risk. Accordingly, I am not critical of Dr D that physical obstetric review prior to commencement of syntocinon did not occur.

Recommendations

129. I recommend that RM B:

a) Undertake training on informed consent, and report back to HDC within three months of the date of this report, confirming that the training has been arranged. Once complete, a reflection on the training should be provided to HDC.

b) Undertake training on the use of the Referral Guidelines, and report back to HDC within three months of the date of this report, confirming that the training has been arranged. Once complete, a reflection on the training should be provided to HDC.

c) Provide a written apology to Ms A. The apology should be sent to HDC, for forwarding to Ms A, within three weeks of the date of this report.

130. In the provisional opinion, I recommended that Hutt Valley DHB:

a) Undertake a review of the current handover process in the birthing suite (giving particular consideration to cases where the LMC is not present and the woman has been in DHB care overnight, and in light of the concerns raised in this case about communication of risk factors) and implement any improvements deemed necessary.

Hutt Valley DHB advised that it has now reviewed its handover process and, as a result, the night RMO, the on-call SMO, and the associate clinical midwifery manager and all core midwives and LMCs attend handover. The night RMO reviews the notes and highlights all high-risk patients, including those with a BMI >35. These patients are noted on an electronic whiteboard in the staffroom, and the patients are then reviewed by the SMO on the ward round.

b) Implement the recommendation made by RANZCOG that daily consultant-led ward rounds be conducted on the birthing suite, and provide feedback to HDC on the progress of this recommendation.

Hutt Valley DHB advised that consultant-led ward rounds are now undertaken daily.

c) Take steps to ensure that all staff on the birthing suite are aware of the number of the on-call registrar mobile phone, and advise HDC of what steps were taken.

Hutt Valley DHB advised that the on-call registrar now has a pager and mobile phone number accessible by a speed dial number. The mobile and speed dial number are highlighted on the electronic whiteboard.

d) Confirm to HDC that the following implemented changes remain in place: the associate clinical midwifery manager role, the CTG interpretation cards, and the weekly CTG meetings.

Hutt Valley DHB advised that the associate clinical midwifery manager role currently covers 8am to 11pm, but they are considering extending this to cover the night shift. Hutt Valley DHB stated that weekly CTG meetings occur on Mondays from 12.30–1.30pm, chaired by an obstetrics SMO or midwifery educator, and attended by available RMOs, SMOs, and midwives (whose attendance is recorded). Hutt Valley DHB stated that the CTG interpretation cards are in every delivery room alongside the CTG machines.

I am satisfied that the above recommendations in respect of Hutt Valley DHB have been met, and no further follow-up is required.

131. I recommend that Hutt Valley DHB provide a written apology to Ms A. The apology should be sent to HDC, for forwarding to Ms A, within three weeks of the date of this report.

132. In the provisional opinion, I recommended that Dr E undertake further training on fetal surveillance, and report back to HDC that the training has been scheduled. Dr E advised that he will undertake the RANZCOG Fetal Surveillance Education Programme on 7 March 2019. Evidence that the training has been undertaken should be provided to HDC once complete.

Follow-up actions

133. A copy of this report with details identifying the parties removed, except Hutt Valley DHB and the experts who advised on this case, will be sent to the Medical Council of New Zealand, and it will be advised of the names of Dr E and Dr D in covering correspondence.

134. A copy of this report with details identifying the parties removed, except Hutt Valley DHB and the experts who advised on this case, will be sent to the Midwifery Council of New Zealand, and it will be advised of RM B's name in covering correspondence.

135. A copy of this report with details identifying the parties removed, except Hutt Valley DHB and the experts who advised on this case, will be sent to the Health Quality & Safety Commission, the New Zealand College of Midwives, and the Royal Australian and New Zealand College of Obstetricians and Gynaecologists, and placed on the Health and Disability Commissioner website, www.hdc.org.nz, for educational purposes.

Appendix A: Independent obstetric advice to the Commissioner

The following expert advice was obtained from an obstetrician and gynaecologist, Dr John Short:

"I have been asked to provide advice to the Commissioner on case number C16HDC00144. I have read and agree to follow the Commissioner's Guidelines for Independent Advisors.

I am a specialist Obstetrician and Gynaecologist, vocationally registered in New Zealand since 2007. I have worked as a senior medical officer in Obstetrics and Gynaecology at Christchurch Women's Hospital since 2006.

I have been asked to provide advice to the Commissioner regarding the care provided to [Ms A] at [the public hospital] in 2015, to provide an opinion on the overall standard of obstetric care provided and to comment on whether I consider the DHB recommendations made as a result of its case review are appropriate or go far enough in addressing any shortcomings.

This report is based upon information provided by the HDC, including copies of clinical records, responses from various persons involved in the case, the DHB response and a copy of its case review. It is important to note that the information provided did not contain copies of all post-mortem investigations, including the fetal autopsy. However, I think it unlikely that having this information would alter my conclusions.[19]

Background/Key points

[Ms A] presented to [the public hospital] delivery suite on 16 [Month8] with ruptured membranes. This was her second ongoing pregnancy. Her first, in [year], resulted in a normal birth of a healthy baby. Her due date in the index pregnancy was 21 [Month8], determined by an early ultrasound scan. … [Ms A] also had a raised Body Mass Index of 38, by definition making her 'morbidly obese'. Screening for Hepatitis C was inconclusive and [Ms A] declined further testing. The lab report does state 'HCV [Hepatitis C virus] infection unlikely'.

Overall the pregnancy appears to have been relatively straightforward. Notably, an ultrasound scan at 36 weeks reported a large baby with an abdominal circumference over the 98th centile. A urine specimen at 37 weeks cultured the bacteria 'e-coli'. [Ms A] declined treatment for this.

On 16 [Month8] [Ms A] was assessed on the delivery suite. Observations and CTG were reassuring and the rupture of membranes was confirmed. Following a discussion between [Ms A], her LMC and the obstetric team, [Ms A] was admitted for observation to await the spontaneous onset of labour with a plan to induce labour the following morning if it hadn't started.

[19] Dr Short was later provided with this information and provided additional comment below.

It appears that labour commenced overnight and a vaginal examination at 0815 found the cervix to be 6cm dilated. CTGs overnight were reassuring. A subsequent vaginal examination after 2 hours found no change in cervical dilatation. A syntocinon infusion was commenced — a retrospective note from [Dr E], obstetric registrar, confirms he sanctioned this without reviewing the patient or discussing with the specialist on call [Dr D]. The notes record an increase in the fetal heart rate from 1110. A maternal temperature of 37.9 was recorded at this time. The syntocinon was then stopped. At 1130 the notes state 'still wanting an obs on call to review', although it is not clear at what time or by what means, or indeed if at all, this review was requested.

[Dr E] reviewed [Ms A] at 1200, commenting that he was late due to the batteries of the on-call pager being flat. He states the reason for the review was 'fetal distress'. He concluded that this was present and that he was 'unable to lactate'. The reason is not stated but presumably is due to the undetermined Hep C Status. He made a decision to perform a caesarean section (at 1205) and records that this was discussed with [Dr D]. [Dr E] later records 'I would like the baby delivered within about 1–1.5 hours', describing this as 'category 2'. Despite further reviews of the CTG this decision remains unchanged.

Delivery eventually occurred at 1325. At 1300 the fetal heart rate was recorded at 160 bpm. Spinal anaesthetic was attempted twice. The fetal heart was recorded as 170 following the second attempt. At this time the maternal heart rate was also 170. A general anaesthetic was then performed. The baby showed some sign of life at birth, with apparently a heart rate of 70 heard. Resuscitation was attempted but failed and ceased after 30 minutes when the baby was declared dead. At the time of surgery there was apparent evidence of chorioamnionitis (intrauterine infection). A blood gas analysis at 15 minutes of age found a pH of 6.58 and a lactate of 18. These indicate severe hypoxia (reduced oxygen).

The Hutt Valley DHB undertook a detailed review of this case. A copy of this was provided to me and it documents a number of relevant findings and makes some recommendations for future improvements in the O&G department. I will not go into any further detail of this report at this point — the Commissioner will be able to read it for himself. I will make comment later in my report about all their recommendations plus some other pertinent comments.

Opinion/Comment

Unfortunately I have not been provided with a copy of the fetal autopsy. However, the cause of death appears to be a combination of chorioamnionitis (intrauterine infection) and fetal hypoxia (reduced oxygen). The cardiotocograph, the principal tool utilised to assess fetal wellbeing in labour, was normal until 1115 am. Following that time there was a fetal tachycardia (increased heart rate). This is an abnormal feature that can be associated with fetal hypoxia and/or intrauterine infection. Between 1115 and 1155 the CTG is difficult to interpret. There is definite cause for concern but continued observation during this time is reasonable.

The CTG is definitely abnormal from 1155 onwards, with significant decelerations and clear evidence of potential fetal hypoxia. Had urgent intervention, in the form of delivering the baby, occurred at this time it is possible the baby may have survived.

There appears to be a gap in the recording of the fetal heart between 1220 and 1230. At 1220 the CTG is signed by [Dr E]. There is a recording on the CTG from approximately 1235 onwards. At face value this appears to be a relatively normal tracing. However, this recording is of a very different character to the earlier recording and I am suspicious that this is not a genuine recording of the fetal heart. It is possible that this is a recording of the maternal heart rate. This is supported by subsequent events.

In an ideal world, when [Dr E] decided to [undertake] a caesarean section at 1205 he would have stated this was 'category 1' with delivery to occur as quickly as possible. In normal circumstances a fetal blood sample would be taken to confirm the fetal condition. Due to uncertainty over the mother's Hepatitis C status, [Dr E] felt it was not possible to do this. The fact that he specifies in the records 'unable to lactate' (lactate is what is measured in the sample obtained from a fetal blood sample) suggests that in other circumstances he would do this test. This is not a routine test, but is only considered when there is significant concern about fetal condition. I would consider that in this situation, when one would like to, but is unable to, obtain further reassurance about the fetal condition, that delivery of the baby should be given the highest priority.

With regard to intrauterine infection, there was a risk of this due to the prelabour rupture of membranes. Another risk factor was the untreated bacteriuria at 37 weeks — 'e-coli' is a bacteria that is frequently implicated in chorioamnionitis. Evidence of potential infection is present during labour with the various increased maternal temperature recordings. [Dr E] also comments that the pelvis was 'warm' during his examination. [Ms A] was receiving oral antibiotics (amoxicillin) but the appropriate treatment for suspected chorioamnionitis would be intravenous antibiotics to also include metronidazole and gentamicin. Other treatments would be intravenous fluids and paracetamol (which acts to reduce temperatures).

Overall it appears that [Dr E] made serious errors of judgement when he stated that the caesarean section should be 'category 2' and when he persisted in this following further reviews of the CTG. He also appears to have failed to initiate appropriate treatment for suspected chorioamnionitis. The matter of the flat batteries in the on call pager is something of a 'red herring'. Earlier attendance in the room by [Dr E] may not have led to earlier intervention. However, the fact that this situation was allowed to occur is of significant concern.

In mitigation, one has to consider that [Dr E] is a junior doctor and not a fully qualified specialist. It is not clear exactly how much experience he or she has in Obstetrics and Gynaecology. According to the MCNZ website, [Dr E] was awarded a medical degree in

[year]. Therefore I would estimate that he or she was at most a year 2 registrar or equivalent (ie still inexperienced). From the records it appears that [Dr E] was acting largely in isolation without any direct supervision from a more senior doctor. In fact, the direct involvement of more senior obstetricians is conspicuously absent from this case. I think it highly likely that the involvement of more experienced staff would have led to earlier recognition of the degree of fetal compromise present and earlier delivery of the baby. Unfortunately, this does raise the question of whether [Dr E] was adequately supervised by the specialist on duty that day. Given the seriousness of the outcome and the severity of the departure from accepted standards, it is reasonable to establish whether this apparent lack of supervision is isolated to this one incident and/or this one specialist or if it is a frequent occurrence/practice throughout the department. Some of the documentation suggests that the specialist on call, [Dr D], was conducting a clinic. This will obviously affect his ability to execute his on call duties. The commissioner may wish to look into this further and establish whether this is also widespread through the department.

A number of other points are noteworthy

- [Ms A] was not reviewed on a morning ward round by the obstetric team on the day of delivery.
- Despite being a high risk case [Ms A] was not seen by a member of the obstetric medical staff between 1900 on the day of admission and 1200 on the day of delivery.
- She was not reviewed by a doctor prior to the commencement of syntocinon.
- She was not seen antenatally by an obstetrician. Issues that would have justified referral include the obesity, the uncertain 'hep c' status and the recurrent (and untreated) UTI.

Had a morning ward round occurred the medical staff would have been more familiar with the case and perhaps had more of an understanding of some pertinent factors that influenced the outcome. These include the Hepatitis C result and the untreated antenatal e-coli bacteriuria. A better understanding of the hep C report, which specifically suggests that hep c infection is unlikely, might have encouraged [Dr E] to do a fetal blood sample. Knowledge of the bacteriuria might have led to earlier administration of antibiotics. These matters also raise questions about the quality of communication from the LMC to the medical staff, although this is outside my scope.

Overall, it is my opinion that the Obstetric care provided by Hutt Valley DHB to [Ms A] was below accepted standards. I consider the departure from accepted standards to be severe, due to the seriousness of the outcome and the fact that it was potentially preventable. I think my peers would agree with this assessment. The accepted standard of care would include the following:

- For [Ms A] to have been reviewed by the medical team, to include a specialist or senior registrar, on a morning ward round.

- For [Ms A] to be reviewed by a member of the obstetric team, either registrar or specialist, prior to the commencement of syntocinon.
- For the severity of CTG abnormalities to be recognised.
- For delivery to be performed as quickly as possible (not to wait 1–1.5 hrs).
- For intravenous antibiotics to be commenced earlier.

I have also been asked to comment on whether I consider the DHB recommendations made as a result of its care review are appropriate or go far enough in addressing any shortcomings.

The (abridged) recommendations of the DHB review are as follows, with my assessment in italics:

1. Medical review to be undertaken on all women before prescribing and commencing medications for induction of labour. *This is appropriate*.

2. Doctors to check their battery level at the commencement of shift. *This is appropriate but relies on all doctors to comply 100% which is unrealistic. A better system would be one that does not rely on all doctors doing the correct thing all the time. (They are human after all!)*

3. All phones in the ward including patient rooms to be enabled to make cell phone calls. *This is appropriate.*

4. If a SMO (consultant) is called to attend a patient they will attend in person rather than send a registrar. This is appropriate but fails to take account of situations when the SMO is unavailable, such as during an operation or attending to another emergency, or of the degree of urgency of the review required. *An alternative recommendation, in the light of the events of this case, might be 'if, for any reason, the registrar does not or is not able to attend an urgent call (to include reviewing a CTG), the SMO should be called promptly and attend in person if able' (I acknowledge this isn't perfect either, but it's a start!).*

5. When a CTG is in progress, maternal pulse is to be monitored concurrently. *This is appropriate*.

6. All practitioners in maternity care will undertake fetal surveillance education as currently provided by HVDHB. *This is widespread throughout DHBs and is therefore appropriate. However, in my opinion it doesn't really establish that an individual is safe to manage CTGs unsupervised. What it does do is suggest that the DHB takes CTG interpretation seriously and provide proof that it has gone some way towards providing education for its staff. Unfortunately, evidence would suggest that fetal surveillance education programs do not improve fetal outcome. In fact they only improve the consistency of terminology. Ultimately, this*

is an issue that goes way beyond this case and this DHB and probably beyond the scope of my report.

7. Discussion to occur with Anaesthetic team regarding review of patients with high risk factors on admission. This will allow pre-assessment in preparation for spinal/general anaesthetic requirements. *This is appropriate.*

8. That the role of an ACMM to enhance clinical and general oversight on a shift by shift basis in the maternity unit should be strengthened. *This is appropriate.*

I note that a number of findings in the report do not have subsequent recommendations. These include 'it would have been advisable for consultant to review [Ms A] at this time before the CS was commenced due to co-morbidities and the variations in the CTG findings' and 'twenty minutes of non reassuring CTG not escalated to SMO for urgent delivery'. These findings suggest a recognition by the DHB that the SMO on duty was not sufficiently involved in this patient's care. This is a shortcoming, consistent with my findings above, that has not been addressed by the recommendations.

These recommendations do not address all the issues identified in this case, in particular, the active participation of SMOs in ward rounds on the birthing unit and the identification and communication of important features of the patient's background. The issues of assessment and supervision of junior doctors is also not really considered or addressed.

The crucial matter in this case was a serious error of judgement by a junior doctor leading to tragic consequences. There is little evidence of significant input from a more experienced senior doctor. This inevitably raises difficult questions about the supervision of junior doctors by their seniors, not only of those involved in this case but also across the department as a whole. Whilst there may have been good reasons for [Dr E] to be working with very little supervision or apparent support from the senior staff, this cannot be assumed and further investigation is required to establish this. With the information available I cannot provide comprehensive advice on this specific issue, although I would be happy to make further comment should further information become available.

Summary

In summary, [Dr E], a junior registrar, failed to recognise the severity of the fetal compromise and accordingly failed to expedite delivery to maximise the chances of the baby's survival. There was a conspicuous lack of senior medical involvement in the patient's care, which dramatically reduced the chances of a good outcome. This inevitably raises concerns regarding the supervision of junior doctors in the Obstetrics and Gynaecology department at HVDHB and the commissioner may wish to investigate this specific point further. In my opinion there was a departure from accepted standards of care which I would rate as severe.

The DHB report has made several appropriate recommendations. The report does not make any recommendations regarding supervision of junior doctors or senior medical officer involvement in cases on the birthing unit despite acknowledging some deficiencies in this area in their findings.

I hope you find this report helpful. Please do not hesitate to contact me if you need further information or advice on this matter, particularly if the DHB or anyone else involved provide further information for comment."

The following further advice was received from Dr Short:

"I have been asked to provide further advice in this case (16HDC00144). I previously provided advice dated 26th June 2016. I have read and agree to follow the Commissioner's guidelines for independent advisors.

I have been asked to review further information on this case, including responses from [the DHB] and practitioners involved in [Ms A's] care. I have been asked to comment specifically on the following:

— the appropriateness of the care provided by [Dr F]

— the appropriateness of the care provided by [Dr E]

— the appropriateness of the care provided by [Dr D]

— the appropriateness of the registrar supervision arrangements in this case

— the appropriateness of the Hutt Valley DHB policies in place at the time of these events

— Any other aspect of [Ms A's] care that you wish to consider.

My initial advice concluded that [Dr E] failed to recognise the severity of fetal compromise and consequently failed to expedite delivery of the baby to maximise the chance of a good outcome. I also commented that there was a conspicuous lack of direct senior medical involvement in the patient's care, which reduced the chances of a good outcome and raises questions regarding the supervision of junior doctors in obstetrics and gynaecology at Hutt Valley DHB. Overall I concluded that there was a severe departure from accepted standards of care.

The background to the case is detailed in my previous report and I will not repeat it here. For the purposes of this report I have reviewed my previous report and the relevant medical records, together with the new documents and information provided by the DHB.

Comments re new documents/information
The DHB has provided several documents, reports and reflections. Where appropriate, these will be referred to in the relevant portion of my advice. However, I do feel some information needs specific mention at this time.

The post-mortem examination demonstrated a small placenta with features of 'villous dysmaturity'. This is associated with fetal morbidity and mortality, due to impaired gas exchange between mother and baby, particularly in times of stress such as labour. This process will lead to progressive hypoxia and ultimately fetal death if timely intervention does not occur. This hypoxia would lead to abnormalities on the cardiotocograph (CTG) such as those seen in this case prior to the birth. Therefore it appears that in this case hypoxia was the mechanism of fetal death and the villous dysmaturity was the underlying placental pathology that predisposed to the hypoxia. The presence of this hypoxia was strongly suggested by the CTG prior to the baby's death.

There is also a correction to make with regard to my previous report. I have documented that [Ms A's] body mass index was 38. In their responses [Dr E] and [Dr D] point out that this is incorrect and her BMI was actually 46.9. This becomes particularly relevant later.

Advice

In response to the commissioner's questions:

— *the appropriateness of the care provided by [Dr F]*

I am satisfied that the care provided by [Dr F] was appropriate.

— *the appropriateness of the care provided by [Dr E]*

As per my original report the care provided was below an acceptable standard. In my opinion he failed to appropriately interpret and act upon the abnormal CTG and was falsely reassured by what was probably a recording of the maternal heart rate. He himself describes a CTG with complicated variable decelerations and reduced variability, which indicates a need for more urgent delivery (the HVDHB CTG guidelines state this requires 'immediate management or urgent delivery'). He also states several times that he would have liked to do a fetal blood sample but that this was contraindicated. If one accepts his rationale for this (ie. the potential maternal Hepatitis C infection) then one must also consider that if one cannot confirm fetal wellbeing by doing this test then one must assume the baby is significantly compromised and proceed with a more urgent delivery. Soon afterwards he considered the CTG to have improved, when in actual fact he was probably monitoring the maternal heart rate. The characteristics of the improved recording are extremely different from the earlier abnormal recording and the improvement so dramatic that this possibility should have been immediately considered.

[Dr E] has quoted RANZCOG guidelines on categorisation of caesarean section. These guidelines very specifically do not make recommendations regarding time frames, so called decision-delivery intervals. However, for some reason [Dr E] documents a very clear decision that delivery should occur within 1.5 hours. His rationale for this arbitrary timeframe is unclear yet it may have influenced the outcome as this dictated

the level of urgency. 1.5 hours is actually quite a long time to prepare for a caesarean section. I suspect that stating this would merely have encouraged his team to take their time getting ready and further delay the birth.

He also claims to have been influenced by maternal factors and attempts to justify his generous timeframe on the basis of anaesthetic safety issues. I believe this to be outside his remit. His primary purpose was to make a judgement on the severity of fetal compromise and make a plan for delivery based on that, with the aim of maximising fetal outcome. Whilst he is correct that maternal safety is an important consideration (and ultimately takes priority over that of the baby) decisions to delay an urgent caesarean section for severe fetal compromise on this basis should not be made by a junior obstetric registrar and ideally should involve discussions between a senior obstetrician and anaesthetist. In any case, I believe he has overstated the risk. Obesity is such a widespread issue these days that most anaesthetists have sufficient experience [and] should be able to safely perform a prompt anaesthetic.

Ironically, whilst he was giving such consideration to the anaesthetic risks posed he does not appear to have given much thought to the surgical risk posed by a morbidly obese patient and failed to ask for senior assistance. The HVDHB policy on RMO supervision in obstetrics policy states that SMO attendance is required regardless of seniority of registrar for complex caesarean section, including when the patient's BMI is greater than 40. [Ms A's] BMI was 46.9.

In my opinion a more appropriate decision would have been a category 1 caesarean section, based on the CTG abnormalities, with delivery to occur as soon as possible following administration of safe anaesthesia. Earlier delivery would have improved the baby's chances of survival.

[Dr E] also comments on the post-mortem examination. He mentions the villous dysmaturity, its association with maternal obesity and sudden intrauterine fetal demise (quoting 3 per 1000). For some reason he appears to suggest that on the basis of this finding I should reconsider my opinion (as does [Dr D]). My understanding of this pathological finding is described above — villous dysmaturity is a placental pathology that predisposes to impaired gas exchange. This will result in fetal hypoxia that is reflected in CTG abnormalities as observed in this case. Left untreated, progressive hypoxia will result in the death of the baby. Overall this pathology finding merely identifies the underlying cause of death. However, it is still clear to me that this death was still potentially preventable had action been taken promptly whilst the baby was still alive.

Other factors which are relevant although of less significance are the failure of [Dr E] to physically review [Ms A] earlier, either on a ward round or when the decision was made to commence syntocinon. Regardless of any impact this would have had on the outcome I would consider this to be a minimum standard of good practice.

Overall I have developed a degree of sympathy for [Dr E] in relation to this case and the impact it will have had on him. As such I have taken a great deal of time to consider the events and his responses. I have no doubt he acted at all times with the best of intentions. However, he made a series of errors of judgement that ultimately led to the death of a baby, which was potentially preventable. At the time he was a junior and inexperienced obstetric registrar. Nonetheless CTG interpretation is a core skill for which he had completed appropriate training and I would expect a registrar at his stage of training to recognise the severity of the abnormalities present and act accordingly. I would also expect recognition that the dramatic changes in pattern and improvement in the CTG would alert to the possibility that maternal pulse was being monitored. Therefore, I conclude that there was a departure from acceptable standards of care. Due to [Dr E's] level of training and experience I consider the level of this departure to be moderate. My peers would agree.

— *the appropriateness of the care provided by [Dr D]* and — *the appropriateness of the registrar supervision arrangements in this case*

These 2 questions are closely related and will be considered together. In my opinion, registrar supervision is ultimately part of the senior medical officer's duty of care to their patients.

[Dr D] was only involved remotely in [Ms A's] care. This in itself is problematic as a more direct involvement would have been more ideal and may have altered the outcome. However, this is not the same as saying the supervision was inadequate. Rather, the question is whether sufficient steps were taken to assess the level of supervision required on that day for the specific patients being cared for.

I am particularly concerned about the 'handover' practice at HVDHB as described in this case. It appears that cases are presented to the on-call team by the lead maternity carer. In this case it seems that insufficient information was presented to [Dr D] and [Dr E] which had a significant influence on their involvement in her care. Based on the information provided it appears that [Ms A] was incorrectly assessed to be low risk when in fact she was high risk, as later acknowledged by [Dr D] in his response. This is not to suggest that it is the fault of the LMC. In fact, obstetric risk assessment is ultimately the role of the obstetric team. Had [Dr D] personally reviewed [Ms A] then the sequence of events that unfolded may have been very different. Given that [Dr D] was following an establishing practice within HVDHB at that time I can only conclude that the care he provided was appropriate. Ultimately senior doctors are dependent upon the information provided to them and frequently have too many responsibilities to be expected to actively seek or verify this information for themselves.

In his response [Dr D] points out that [Ms A] was assessed to be 'low risk' indicating that obstetric input was not required. He goes on to acknowledge that this assessment was incorrect and she was in fact 'high risk'. He comments that certain information was not presented to them at handover. In relation to commencing oxytocin he states that 'it was also decided that syntocinon would be administered, on review, for poor

progress'. His precise meaning is unclear but one interpretation would be that a medical review should take place prior to administering syntocinon.

It is highly relevant that [Dr D] was conducting a clinic at the same [time], whilst being responsible for the birthing suite. This inevitably will have had an impact on his ability to directly contribute to patient care.

I also note that [Dr D] was contacted several times and responded. Apparently he was reviewing a patient on the birthing suite whilst [Dr E] was in theatre, which indicates that he was active in patient care and therefore realising his responsibilities.

Registrar supervision is a very difficult area. Ultimately registrars need to learn independent practice but this must be balanced with senior support to ensure patient safety and quality care are not compromised. This balance will vary depending on the ability of the trainee. The reports provided would suggest that [Dr E] was well regarded across the whole department and there were no concerns about his ability. This would therefore encourage a relaxed approach to his supervision and a less proactive approach by the Specialists. As I have not worked with [Dr E] I cannot comment on the appropriateness of this approach in his case. I can say that there are inevitable flaws to this approach, particularly in relatively quiet units such as HVDHB. The volume of cases and level of acuity would make it extremely difficult to observe a junior doctor manage challenging cases and potentially contribute to an optimistic appraisal of ability and consequently a lower level of supervision.

HVDHB have provided helpful documents including 'RMO supervision in Obstetrics policy' and 'reaccreditation of [the public hospital]'.

The DHB has provided a copy of its 'RMO supervision in obstetrics' policy. This document is appropriate. However, policy was not followed in this case. The policy states that SMO attendance is required regardless of seniority of registrar for complex caesarean section, including when the patient's BMI is greater than 40. [Ms A's] BMI was 46.9. Therefore, according to this policy, [Dr D] should have been in attendance at the caesarean section from the start. For this reason I have to conclude that the level of supervision was not appropriate.

[The] head of the O&G dept, has provided a copy of the RANZCOG reaccreditation report that followed a routine review. Whilst generally positive in its opinion of the O&G department at HVDHB some areas of concern are stated. Most pertinent to this case, the report states that 'the consistency of consultant-led ward rounds is variable' and recommends that daily consultant-led wards be conducted. Whilst the report includes many positives, this comment does suggest that direct consultant involvement in day to day patient care could be improved upon.

[Dr D's] ability to appropriately supervise [Dr E] was somewhat hindered by the established handover practice at HVDHB, which prevents a more thorough assessment of patient risk, and the fact that he was running an outpatient clinic whilst on call.

Therefore any deficiency in supervision is not entirely his fault. He was also otherwise entirely reliant on information provided to him by [Dr E]. [Dr D] clearly had a high opinion of [Dr E] and his abilities and felt he could cope with the situation as it was described. The level of supervision was clearly influenced by this.

The DHB has also provided a copy of their 'oxytocin infusion for induction and augmentation of labour policy'. This policy is appropriate. However, it was not followed correctly in this case. The policy states 'Oxytocin is prescribed by the obstetric team, following review of the woman.' In this case [Ms A] was not reviewed by the obstetric team prior to commencement of the oxytocin. The policy also states 'in Multiparous women, please establish with consultant as to maximum dose before starting infusion and document on medication chart'. [Ms A] was multiparous and I can find no evidence of any discussion with the consultant at the time the oxytocin was commenced. There was apparently a discussion about oxytocin at 'handover'. However, in the context of this patient I am not satisfied that this can be considered satisfactory.

Overall, I think that the level of care provided by [Dr D] was below an acceptable standard. However, this is mostly due to factors outside his control such as the department's handover policy. Therefore I consider the level of departure to be mild.

Overall I am of the opinion that the level of registrar supervision in this case was not appropriate although I acknowledge that much of this was due to factors outside the control of [Dr D]. However, the department's policy on RMO supervision was not followed leaving me no choice but to reach this conclusion. I consider the level of departure from standard practice to be mild.

— *the appropriateness of the Hutt Valley DHB policies in place at the time of these events*

I am satisfied that the DHB policies are appropriate.

— *Any other aspect of [Ms A's] care that you wish to consider.*

As stated above, I am concerned by the morning handover practice within the DHB at that time. The system in place encourages the doctors to take a passive role in assessing patient risk. A better system would be one that encourages them to take an active role to ensure all relevant information is reviewed. Such a system may have helped identify the significant risk factors in this case and encouraged [Dr E] to liaise more closely with [Dr D] and for [Dr D] to take a more active role in the patient's care which may have improved the outcome.

I have also commented on the fact that [Dr D] was conducting an outpatient clinic whilst being responsible for the birthing suite. This is an area of concern as it will have hindered his ability to get involved in patient care and registrar supervision.

Conclusion

It is my opinion that [Dr E] failed to provide an acceptable level of care to [Ms A]. I assess the level of departure to be moderate.

It is also my opinion that [Dr D] failed to provide adequate care to [Ms A] and the registrar supervision arrangements in this case were inadequate. Much of this was due to factors outside his control; therefore the DHB should share this responsibility with him. Notably he did not follow department policy on RMO supervision. I assess the level of departure to be mild.

I hope you find this report helpful. Please feel free to contact me if you require further information."

The following further advice was received from Dr Short:

"I have been asked to make further comment on this case in response to statements from [Dr E] and [Dr D], via their legal advisors.

Summary of Statements

[Dr E] accepts that the baby was compromised and does not dispute that the CTG was abnormal and that more urgent delivery was indicated. He points out that there was no expectation from the service or his seniors that he ought to have reviewed [Ms A] earlier in the course of events. He states that he has changed his practice to review all women in person prior to the commencement of oxytocin. He also reiterates his genuine remorse regarding the outcome of this case and some of the learnings he has made.

Finally, he includes comments regarding the expectations of registrars at HVDHB and the level of supervision by their seniors. He states that '… the service was structured in a way that created an expectation that registrars would get on and do the job without consultant support for much of the time'. He also states his view that '… the service at Hutt Valley DHB is chronically under-resourced. It is that under-resourcing that led (for example) to [Dr D] being rostered on as both [Dr E's] supervising consultant and for a simultaneous clinic list. Indeed, it is [Dr E's] understanding that the consultant on-duty was always double rostered with other duties such as clinics or operating lists (sometimes off-site), and as a consequence there was never a consultant available exclusively for supervision, regardless of the level of RMO working the relevant shift'. He concludes by stating '… this scarcity of senior resource led to an unspoken expectation that registrars would "step-up" and the threshold for calling consultants away from other important work (such as a clinic list) was high.'

A second opinion has been provided by [Dr H]. In summary, [Dr H] agrees that a number of errors were made [by Dr E] that led to a delay in delivering the baby. He highlights the fact that [Dr E] was an inexperienced registrar at that time and suggests that this should be taken into consideration, together with the role of the DHB and the

lack of SMO (senior medical officer) involvement, when reaching a decision about this case. His opinion is interpreted by [Dr E's] advisors as '… he [Dr E] should not have been left to carry on in a situation where there was a risk of him being out of his depth.'

[Dr D] suggests erroneous reading of DHB policies which potentially renders previous conclusions to be unreliable and unsubstantiated.

Firstly this relates to the 'RMO supervision in obstetrics' policy. His advisor states 'this policy was created following the index event' and 'The policy is dated [Month8], with the index event occuring on 14 [Month8]. [Dr D] cannot be criticised for breach of a policy that was not in place at the material time'. However, the DHB have only stated that 'I can confirm that there was no Resident Medical Officer (RMO) supervision in Obstetrics Policy in place prior to the introduction of the [Month8] policy'.

Secondly, this relates to the 'oxytocin infusion for induction and augmentation of labour policy'. He states that my comments relate to policy updates made following the index event which cannot be used as the basis for criticism of [Dr D]. Further comment is made about the interpretation of the policy that was in place at the time, relating to the involvement of the consultant in discussions about the dosage of oxytocin in multiparous patients. On this point he concludes that [Dr D's] obligations had already been met in this regard and my criticisms are invalid.

Opinion

I would like to begin by acknowledging and applauding the candour of [Dr E]. He has recognised his errors, expressed remorse and made changes to his practice. He has also revealed some potentially concerning details regarding the culture in the department of Obsterics and Gynaecology at HVDHB at that time. This suggests a potentially difficult environment for trainee doctors to work in, whereby they were expected to '… get on and do the job without consultant support …'.

In light of these revelations I have spent some time reflecting on my previous advice regarding this case. I am still of the opinion that [Dr E] failed to provide an acceptable standard of care to [Ms A]. I would expect a year 2 registrar who has completed fetal surveillance to correctly identify the degree of fetal compromise apparent from the CTG and act appropriately in response — in this case to expedite delivery of the baby in consultation with senior colleagues. I believe my peers would agree. In assessing the degree of departure from acceptable standards of care, I am of the opinion that [Dr E's] relative inexperience and the culture at HVDHB, whereby he was expected '… to carry on in a situation where there was a risk of him being out of his depth', are significant factors that should be taken into consideration. Therefore, I have reassessed the level of departure from acceptable standards of care to be mild.

[Dr E's] statement clearly reflects harshly on HVDHB. Taken at face value, his comments lead one to form a view of an organisational culture whereby junior

doctors are not adequately supported and patient safety is compromised as a result. This view certainly fits with the sequence of events.

As previously stated, [Dr D] questions my interpretation of some DHB guidelines. Regarding the 'RMO supervision in Obstetrics' policy, I will make a number of comments. Firstly, the index event was 17 [Month8], not 14 [Month8] as stated by [Dr D]. Secondly, the DHB have only confirmed that there was no policy in place prior to [Month8]. They have not confirmed that this policy was not in place on 17 [Month8]. Thirdly, this policy was almost certainly not '… created following the index event'. A policy such as this would take some time to draft and would normally undergo a process of consultation with relevant stakeholders, such as [Dr D]. This would inevitably have occurred prior to [Month8] and it is highly plausible that [Dr D] was aware of the content of this policy prior to the index event. Fourthly, I find [Dr D's] response somewhat disingenuous. A specialist of his experience shouldn't really need an explicit policy to direct him to act appropriately. This inevitably raises the question of why such a policy was required to be created at that time? This is a matter that appears consistent with the culture alluded to by [Dr E].

Regarding the 'oxytocin infusion for induction and augmentation of labour policy', [Dr D] is indeed correct in that I have confused the existing and the updated policies on the matter of a medical review prior to commence[ment] of oxytocin. I have therefore amended my previous opinion to now state that the policy in place at the time was not appropriate.

[Dr D] also mentions my comments relating to the involvement of the consultant in discussions about the dosage of oxytocin in multiparous patients. Oxytocin use in the multiparous labouring patient is associated with more risk than in the Primiparous patient. As such, a senior doctor should be invloved in the decision to prescribe this and ensure appropriate dosing. In my opinion this decision should only be made following a thorough review of the patient by a member of the obstetric team. In my opinion, whilst it would not necessarily be for [Dr D] to do this himself, it was his responsibility to ensure it happened regardless of what a policy states. I think my peers would share this view.

Whilst these policy related issues may not have impacted on the final outcome of this case, I believe they stand as tangible examples of deficiencies in RMO supervision. On the day in question [Dr D] was responsible for supervising [Dr E] and must therefore accept some responsibility for how events unfolded.

It also concerns me that [Dr D] appears to use the lack of specific department policy to defend his lack of direct involvement in a patient's care. As an experienced specialist he should be able to recognise when it is necessary for him to become more involved without relying on an explicit written policy to direct him. In this it would appear that [Dr D's] actions are consistent with the culture described by [Dr E]. I ackowledge that [Dr D] was also a victim of this culture and barriers were in place that limited his ability

to supervise [Dr E]. However, my opinion remains as previously stated — that [Dr D] failed to provide adequate care to [Ms A], but with only a mild departure from the expected standard. I think my peers would agree.

Considering the statement of [Dr E], it appears likely that the bulk of the responsibility for deficiencies in [Ms A's] care should lie with the HVDHB. The service appears to have been relying on inexperienced doctors, often working in isolation with barriers to them obtaining help from their seniors. The organisation failed to create an environment that ensured RMOs were appropriately supported by more experienced specialists. As a result patient safety was compromised. In the case of [Ms A] my opinion is that this constitutes a severe departure from the expected standard of care. Whilst DHBs should be able to expect a certain level of competence from RMOs, they inevitably make more mistakes than more experienced doctors and DHBs should ensure there is a culture and systems in place that minimises the risk of harm arising from this.

Conclusion

[Dr E] failed to provide an acceptable standard of care to [Ms A], with a mild departure from the accepted standard. [Dr D] failed to provide an acceptable standard of care to [Ms A], with a mild departure from the accepted standard. Hutt Valley DHB failed to provide an acceptable standard of care to [Ms A], with a severe departure from accepted standards."

Appendix B: Independent midwifery advice to the Commissioner

The following expert advice was received from a registered midwife, Emma Farmer:

> "I, Emma Farmer, have been asked to provide an opinion to the commissioner on case number Cl6HDC00144; I have read and agree to follow the Commissioner's Guidelines for independent advisors.
>
> I am a registered midwife and hold a MHSc (hons) Midwifery. I have worked in a variety of practice settings over a 25 year career and am currently employed as the Head of Division — Midwifery, at Waitemata District Health Board.
>
> You have asked me to provide an opinion on the following matters regarding standard of care:
>
> 1. *[RM B's] failure to refer [Ms A] for specialist consultation in the antenatal period regarding her raised BMI and Hepatitis C status.*
> 2. *Was [Ms A's] Hepatitis C status, UTI and period of confusion when her waters broke appropriately communicated to hospital staff by [RM B] or [RM C].*
> 3. *General comments about standard of care.*
>
> Firstly I would like to express my sincere condolences to [Ms A], and her family, for the tragic loss of [Baby A].
>
> *1. [RM B's] failure to refer [Ms A] for specialist consultation in the antenatal period regarding her raised BMI and Hepatitis C status.*
>
> The 'Guidelines for Consultation with Obstetric and Related Medical Services'[1] outlines conditions where the LMC 'must recommend to the woman ... that a consultation with a specialist is warranted given that her pregnancy, labour, birth or puerperium (or the baby) is or may be affected by the condition.' The Guidelines include both Hepatitis and Obesity (BMI >35) as indications for referral for consultation.
>
> I note that [Ms A] had a BMI calculated at the first appointment of 38, this indicates that [Ms A] would be categorised as obese and this diagnosis has been found to be an independent risk factor for pregnancy related complications. I note that [RM B] made three references in her records to [Ms A] being upset by comments regarding her weight made during an ultrasound scan and the inability to get a clear view of the fetus due to maternal 'habitus'. This distress is likely to have influenced [RM B's] decision not to recommend an obstetric consultation, and she confirms this in her response to [HDC] on 30th March 2016. I note that screening for gestational diabetes was undertaken and the result was within the normal range 6.9mmols. However the

[1] Ministry of Health. 2012. Guidelines for Consultation with Obstetric and Related Medical Services (Referral Guidelines). Wellington: Ministry of Health. https://www.health.govinthystem/files/documents/publicationsireferral-glines-jan12.pdf

Hutt Valley DHB Event Review (not dated) suggests that a 2 hour glucose tolerance test may have been recommended if a consultation had taken place. This test includes a fasting glucose and a response to a glucose challenge at 2 hours and may have provided more information about possible gestational diabetes risk. [Baby A] was found to weigh 4320g at birth which based on the gestation.net birth centile calculator is around the 90th centile, which would be considered large for gestational age. The Ministry of Health guidelines on healthy weight gain in pregnancy[2] recommends that women be encouraged to monitor their weight gain in pregnancy and be advised of their optimal weight gain. The Ministry of Health provides resources for health practitioners to assist women.

Failure to recommend a consultation for obesity would be viewed with mild disapproval, as would failure to provide advice on recommended weight gain in pregnancy and monitoring the weight gain of a woman with a diagnosis of obesity.

[Ms A] had an indeterminate Hepatitis C status, it appears from the clinical records that this was known to [Ms A] prior to this pregnancy and she had declined further screening. 'Has an inconclusive hep C status and refuses further investigation around this as is 'sick' of being inconclusive'. It is not evident from the records if [RM B] had explained the clinical implications of a positive status and the 5–6% risk of mother to infant transmission in labour.[3] Also the likelihood that knowledge of the Hepatitis risk would affect clinical decision making in relation to fetal assessment in labour. An obstetric consultation would have likely covered these issues and led to better planning for labour and birth.

Failure to recommend a consultation for Hepatitis would be viewed with mild disapproval, as would not fully explaining the risks associated with this diagnosis. [RM B] has acknowledged that this was a failing on her part.

2. Was [Ms A's] Hepatitis C status, UTI and period of confusion when her waters broke appropriately communicated to hospital staff by [RM B] or [RM C]?

[Ms A] was admitted to [the public hospital] on 16th [Month8]. At 18.30 there is an entry signed by [RM C] that a three way conversation took place between herself, [Ms A] and [Dr F]. [RM C] notes 'discussed hx' hx is a common abbreviation of history. As the details of the history are not documented I am unable to determine what information was shared. However in the records made 20 minutes later [Dr F] notes a 'panic attack', and 'history of recurrent UTI' no mention is made of inconclusive Hepatitis C status, which was pertinent to the care as it influenced decision making in regard to fetal monitoring. On 17th [Month8] at 12 midday there is a note made by an obstetric registrar (name indecipherable) 'Inconclusive HCV status'. I can therefore

[2] Ministry of Health. 2014. *Guidance for Healthy Weight Gain in Pregnancy*. Wellington: Ministry of Health.
[3] Benova L et al. 2014. Vertical transmission of Hepatitis C virus: systematic review and meta-analysis. Clin Infect Dis. 2014; 59(6): 765.

conclude that the obstetric team was aware of the medical history albeit late in the labour.

3. General comments about standard of care.

Other than the issues described above I have no further comments to make about the standard of midwifery care.

I trust that you find this advice helpful in your investigation, please contact me again if you would like further clarification."

The following further advice was received from RM Farmer:

"I, Emma Farmer, have been asked to provide further expert advice to the Commissioner on case number C16HDC00144; I have read and agree to follow the Commissioner's Guidelines for independent advisors.

I am a registered midwife and hold a MHSc (hons) Midwifery. I have worked in a variety of practice settings over a 25 year career and am currently employed as the Head of Division — Midwifery, at Waitemata District Health Board.

You have asked me to provide an opinion on the following matters regarding standard of care:

1. *If the Commissioner were to make a finding that, at the time of delivery [Ms A's] BMI was 46.9, would this cause you to change your advice regarding the care provided to [Ms A] by [RM B]?*
2. *Was [RM B's] response to the MSU test result on 3rd [Month8] appropriate in the circumstances?*
3. *In light of [Ms A's] clinical findings and CTG tracing on the morning of 17th [Month8], do you consider that [RM B] made attempts to contact the obstetric team in a timely manner?*
4. *Address any other aspects of the care provided to [Ms A] by [RM B].*
5. *Please comment on the appropriateness of the care provided to [Ms A] by Hutt Valley DHB Midwifery staff, and address any other aspects of midwifery care that you consider warrant comment.*

Again, I would like to recognise the tragic loss for this family and the additional burden that accompanies a lengthy investigation process.

If the Commissioner were to make a finding that, at the time of delivery [Ms A's] BMI was 46.9, would this cause you to change your advice regarding the care provided to [Ms A] by [RM B]?

I would strongly advise against making a finding that the BMI was 46.9 at the time of birth. The use of this measurement as a marker for adverse pregnancy outcome is still

relatively novel and commonly misunderstood. All research to date has been undertaken using BMI calculated pre-pregnancy or early in pregnancy. This is because the calculation does not take into account the weight of the gravid uterus, placenta, amniotic fluid, baby or physiological fluid increase. The Ministry of Health recommends:

'BMI should be calculated from a pre-pregnancy weight, or an early pregnancy weight (ideally <10 weeks gestation)'[4]

Beyond this time it is preferable that practitioners focus on actual weight increase, which is why there is a recommendation to monitor weight in pregnancy.

Therefore my previous opinion remains unchanged.

Was [RM B's] response to the MSU test result on 3rd [Month8] appropriate in the circumstances?

On 3rd [Month8] [RM B] discussed the MSU test result with [Ms A], she records contemporaneously that:

'Discussed MSU result was positive to e-coli, [Ms A] declined ab(sic) script and was adamant that as she was asymptomatic she would not require tx (treatment) and if she did she would arrange via GP.'

Asymptomatic bacturia is common in pregnancy, with e-coli the most common pathogen. Untreated bacturia can lead to cystitis and pyelonephritis and therefore treatment is recommended. [RM B] in her statement to the commissioner recalls that she did notify [Ms A] of the possible consequences of not being treated. Assuming this conversation occurred I consider [RM B's] response appropriate.

In light of [Ms A's] clinical findings and CTG tracing on the morning of 17th [Month8], do you consider that [RM B] made attempts to contact the obstetric team in a timely manner?

The first contact [RM B] made with the obstetric team was at around 10.15 when she records that she 'requested augmentation'. In [RM B's] statement of 30th March 2016 she recalls that:

'I spoke to the Registrar regarding the previous evening's assessment and plan for augmentation and no change in the cervix in the previous 2 hours and gained verbal consent to begin the augmentation. I reiterated that [Ms A] had an increased BMI and had a non-conclusive Hepatitis C status so we would need to treat her as positive and therefore could not perform a lactate or attach a fetal scalp electrode if required.'

[Dr E] in his statement on the 3rd November 2016 acknowledges that a consultation occurred and he agreed that augmentation could proceed. The 'Guidelines for

[4] Ministry of Health. 2014. *Guidance for Healthy Weight Gain in Pregnancy*. Wellington: Ministry of Health.

Consultation with Obstetric and Related Medical Services'[5] require consultation prior to augmenting labour with syntocinon. This allows an opportunity for the medical staff to review the labour and progress prior to augmenting for slow progress. It is not uncommon for this consultation to occur over the phone.

On review of the CTG (being mindful the copy I received was a poor photocopy and not to scale), it appears that the fetal heart pattern had some variable decelerations from as early as 09.55 but in the presence of other normal features it would not be unusual to take a watchful approach at this stage. At 11.05 there was a rising baseline, reduced variability and variable decelerations, we also see a pattern of uterine hyperstimulation occurring. To assess a fetal heart pattern you need to observe it over a period of time, as changes can be fleeting or trends can emerge. Given that the first call for obstetric advice was at around 11.15 according to [RM B's] statement, I consider this a timely response.

Address any other aspects of the care provided to [Ms A] by [RM B]

I have no other comments to make regarding the care provided by [RM B] additional to that provided in this and my previous advice.

Please comment on the appropriateness of the care provided to [Ms A] by Hutt Valley DHB Midwifery staff, and address any other aspects of midwifery care that you consider warrant comment.

I have no other comments regarding the midwifery care provided.

I trust that you find this advice helpful in your investigation, please contact me again if you would like further clarification."

[5] Ministry of Health. 2012. *Guidelines for Consultation with Obstetric and Related Medical Services (Referral Guidelines).* Wellington: Ministry of Health. https://www.health.govt.nz/system/files/documents/publications/referral-glines-jan12.pdf