Health and Disability Commissioner
Te Toihau Hauora, Hauātanga

A Decision by the Deputy Health and Disability Commissioner

(Case 22HDC02176)

Introduction

1. This report is the opinion of Rose Wall, Deputy Health and Disability Commissioner, and is made in accordance with the power delegated to her by the Commissioner.

2. The report discusses the care provided to Ms A by Dr C, a consultant obstetrician and gynaecologist at a public hospital (Health New Zealand|Te Whatu Ora (Health NZ)).

3. Ms A had multiple assessments/presentations at the public hospital's maternity service. At 33 weeks' gestation, Ms A's waters broke. She was admitted to hospital and discharged a few days later. The following week, Ms A was seen in the maternity clinic as she had developed green vaginal discharge. Ms A was booked for an induction of labour at 37 weeks' gestation and was discharged home. On the day following Ms A's discharge from the maternity clinic, she presented to the hospital in labour. Sadly, Baby A was stillborn.

4. Ms A's mother raised concerns about the care provided to Ms A.

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

5. Through the assessment process, the following issues were identified for investigation:

- *Whether [Health NZ|]Te Whatu Ora provided Ms A with an appropriate standard of care between 3 Month6[1] and 12 Month6 (inclusive).*
- *Whether Dr C provided Ms A with an appropriate standard of care on 11 Month6.*

6. The parties directly involved in the investigation were:

Ms A	Consumer
Mrs B	Complainant/mother of consumer
Dr C	Provider/Consultant obstetrician and gynaecologist
Health NZ	Group provider

7. The following people are also referred to in the report:

Dr D	Consultant obstetrician and gynaecologist
Dr E	Senior house officer
RM F	Lead maternity carer (LMC)/registered midwife (RM)

8. Independent advice was obtained from Dr Judy Ormandy, an obstetrician and gynaecologist, to support the investigation of this complaint (Appendix A).

Background

Antenatal care

9. In 2021 Ms A (aged in her twenties at the time of the events) first met with Lead Maternity Carer[2] RM F.

10. RM F recorded in Ms A's records that at this first interaction they discussed various topics, including midwifery in New Zealand, the role of the LMC, the Health and Disability Commissioner and the Code of Health and Disability Services Consumers' Rights (the Code) and what to expect at each appointment, tips for a healthy pregnancy (nutrition and exercise), and what concerns would require urgent telephone contact with the LMC as opposed to when to contact the LMC via text message or email. Ms A was also advised that routine appointments would be scheduled with RM F monthly up until 36 weeks' gestation, when they would be increased to every two weeks.

[1] Relevant months are referred to as Months 1–6 to protect privacy.

[2] LMCs are responsible for a woman's care throughout her pregnancy, labour, and birth. LMCs also care for the woman and her baby until the baby is six weeks old. LMCs have the legal, professional, and practical responsibility for making sure the woman and her baby receive appropriate maternity care.

11. At the routine appointment on 9 Month1, RM F recorded that Ms A had vomited six times that morning and that she had a raised body mass index (BMI)[3] of 47. For these reasons, RM F obtained Ms A's consent to refer her for review by the obstetric clinic at the public hospital.

12. Ms A attended the obstetric clinic appointment on 22 Month1 and was reviewed by Dr C. Dr C advised in the clinic letter that Ms A had been affected by hyperemesis[4] and had lost 1.5kg since becoming pregnant, and on two occasions she had attended the Emergency Department (ED) for IV fluids. Dr C recorded in Ms A's clinic letter that he had encouraged Ms A to return to the ED should she feel she was not coping with on-going hyperemesis. However, as her weight loss was minimal, there was no requirement for treatment at this point. Dr C advised that because of Ms A's raised BMI, they would plan for growth scans to be performed every two weeks from 30 weeks' gestation.

13. On 7 Month2 Ms A had a further routine appointment with RM F, at which they discussed the obstetric plan advised by Dr C in the clinic letter, including for Ms A to attend ED if unable to cope with the nausea. At this appointment, Ms A advised that she had been struggling to keep food down, including electrolytes, and asked about blood tests relating to thyroid, electrolytes, and renal function. As LMCs do not routinely refer for these types of blood test, RM F made a further referral for obstetrics review for on-going nausea and to request the blood tests. RM F and Ms A also discussed immunisations available during pregnancy, and a referral was sent for Ms A to have the routine anatomy ultrasound scan usually completed between 18–21 weeks' gestation.

14. On 6 Month3, 3 Month4, 3 Month5, and 17 Month5 Ms A had further routine appointments with LMC RM F. Together they reviewed the anatomy scan, which indicated mild right renal pelvis dilatation.[5] They also discussed various pregnancy-related topics, including (but not limited to) vitamin K injections at birth, sleeping positions, stages of labour, signs of pre-eclampsia, the back-up LMC, and when to call the midwife.

15. Ms A and her mother, Mrs B, were in regular contact throughout Ms A's pregnancy, in particular during Ms A's admission (3 Month6), post-discharge (7 Month6), and up until the events on 12 Month6. Mrs B said that for two days prior to Ms A's waters breaking on 3 Month6, Ms A experienced abdominal discomfort, resulting in very little sleep and food intake.

First hospital admission (3–7 Month6)

16. When Ms A was 33+2 weeks' gestation, Health NZ documented in Ms A's clinical records that a telephone call was received from RM F. RM F described that Ms A had gone to the

[3] BMI is a measure of height and weight to work out whether a person's weight is healthy. A BMI of 18.5 or less is considered underweight, a BMI of 18.5–25 is a healthy range, a BMI of 25–30 is overweight, and a BMI of 30.0 or higher is considered obese.
[4] Severe nausea and vomiting during pregnancy.
[5] Part of the baby's kidney is enlarged. In most cases, there is no underlying problem.

bathroom at 8pm and had experienced a continuous gushing of clear liquor, thus giving the impression of preterm premature rupture of membranes (PPROM).[6]

17. Ms A presented to the public hospital, and staff undertook a rapid antigen test (RAT),[7] which was negative, and recorded that Ms A had a temperature of 36.7°C (normal), a pulse of 120 beats per minute (higher than the normal range) and a blood pressure of 120/80mmHg (normal).

18. Ms A's most recent ultrasound results, dated 14 Month5, were reviewed, and it was documented in the records that the baby had a history of right renal pelvis dilatation and that on 14 Month5 when the ultrasound was undertaken Ms A had polyhydramnios.[8] Ms A's records show that at 9pm a course of nifedipine[9] was commenced and cardiotocography (CTG)[10] was performed.

19. At 9.35pm Dr D, an obstetrician and gynaecologist, recorded having performed a bedside ultrasound, which showed a cephalic long lie.[11] Dr D detailed a plan for Ms A to complete the course of nifedipine and take the oral antibiotic erythromycin,[12] which would change to penicillin[13] when she went into labour.

20. At 10.45pm RM F documented retrospectively that she had attended Ms A from 8.30pm and was present throughout the assessment by Dr D. RM F documented the CTG and Ms A's blood pressure as normal and described Ms A as sitting with pains in the lower abdomen. RM F documented a discussion with Ms A in which she explained the purpose of nifedipine. A speculum examination was performed by a senior house officer, who said that Ms A's cervix was closed. CTG monitoring continued.

21. On 6 Month6 Mrs B was in attendance for the assessment with Dr D. The clinical records document Mrs B voicing her concern about the on-going pain Ms A was experiencing. Mrs B said that when Ms A was assessed by Dr D at 9.10am she was fatigued and asking about the possibility of an induction of labour. Dr D acknowledged Ms A's on-going pain and frustration but explained the risk of inducing the baby at this time (33+5 weeks' gestation). On-going antibiotics, pain relief, and steroids were administered, and a CTG was normal. Ms A's liquor continued to be clear, which indicated that no infection was evident at that stage.

22. On 7 Month6 Ms A was 33+6 weeks' gestation. The clinical records document on-going pain that was difficult to manage. Ms A asked to be discharged home. The recorded impression

[6] The membranes (amniotic sac) break open before labour begins. If PROM occurs before 37 weeks' gestation, it is called 'preterm premature rupture of membranes' (PPROM).
[7] A test for COVID-19.
[8] Too much amniotic fluid around the baby during pregnancy.
[9] A medication used to stop preterm labour.
[10] Monitoring of the fetal heartbeat and uterine contractions during pregnancy and labour.
[11] The fetus is lying longitudinally and the head enters the pelvis first.
[12] An antibiotic.
[13] An antibiotic.

was Braxton Hicks contractions with PPROM. Therefore, discharge was agreed, with the plan for a course of antibiotics and for an ECG to be performed prior to discharge.

23. At 10am the ECG was performed as planned and indicated normal sinus rhythm. An antibiotic prescription was provided as planned.

24. Ms A was discharged on 7 Month6. The discharge summary states that the following advice was given to Ms A on discharge:

> 'Please complete your course of antibiotics for the next 6 days. Monitor yourself for signs of fever and infection. If these develop, please return to the maternity unit. If the colour of the liquor changes please also discuss with your midwife or return to the maternity unit.'

25. The plan, as documented in the discharge summary, was for Ms A to have an induction of labour at 37 weeks' gestation, to complete temperature checks at home three times per day, and to return for review if her temperature was more than 38°C, fetal movements reduced, there was a change in colour or smell of the liquor, or she was feeling unwell.

26. RM F documented in Ms A's midwifery records:

> '[Ms A] discharged home to monitor her wellbeing daily with temperature and overall wellbeing after a very challenging week following PROM **(sp. SROM in records)** 03 [Month6] 19:57. Obstetric SHO (Senior House Officer) has called to negotiate an [induction of labour] at 37 weeks for [Ms A] on 28th [Month6].'

27. Mrs B raised concerns that Ms A was discharged while she had ongoing abdominal pain. Mrs B also raised concerns about Ms A's discharge planning and said that it was not discussed with RM F, and Ms A was sent home to self-monitor her temperature without a thermometer. Mrs B also raised concerns about the district's guideline around PPROM and routine scans, blood tests, and CTG monitoring, which differed from other districts.

Clinic appointment following growth scan

28. On 11 Month6, Ms A attended a growth ultrasound scan that had been scheduled prior to her waters breaking. The findings now reported liquor volume as oligohydramnios.[14] As this was a change from polyhydramnios[15] to oligohydramnios since the previous scan, the reporting radiologist discussed the results with Dr C. Therefore, Ms A attended a clinic appointment that day with Dr E under the supervision of Dr C.

29. In a clinic letter to RM F dated 11 Month6 (which was dictated by Dr E and approved by Dr C), Ms A's recent admission and discharge was noted. The letter states:

> '[Ms A] had an ultrasound scan which had reduced liquor volume. Because of this and her BMI, growth measurements were not able to be taken. She does report good fetal

[14] Decreased amniotic fluid volume for gestational age.
[15] Too much amniotic fluid around the baby during pregnancy.

movements. She continues to have copious amounts of liquor draining. It has become green this morning, but she is feeling well. She has not been checking her temperature at home and we again discussed the importance of this. Since her discharge from the ward last week [Ms A] has continued to have lower abdominal pain but has managed to get some sleep over the past two nights and is now able to eat more normally. She is still taking regular Paracetamol.

We discussed the process of induction of labour at 37 weeks with Misoprostol.[16] She has already seen the anaesthetists and the plan is for an epidural. Given this is just over two weeks away we will discharge [Ms A] from the clinic but she will present to the maternity ward if she has any concerns in the meantime.'

30. As stated in the clinic letter, Ms A was discharged home, with an induction of labour booked for 29 Month6 at 37 weeks' gestation.

31. Following the events, Dr C said that Ms A should not have been discharged home on 11 Month6, and that she should have been sent to the Maternity Unit for further assessment. Dr C said that despite frequent reflection on the events, his rationale for the decision to discharge Ms A home is unclear. Dr C stated:

'I still cannot think of any human factors that might be relevant as, although they would not have excused my mistake, they might have explained why it occurred. Their absence is a concern to me, as I really would like to understand why I made such a basic mistake. I cannot reverse it (unfortunately) but would like to have better confidence that I wouldn't make such a mistake again. Even the concern expressed by the sonographer over the lack of liquor (where she had been asked to scan for growth due to [Mrs B's] raised BMI) should not have distracted me from the significance of the green liquor.'

32. Dr C said that although he cannot recall the full details of his conversation with Dr E, he is confident that Dr E would have informed him of all the relevant details. Dr C considers that Dr E would not have had the knowledge to recognise that his management decision was incorrect.

Second hospital admission

33. On 12 Month6 Ms A attended the Maternity Unit when she began to experience contractions. Ms A's midwifery notes and Health NZ's clinical record both document that Ms A was assessed by RM F and a consultant obstetrician and gynaecologist, who were unable to locate a fetal heartbeat via CTG. Therefore, an ultrasound scan was performed by a sonographer, who advised that there was no liquor or fetal heartbeat, which confirmed that the baby had died in utero. A vaginal examination was performed, and it was determined that Ms A was fully dilated. She proceeded to deliver Baby A vaginally with the placenta removed surgically.

[16] Misoprostol is used to induce labour by softening the cervix, inducing dilation and uterine contractions.

Serious Event Analysis (SEA) by Health NZ

34. After the incident, Health NZ undertook a review and found that there is variation in the PPROM guidelines throughout New Zealand. Health NZ noted in the SEA that there is no definitive evidence base to support changing Health NZ's guideline at this time.

35. Health NZ's SEA made the following recommendations:

- That the maternity discharge summaries completed by maternity medical staff when a woman is discharged from the maternity service or ED be modified to include a mandatory field to document that appropriate information has been relayed to the LMC midwife.
- Preparation of a patient pamphlet that clearly outlines advice for self-monitoring at home for those women who have confirmed preterm rupture of membranes.

Relevant guidelines

36. At the time of the event, Health NZ had PPROM Guidelines in place dated October 2019. Under the Outpatient surveillance subheading it stated:

'• Women should have routine antenatal care with their LMC and be seen in the Antenatal Clinic at 36 weeks to discuss an induction plan. Routine investigations such as additional blood tests and scans are unlikely to be of benefit and are not recommended.

- Induction of labour is usually planned for 37 weeks gestation. Antibiotic prophylaxis in labour for group B streptococcus will be required because of prolonged ruptured membranes.'

Further information

Family meeting following events

37. Ms A and her family had a meeting with the team at Health NZ, including Dr C and the Clinical Midwifery Manager, to discuss the family's concerns and the events leading up to the death of Baby A.

38. Dr C said that he had made a mistake, for which he sincerely apologised, when he did not take the opportunity to investigate the reported green discharge further. Dr C stated that he has reflected on this mistake and done further reading around the subject of management of PPROM.

Health NZ response to independent advice

39. Health NZ was provided with an opportunity to comment on the findings of the independent advice provided by Dr Judy Ormandy. Health NZ responded: 'We accept all of Dr Ormandy's findings and wish to again apologise to [Ms A] and her whānau for the sad loss of [Baby A].'

Response to provisional opinion

40. Mrs B was given an opportunity to respond to the introduction and background sections of the provisional opinion. She asked about the on-going monitoring of Dr C. In response to

this and as advised below, the Medical Council of NZ (MCNZ) will be provided a partly anonymised copy of the final report and advised of Dr C's name.

41. Health NZ was given an opportunity to respond to the provisional opinion, and it advised that it had no further feedback.

42. Dr C was given an opportunity to respond to the provisional opinion, and he advised that he had no comments and accepted the opinion.

Opinion: Dr C — breach

Introduction

43. First, I acknowledge the patience of Ms A and her family while the complaint was investigated and provide my sincerest condolences for the tragic passing of Baby A in utero.

44. In forming my opinion, I have considered the independent advice from consultant obstetrician Dr Ormandy.

Management on 11 Month6

45. On 11 Month6, a growth ultrasound scan showed oligohydramnios. On the same day, Ms A attended a clinic appointment with Dr E, who was supervised by Dr C. Due to the oligohydramnios and Ms A's elevated BMI, growth measurements were not able to be taken. Dr C and Dr E noted that Ms A had ongoing lower abdominal pain and 'copious amounts of liquor draining', and that the discharge had turned green. An induction of labour was booked for 37 weeks' gestation and Ms A was discharged home without any further investigations being undertaken.

46. Dr Ormandy advised that the decision to discharge Ms A home and to book an induction for 37 weeks' gestation was incorrect.

47. Dr Ormandy advised that when someone has ruptured their membranes, oligohydramnios is normal, so this was not an unexpected finding. Dr Ormandy acknowledged that the combination of oligohydramnios and Ms A's high BMI would have made it difficult to obtain good scanning images. However, Dr Ormandy advised that the presence of green discharge is a known indicator for chorioamnionitis,[17] and therefore it should have been investigated fully. Dr Ormandy stated:

> '[T]he presence of green discharge raises concern for the development of chorioamnionitis. This is a significant "red flag" symptom. At the least, I would have expected a full set of maternal observations, a speculum examination to review the discharge and for swabs to be taken and blood tests assessing the white cell count and CRP.[18] Even if all of these observations were normal, it would have been appropriate to

[17] An acute inflammation of the membranes and chorion of the placenta, typically due to infection following rupture of the membranes.
[18] C-reactive protein (CRP) is a protein made by the liver. The level of CRP increases when inflammation is present.

> admit [Ms A] to the maternity unit … The crux of this case is that [Ms A] was incorrectly discharged from her maternity assessment on 11 [Month6] … Green discharge signifying chorioamnionitis is not a difficult clinical diagnosis to reach. It is a straightforward diagnosis for an obstetrician …'

48. Dr Ormandy considers that the decision to discharge Ms A on 11 Month6 was a severe departure from accepted practice.

49. I accept Dr Ormandy's advice. Given the presence of green discharge and Ms A's ongoing abdominal pain, I am critical that Ms A was discharged home without any further assessment. As advised by Dr Ormandy, chorioamnionitis can present subtly and can develop rapidly. For this reason, I would have expected Dr C to arrange for Ms A to be admitted to the Maternity Unit and for full investigations to be undertaken. This did not occur.

50. I consider that the responsibility to ensure that the appropriate investigations were undertaken rests with Dr C as the consultant. Therefore, I find that Dr C failed to provide services to Ms A with reasonable care and skill, in breach of Right 4(1) of the Code, for not investigating the concerning feature of green discharge appropriately.

51. Dr C accepts that Ms A should have been admitted to the Maternity Unit for further assessment, instead of being discharged home.

Opinion: Health NZ — no breach

Management as inpatient

52. During Ms A's first hospital admission (for the period 3–7 Month6), she received care from multiple staff members.

53. Dr Ormandy advised that the level and frequency of monitoring of Ms A during her first hospital admission was acceptable with appropriate escalation to consultants when required. Dr Ormandy did not have any concerns about the care provided to Ms A during her first hospital admission, and I accept this advice.

Information provided and management following discharge

54. On Ms A's discharge on 7 Month6, she was advised to watch for fevers, a change in fetal movements, a change in discharge, or an increase in pain, and if these occurred, to return to hospital or contact her LMC.

55. Health NZ's PPROM treatment guideline in place at the time of the events stated:

> '• Women should have routine antenatal care with their LMC and be seen in the Antenatal Clinic at 36 weeks to discuss an induction plan. Routine investigations such as additional blood tests and scans are unlikely to be of benefit and are not recommended.

- Induction of labour is usually planned for 37 weeks gestation. Antibiotic prophylaxis in labour for group B streptococcus will be required because of prolonged ruptured membranes.'

56. Dr Ormandy advised that while it can be helpful to provide people with written information at discharge as a 'backup', she considers that the information provided to Ms A at discharge on 7 Month6 was appropriate.

57. Dr Ormandy advised that her routine practice for managing people with PPROM as outpatients is to have a plan in place for follow-up blood tests, screening for infection, or CTGs, but Health NZ's PPROM treatment guideline in place at the time of the events did not require such reviews. Dr Ormandy advised that while she would have managed the situation differently, her management is not based on strong evidence and there are no current RANZCOG[19] guidelines published in relation to PPROM. For this reason, Dr Ormandy advised that she cannot determine whether there was a departure from the accepted standard of care in relation to Ms A's management following her discharge on 7 Month6.

58. I accept Dr Ormandy's advice. I note that Health NZ has reviewed its premature rupture of membranes (PROM) guideline and that the updated guideline will include a new patient information leaflet on PPROM, a planned review within one week of discharge, and a review at 36 weeks' gestation to plan induction of labour.

59. I have recommended that Health NZ provide HDC with an update on the implementation of the new PPROM guideline.

60. Overall, I consider that the care provided by Health NZ was appropriate and that there was no breach of the Code by Health NZ.

Changes made since events

61. Health NZ implemented the recommendation in the SEA to develop a pamphlet that outlines advice for self-monitoring at home for women who have confirmed preterm rupture of membranes. A copy of the pamphlet was provided to HDC together with the updated PROM guidelines.

Recommendations

Dr C

62. I recommend that Dr C use this report as a basis for a case study presentation at Health NZ focusing particularly on the breach of the Code identified, including details of the actions/decisions taken, the results of these actions/decisions, and the appropriate course that should have been taken to arrive at a more desirable outcome. Evidence confirming the content of the presentation is to be provided to HDC within six months of the date of this report.

[19] The Royal Australian and New Zealand College of Obstetricians and Gynaecologists.

Health NZ

63. I recommend that Health NZ:

a) Include in its obstetric orientation the importance of assessing a patient with symptoms of infection in pregnancy when presenting with PPROM and provide HDC with evidence of this within six months of the date of this report.

b) Provide HDC with any further updates made in relation to the recommendations within the SEA, in particular around:

- the consideration to update the PPROM guidelines; and
- a mandatory field in the discharge summary to include communication with the LMC.

64. This information should be provided to HDC within six months of the date of this report.

Follow-up actions

65. A copy of this report with details identifying the parties removed, except the independent advisor on this case, will be sent to the Medical Council of New Zealand, and it will be advised of Dr C's name.

66. A copy of this report with details identifying the parties removed, except the independent advisor on this case, will be placed on the Health and Disability Commissioner website, www.hdc.org.nz, for educational purposes.

Appendix A: Independent clinical advice to Commissioner

The following advice was obtained from Dr Judy Ormandy:

'The Office of the Health & Disability Commissioner

5 August 2023

Dear Ms McDowell

Re Complaint [Health NZ], ref C22HDC02176

Thank you for asking me to provide an opinion in this Case (C22HDC02176). I have read the Commissioner's guidelines for independent advisors. I confirm that I have no conflict of interest.

I am a specialist Obstetrician and Gynaecologist at Te Whatu Ora Capital and Coast and Senior Lecturer in Obstetrics, Gynaecology & Women's Health at the University of Otago, Wellington. I obtained my FRANZCOG in 2012 and have worked as a specialist obstetrician and gynaecologist since 2012. I have worked in Wellington since 2020.

In writing this opinion, I have been provided with:

— Letter of complaint from [Mrs B]

— [Health NZ's] response including:

- Copies of relevant procedures, policies and guidelines at the time of the incident
- Statements from staff involved in [Ms A's] care
- Minutes from the family meeting
- Clinical records from [Health NZ] — Clinical records from LMC.

I have been asked to specifically comment on:

1. The standard of [Ms A's] obstetric care during her admission at [the public hospital] from 3 [Month6] to 7 [Month6].
2. Whether the management of PPROM by [Dr D] and the decision made to induce [Ms A] at 37 weeks was appropriate and whether [Ms A] should have been offered a caesarean section.
3. Whether the communication with [Ms A's] LMC was adequate and what information (if any) should have been provided to [Ms A] and/or her LMC.
4. Whether [Ms A] was appropriately discharged on 7 [Month6], and whether the follow-up care was appropriate.
5. The adequacy of the information and advice given to [Ms A] as part of her discharge on 7 [Month6] and the adequacy of the plans put in place following [Ms A's] discharge.

6. The adequacy of the assessment by [Dr E] at the maternity clinic appointment on 11 [Month6] and whether the actions taken were appropriate.
7. The adequacy of the information and advice given to [Ms A] during her maternity clinic appointment on 11 [Month6] and the adequacy of the plans put in place.
8. Whether the decision to discharge [Ms A] from the maternity clinic by Dr C was appropriate and whether the follow-up advice was appropriate.
9. Whether the communication with [Ms A's] LMC was adequate after [Ms A's] discharge from the clinic on 11 [Month6] and what other information, if any, should have been provided to her LMC.
10. The adequacy of the relevant policies and procedures in place at [Health NZ] at the time of the events.
11. Any other matters in this case that you consider warrant comment.

Background.

[Ms A] was a [woman in her twenties] in her first ongoing pregnancy. She had a BMI of 47. During her pregnancy, she suffered from hyperemesis. At 33 weeks+ she was admitted to [the public hospital] with Preterm Prelabour Rupture of Membranes (PPROM). She received steroids, and nifedipine and was commenced on oral erythromycin. During her admission, [Ms A] had ongoing lower abdominal pain and contractions. Her fetal heart monitoring was normal and speculum examinations indicated that her cervix was not dilating. The plan was for an induction of labour at 37 weeks, unless there was evidence of fetal compromise or [Ms A] went into labour. [Ms A] was discharged on 7 [Month6].

[Ms A] was seen in the maternity clinic on 11 [Month6] after an ultrasound scan. [Ms A] was complaining of green vaginal discharge. She was booked for an induction of labour at 37 weeks and discharged home.

On 12 [Month6] [Ms A] presented to [the public hospital] in labour. Sadly, [Baby A] had passed away in utero. [Baby A] was born still. [Ms A] required a manual removal of placenta in theatre.

Comments. I would first like to extend my condolences to [Ms A] and her whānau for the loss of [Baby A].

It appears likely that [Baby A] passed away as a complication of unrecognised chorioamnionitis. If [Ms A] had been admitted to the hospital and delivered following her maternity clinic appointment on 11 [Month6], [Baby A] would likely have survived.

Responding to each of the HDC's questions:

1. The standard of care during [Ms A's] original admission to hospital ([Month6] 3–7): [Ms A] was admitted with PPROM. She received antenatal betamethasone for fetal lung and brain maturation, nifedipine tocolysis and oral erythromycin. There was regular

monitoring of maternal and fetal condition via observations, clinical assessment and blood tests. [Ms A] had ongoing pain and contractions during her admission. She was regularly assessed by House Officers who escalated to consultants where appropriate. I believe this care was appropriate and there has not been a departure from the standard of care. Comments: Unfortunately it is not uncommon for women to have persisting contractions prior to establishing in labour. In a preterm gestation with no signs of infection or fetal distress, it would be routine to manage conservatively and offer pain relief as there is a benefit to the baby in prolonging the pregnancy.

2. The management of PPROM by [Dr D] i.e. induction of labour (IOL) at 37/40. This management is appropriate and routine care (1, 2). There was no medical indication for a caesarean section when [Dr D] reviewed [Ms A]. Standard care in a pregnant person with PPROM and no signs of fetal distress or infection would be to offer an induction of labour at 37 weeks gestation. I believe that the majority of my peers would agree with this management.

3. Information provided to [Ms A's] LMC during admission and after discharge. I will discuss the question of "information provided to [Ms A]" during my response to point 5 below. While [Ms A] was admitted to hospital her care would have been under the secondary care team. It would be courteous to keep her updated with events. Upon discharge, it would be essential that both [Ms A] and her LMC were aware of the plan of care moving forward. In the hospital notes there is a comment that the LMC was unable to be contacted as busy. However, as there is documentation in the LMC notes of a phone call from the obstetric SHO to the LMC on 7 [Month6] communicating a plan for discharge with follow-up in clinic after an ultrasound, monitoring of temperature and an IOL at 37 weeks, and it appears that a subsequent phone call was made. This is an accepted practice that my peers would view as acceptable.

4. Whether [Ms A] was appropriately discharged on 7 [Month6]. Outpatient management of pregnant people with PPROM is accepted practice (2). The [public hospital] guidelines state that this is an SMO decision and is possible if there is no evidence of labour or infection and the pregnant person is staying [locally]. While [Ms A] had no evidence of infection and lived locally and was not in labour at the time, I have reservations about her discharge given that she had ongoing abdominal pain. However, this has to be weighed up against [Ms A] wanting to go home. It appears that [Ms A] felt frustrated as she felt that the medical team were not doing anything for her pain. The ward round note documents an impression that the contractions were Braxton-Hicks contractions. It may be that the medical team felt that [Ms A] would be more comfortable at home. I would not regard this as a departure from standard practice, more of a situation where different clinicians may have managed care differently. Given [Ms A] did have some ongoing pain, I would have wanted to ensure there was a clear plan of follow up in place. I will discuss this further in point 5 below.

5. (i) Adequacy of information given to [Ms A] on discharge: [The doctor's] statement opines that [Ms A] was told to watch for fevers, a change in fetal movements, a change in discharge or an increase in pain and if these occurred then she was to return to

hospital or contact her LMC. This is supported by the information provided in [Mrs B's] complaint letter saying that [Ms A] was told to monitor her temperature and discharge. I regard the information given to [Ms A] at discharge as appropriate and not a departure from an accepted practice. Further comment. It can be helpful to provide people with written information as backup. It appears that [Health NZ] now has a patient information leaflet on PPROM as there is a link to this in their updated PPROM guidelines.

(ii) Adequacy of plans in place after [Ms A's] discharge. [Ms A] was to be followed up after an ultrasound scan on 11 [Month6]. I regard this as an acceptable time for her to be followed up after her discharge. I was surprised that there was no plan in place for follow-up of blood tests screening for infection or CTGs as this has always been part of my routine management when managing people with PPROM as an outpatient. As noted by [Mrs B] in her complaint letter, these are recommended in Auckland, Wellington and Christchurch protocols. (I have worked in both Christchurch and Wellington and have reviewed Auckland's protocol.) The [public hospital's] protocol at the time of [Ms A's] pregnancy did not require these reviews. I have reviewed the NICE guidelines (2) and they opine: "A combination of clinical assessment, maternal blood tests (C-reactive protein and white cell count) and fetal heart rate should be used to diagnose chorioamnionitis in women with PPROM; these parameters should not be used in isolation". This advice is graded as evidence level 4, strength D. This means that the evidence is based on consensus opinions and recommendations, rather than clinical trials. This is reflected in the conflicting evidence in the medical literature as to the usefulness of the laboratory tests of a full blood count (looking for raised white cells) and a C reactive protein (CRP) in predicting chorioamnionitis. CRP appears to be the most predictive (3), but a meta-analysis found that CRP has a sensitivity of only 69% and a specificity of only 77% in diagnosing histologically proven chorioamnionitis (4). While I would have managed the situation differently, it is difficult to criticise somebody for not doing something that has not been shown to be helpful in the medical literature. An advantage of reviewing somebody twice a week is that it is an opportunity to look at the overall picture which includes symptoms, clinical observations, blood tests and a CTG and by not routinely doing this, [Health NZ] lost this opportunity. I note that the updated guidelines I have been provided with (not yet approved) include a new patient handout on PPROM, a planned review within one week of discharge and a review at 36 weeks to plan induction of labour. I have been asked whether the standard of care was appropriate. The clinicians involved followed [the district health board's] guidelines. There are no current RANZCOG guidelines published on PPROM. While some of my peers and I would manage this situation differently, our management is not based on strong evidence. Therefore, I cannot say that there has been a departure from the standard of care.

Maternity Clinic Appointment 11 [Month6]

6. [Dr E's] assessment.

[Dr E] notes that [Ms A] had developed a green discharge. She had not been checking her temperature frequently at home. She has recorded that [Ms A] was afebrile and had

a soft abdomen. I cannot find the pulse documented. The ultrasound showed oligohydramnios and there was difficulty obtaining measurements of the baby. When somebody has ruptured their membranes, it is normal to find oligohydramnios so the ultrasound finding of oligohydramnios is to be expected. Ultrasound creates images by using sound waves to create a picture of the baby. Sound waves travel better through fluid (such as amniotic fluid) and less well through solid tissue. The combination of oligohydramnios and [Ms A's] high BMI would make it difficult to get good scanning images and measurements.

However, the presence of green discharge raises concern for the development of chorioamnionitis. This is a significant "red flag" symptom. At the least, I would have expected a full set of maternal observations, a speculum examination to review the discharge and for swabs to be taken and blood tests assessing the white cell count and CRP. Even if all of these observations were normal, it would have been appropriate to admit [Ms A] to the maternity unit. Chorioamnionitis can present subtly and can develop rapidly. [Dr E] discussed [Ms A's] presentation with Dr C, [Dr E's] supervising consultant in the maternity clinic.

[Dr E's] management of sending [Ms A] home and booking an induction for 37 weeks was incorrect. However, overall responsibility for the management lies with [Dr C] as [Dr E's] supervising consultant. In [Month6], [Dr E] was post-graduate year … Her letter states that she worked as an obstetrics and gynaecology house officer for … months but I am uncertain how far into the … placement she was at the time of these events. When judging whether she departed from an acceptable standard of care, it is important to make this judgement based on how peers of [Dr E] would act, not how a consultant obstetrician and gynaecologist would act. If [Dr E] was early in her O&G rotation, I would expect a high level of oversight from [Dr C] but if she had already completed a year of O&G, a lesser degree of oversight would be appropriate. Without knowing the extent of the conversation between [Dr E] and [Dr C], it is difficult to assess the extent or whether her practice deviated from acceptable care. I note that [Dr C] has accepted responsibility for the decision in his letter to the Health and Disability Commissioner.

7. The adequacy of the information given to [Ms A]. [Ms A] was told to monitor her temperature three times a day and to re-present if her temperature increased or if she felt unwell. She was booked for an induction of labour. I can surmise that this advice would be confusing for [Ms A] given that no change in management had occurred when she reported abdominal pains and a change in her vaginal discharge. The issue here is not how adequate the information was, but that [Ms A] was discharged home when she should have been admitted to hospital.

8. [Dr C's] decision to discharge [Ms A] from the maternity clinic. [Dr C's] decision to discharge [Ms A] was incorrect. [Ms A] likely had chorioamnionitis as evidenced by her green vaginal discharge. She may have been in early labour. The crux of this case is that [Ms A] was incorrectly discharged from her maternity assessment on 11 [Month6]. Had she at that point been admitted to hospital and delivery via induction of labour or caesarean section occurred, it is likely that [Baby A] would have survived. Green

discharge signifying chorioamnionitis is not a difficult clinical diagnosis to reach. It is a straightforward diagnosis for an obstetrician and [Dr C] states that he cannot understand why he made this error. This is a severe departure from accepted practice. [Dr C] has acknowledged this in his letter to the HDC and I believe in his meeting with [Ms A] and her family.

9. Communication with [Ms A's] LMC. [Dr E] phoned [Ms A's] LMC after the antenatal clinic appointment and a letter was dictated to her. This is appropriate and accepted practice.

10. Adequacy of Procedures and Policies at [Health NZ]. As discussed in Point (5) above, the policy at [the public hospital] differs from policies at Auckland, Wellington and Christchurch hospitals. At a wider systems level, one hopes that with a single overarching health authority in [Health NZ], there will be more consistency in clinical management policies across hospitals in Aotearoa and patient care can be more standardised. This is not a criticism of [Health NZ], merely an observation. I commend [Health NZ] for reviewing their policy on PPROM and hope that the document I was provided with has now been finalised.

11. Any other matters. I again extend my condolences to [Ms A] and her whānau. I acknowledge that this case has also had profound implications for the clinicians involved.

We know that all clinicians make errors and errors occur frequently in a healthcare setting (5). It would not have been a knowledge deficit on [Dr C's] part that caused the error of [Ms A] being discharged from her maternity clinic appointment on 11 [Month6]. To prevent similar tragedies from recurring, assessing what "human factors" were at play would be useful. Human factors are the link between knowledge, the environment in which we work, personal circumstances and communication between team members (6). I can only hypothesise as to what human factors may have contributed to [Dr C's] management decisions, but these can include workload, fatigue, distraction or recent experiences. We need systems that will detect the errors that will inevitably occur in order for patient harm to be prevented. While as individual practitioners we must take responsibility for our management decisions, it is my personal hope that, as a community of healthcare providers, we can move beyond an adversarial practice of blaming individuals and look at the wider system that allows diagnostic errors and adverse outcomes to continue. This needs to happen if we are to prevent tragic outcomes such as the passing of [Baby A].

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1. Bond DM, Middleton P, Levett KM, van der Ham DP, Crowther CA, Buchanan SL, et al. Planned early birth versus expectant management for women with preterm

prelabour rupture of membranes prior to 37 weeks' gestation for improving pregnancy outcome. Cochrane Database Syst Rev. 2017;3(3):CD004735.

2. Thomson AJ, Royal College of Obstetricians and Gynaecologists. Care of Women Presenting with Suspected Preterm Prelabour Rupture of Membranes from 24(+0) Weeks of Gestation: Green-top Guideline No. 73. BJOG. 2019;126(9):e152-e66.
3. Caloone J, Rabilloud M, Boutitie F, Traverse-Glehen A, Allias-Montmayeur F, Denis L, et al. Accuracy of several maternal seric markers for predicting histological chorioamnionitis after preterm premature rupture of membranes: a prospective and multicentric study. European Journal of Obstetrics & Gynecology and Reproductive Biology. 2016;205:133–40.
4. Cataño Sabogal CP, Fonseca J, García-Perdomo HA. Validation of diagnostic tests for histologic chorioamnionitis: Systematic review and meta-analysis. Eur J Obstet Gynecol Reprod Biol. 2018;228:13–26.
5. Institute of Medicine Committee on Quality of Health Care in A. In: Kohn LT, Corrigan JM, Donaldson MS, editors. To Err is Human: Building a Safer Health System. Washington (DC): National Academies Press (US.); 2000.
6. Nzelu OC, E. Pereira, S. Human Factors: The Dirty Dozen in CTG misinterpretation. Glob J Reprod Med. 2018;6(2):555683.'