Canterbury District Health Board

Obstetrician and Gynaecologist, Dr C

Obstetrician and Gynaecologist, Dr D

Obstetrician and Gynaecologist, Dr E

A Report by the

Health and Disability Commissioner

(Case 15HDC01761)

Health and Disability Commissioner
Te Toihau Hauora, Hauātanga

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Executive summary

1. Ms A became pregnant in July 2014. Sadly, on 4 September 2014 an ultrasound confirmed a non-viable pregnancy.

2. Ms A presented to Canterbury District Health Board (CDHB) with pelvic pain and vaginal bleeding in early October 2014. She went on to experience ongoing complications that did not subside until May 2015.

3. During this time, Ms A was admitted to hospital at least six times — four were acute visits, and she received care from no less than seven individual providers. During the course of her care, Ms A experienced an infection, and required two blood transfusions. She continued to bleed, and the cause of the bleeding was not assessed adequately until eventually she required activation of the major haemorrhage protocol and admission to ICU on 8 March 2015.

Findings

CDHB

4. The Commissioner was critical that over a prolonged period of time, many CDHB staff did not assess the cause of Ms A's ongoing bleeding adequately, and did not treat it effectively until she became significantly unwell and required ICU care. Ms A was not provided services with reasonable care and skill, and CDHB was found to have breached Right 4(1) of the Code of Health and Disability Services Consumers' Rights.[1]

Dr D

5. Individual criticism of Dr D was made for having not ordered an ultrasound on 27 October 2014.

Dr C

6. Individual criticism of Dr C was made for having not taken the opportunity to order an ultrasound in October, and, in particular, in December 2014 in light of Ms A's history of ongoing bleeding and infection.

Dr E

7. Individual criticism of Dr E was made for having not checked Ms A's haemoglobin on the morning of 8 March 2015.

Recommendations

8. It was recommended that CDHB provide HDC with a copy of its audit plan for the previous year (2017–2018) reflecting the changes made to CDHB's policy on miscarriages. It was also recommended that CDHB provide a written apology to Ms A.

[1] Right 4(1) states: "Every consumer has the right to have services provided with reasonable care and skill."

Complaint and investigation

9. The Commissioner received a complaint from Ms A about the care provided to her by Canterbury District Health Board (CDHB).

10. The following issues were identified for investigation:

- *Whether Ms A was provided with an appropriate standard of care by Canterbury District Health Board in 2014 and 2015.*
- *Whether Ms A was provided with an appropriate standard of care by Dr C in 2014 and 2015.*
- *Whether Ms A was provided with an appropriate standard of care by Dr E in 2014 and 2015.*
- *Whether Ms A was provided with an appropriate standard of care by Dr D in 2014 and 2015.*

11. The key parties referred to in the report are:

Ms A	Consumer/complainant
Canterbury District Health Board	Provider
RN B	Registered nurse (RN)
Dr C	Provider/obstetrician and gynaecologist
Dr D	Provider/obstetrician and gynaecologist
Dr E	Provider/obstetrician and gynaecologist

Also mentioned in this report:

Dr J	obstetrician and gynaecologist
Dr K	Gynaecologist and fertility specialist

12. Information from RN F, registrar Dr G, obstetrician and gynaecologist Dr H, anaesthetist Dr I, and ACC was also reviewed.

13. Independent expert advice was obtained from an obstetrician/gynaecologist, Dr Sornalatha Vasan (Appendix A).

Information gathered during investigation

Introduction

14. In July 2014, when she was 34 years old, Ms A became pregnant for the first time.

15. On 26 August 2014, Ms A had some bleeding, and an ultrasound scan arranged by her lead maternity carer (LMC) showed some bleeding behind the gestational sac,[2] and no fetal heart activity was seen. On 4 September 2014, an ultrasound confirmed a non-viable pregnancy.[3] On 22 September 2014, Ms A was referred by her GP to the Early Pregnancy Assessment Service (EPAS) at CDHB.

EPAS visit

16. On 23 September 2014, Ms A was seen at the hospital by an EPAS clinic nurse, RN F. An ultrasound confirmed the diagnosis of a missed miscarriage (the identification of a failed pregnancy before 20 weeks' gestation in the absence of signs or symptoms suggesting that the body is expelling the failed pregnancy).

17. The management options in relation to a missed miscarriage are:

i. Conservative or expectant management where pregnancy hormone levels are monitored and the miscarriage is allowed to occur naturally — up to two-thirds of women will have an empty uterus by the end of four weeks, but up to one-third will go on to require medical intervention.

ii. Medical management, which involves using the medication misoprostol, which causes contraction of the uterus to assist the natural passing of pregnancy tissue.

iii. Surgical management, which involves the removal of pregnancy tissue from the uterus using a curette and/or suction.

18. Ms A elected to have conservative management and await a spontaneous miscarriage. She told HDC:

> "In regards to the management of my case by EPAS in September 2014 the nurse that was in charge of my case did provide me with a brochure stating my options how to deal with missed miscarriage at that point and those were also discussed with me and [my now] ex partner who was there with me. Both of us agreed (definitely my preference) that conservative management at that stage would be the best and also the least invasive option. At that time we also agreed on weekly follow up calls as there was a time frame for natural miscarriage to occur and if spontaneous miscarriage had not occurred during that time other options would have been considered. She did regular follow up calls with me as discussed and the natural miscarriage took place within their recommended time frame in the end."

ED presentation

19. At 4am on 3 October 2014, Ms A presented to the hospital Emergency Department (ED) with vaginal bleeding and pain. She passed some clots, and the bleeding settled. She was discharged home for follow-up with her GP, but on the way home she had some more bleeding and returned to the hospital.

[2] Cystic structure of early pregnancy that represents the amnionic sac, fluid, and placenta.
[3] A pregnancy that has failed to progress and will not progress (a failed pregnancy).

Gynaecology Assessment Unit

20. At 8.40am on 3 October 2014, Ms A was seen by RN B at the Gynaecology Assessment Unit (GAU). RN B discussed Ms A's care with a registrar. It was noted that the ultrasound performed on 23 September had shown a persistent gestational sac.[4] Ms A passed more clots and then her bleeding settled enough for her to be discharged. She was advised to see her GP in two weeks' time. No vaginal examination took place.

Call to GAU

21. On 9 October, Ms A rang the GAU at 3.30pm to report an increase in her bleeding. A nurse wrote the following in the notes:

> "Was seen [one week ago] for miscarriage … patient advised to see GP … still bleeding after miscarriage."

22. Ms A was advised to monitor the blood loss and to telephone back in an hour's time. Ms A did so and reported that she had changed two pads, but that the bleeding had settled and the pain had reduced. She was told to contact her GP or the GAU, or the ED after hours, if she had further bleeding.

Admission, 12 October 2014

23. On 12 October 2014, Ms A was admitted to GAU acutely, on referral from her GP. She was unwell with fevers, chills, rigors, and abdominal pain and bleeding. Retained products of conception (POC)[5] were removed from her cervix, and she was treated with intravenous antibiotics for 48 hours.

24. An ultrasound was performed, and the sonographer's provisional report found that there were "3 pieces of vascular retained POC" in the uterus.[6] On the basis of this report, a single dose of misoprostol[7] was administered to assist the uterus to pass the remaining POC.

25. At 9pm on 12 October 2014, a senior house officer saw Ms A and recorded that following the administration of misoprostol she had had some bleeding and lower abdominal cramps, and they "believed that she may be passing more than just blood". However, it is noted that in response to the provisional opinion, Ms A stated that the records are incorrect, and that the misoprostol had "absolutely no effect on [her]".

[4] Part of the tissue associated with early pregnancy which, in a healthy pregnancy, contains the developing embryo.
[5] Fragments of fetal, placental, or membrane tissue remaining in utero following delivery or abortion, posing an increased risk of bleeding or infection.
[6] The formal ultrasound report supported the provisional finding of retained POC.
[7] Medical management of miscarriage with misoprostol has become a standard and effective option for women who present with miscarriage.

13 October

26. On 13 October 2014, Ms A was seen by a registrar. The notes record a diagnosis of sepsis[8] secondary to retained POC, with Group G Streptococcus having been isolated from a blood culture.

27. Ms A improved clinically, with reduced bleeding and fever, and was discharged on oral antibiotics (erythromycin).

Referral back to hospital

28. Ms A saw her GP on 24 October 2014, and a pelvic ultrasound carried out that day again showed retained POC. Ms A was referred back to the hospital.

29. At 3am on 26 October 2014, Ms A was readmitted to the CDHB GAU with heavy bleeding and clots. Further tissue was removed from her cervix and confirmed as POC on histological examination.

Dr C review

30. Ms A's haemoglobin[9] (Hb) fell overnight (from 97g/L to 69g/L). Her beta hCG[10] was 134 IU/L. She was reviewed by obstetrician and gynaecologist Dr C, and was transfused with two units of red blood cells and administered another dose of misoprostol. Ms A's temperature rose to 38.6°C, and intravenous antibiotics (cefuroxime and metronidazole) were commenced.

Dr D review

31. The following day, 27 October, Ms A was examined by obstetrician and gynaecologist Dr D. He removed a small clot from the vagina and noted that the cervix was closed and the uterus normal size, with minimal bleeding. He diagnosed a complete miscarriage and wrote "No FUP USS" (no follow-up ultrasound) in the notes. Ms A was given a further unit of blood and discharged on 28 October 2014 with GP follow-up recommended.

32. On 4 December 2014, Ms A's GP referred her to the GAU on account of on-going spotting and the lack of resolution of her beta hCG levels.

Further review by Dr C

33. On 17 December 2014, Ms A was seen again by Dr C, but not examined. He concluded that Ms A probably had some retained POC, which "the body [was] dealing with naturally". He advised conservative management and follow-up of her beta hCG levels in four weeks' time.

[8] The body's overwhelming and life-threatening response to infection, which can lead to tissue damage, organ failure, and death.
[9] A protein in red blood cells that carries oxygen throughout the body.
[10] Beta hCG is a hormone produced by the placenta in early pregnancy. Peak values vary but most peak at about 100,000 mIU/L. When a pregnancy fails, the beta hCG falls back to a non-pregnant level.

DHB2 visit, December 2014

34. In late December 2014, Ms A visited another region, and whilst there had a sudden, significant episode of vaginal bleeding. She attended the ED at the public hospital, and subsequently was admitted under gynaecological care.

35. An ultrasound found an area of increased blood flow on the anterior wall[11] of the uterus, which was noted as being "most in keeping with a low flow arteriovenous malformation" (AVM).[12] Ms A's haemoglobin was measured as 127g/L.

36. Ms A's bleeding settled and she was due to return home the following day, so was discharged with a prescription for tranexamic acid[13] (to help to reduce her bleeding) and advised to see her GP for follow-up.

37. On 12 January 2015, Ms A was referred by her GP again with further vaginal spotting since the miscarriage. Her GP also queried whether a hysteroscopy[14] was needed.

17 February 2015 onwards

38. On 17 February 2015, Ms A was again seen by Dr C in the outpatient clinic. It was noted that her hCG levels had been 2 IU/L on 25 January 2015. A pelvic ultrasound was requested for four weeks' time, with follow-up in six weeks' time. Dr C told Ms A that a hysteroscopy would not be of likely benefit at that point. He prescribed Provera[15] (to treat the spotting), but this was not taken by Ms A.

39. On 6 March 2015 in the early hours of the morning, Ms A presented acutely to ED with very heavy bleeding. She reported increased bleeding and crampy pain over the last week. She was treated with intravenous tranexamic acid and reviewed by the gynaecology team. Once the bleeding had settled she was allowed to go home but was to return to GAU later in the morning for a scan. The ultrasound again suggested a possible AVM, and differential diagnoses of retained POC or gestational trophoblastic disease[16] were recorded. Ms A was treated with intravenous antibiotics.

40. Ms A's care was discussed with consultant obstetrician/gynaecologist Dr E, who suggested admission for a radiological opinion, which occurred that day. The following day, Ms A was seen by consultant obstetrician/gynaecologist Dr H, who noted that Ms A had been in contact with a gynaecologist from her home country, who had advised that the most likely diagnosis was retained POC.

[11] The front wall of the uterus closest to the abdomen.
[12] An abnormal connection between an artery and a vein.
[13] A drug that slows down the natural breakdown of blood clots and can be used to treat heavy menstrual bleeding.
[14] A procedure whereby the cervix is dilated so that the interior of the uterus can be viewed.
[15] A hormone used to treat abnormal uterine bleeding.
[16] A group of conditions in which tumours grow inside a woman's uterus (womb).

41. On 7 March 2015, Ms A had a brisk bleed of 300mls of blood (although Ms A's recollection was that it was "definitely more than 300ml"), accompanied by abdominal pain. She was treated with tranexamic acid, and an arteriogram[17] was arranged. The procedure was difficult, but radiological opinion was that there did not appear to be an AVM, although there were two bleeding points. Post bleed, Ms A's haemoglobin was 119g/L.

42. Dr H reviewed Ms A at 10.30pm. The pros and cons of embolising[18] the uterine arteries were discussed, but in view of the potential effect on fertility this was declined by Ms A. The possibility of an operation to evacuate the uterus the following day was raised. This was to be decided by the specialist on call on 8 March 2015.

Dr E's review

43. On 8 March 2015 at 6.30am, Ms A was reviewed by a senior house officer and a registrar. It was noted that Ms A had had a slight increase in bleeding. She was reviewed again at 10am by Dr E. Ms A was still bleeding, although at an "acceptable" level. Dr E noted the haemoglobin levels from the previous two days (119g/L and 130g/L respectively) and suggested that she have an examination under anaesthetic and a hysteroscopy the following day. Ms A's haemoglobin levels were not re-checked by Dr E.

44. Later that day, Ms A had another substantial bleed at 4.20pm. Registrar Dr G reviewed her, and it was decided to take her to theatre that evening for an urgent hysteroscopy and D&C.[19] Her preoperative haemoglobin was found to be 84g/L.

Theatre

45. Ms A was acutely unwell when transferred to theatre at 6.30pm. A major haemorrhage protocol was activated. She received five units of blood, four units of fresh frozen plasma, and three units of cryoprecipitate.[20]

46. Dr E's notes of the procedure described the appearance of calcified POC, which were removed. Histology subsequently confirmed the presence of POC. There was no evidence of an AVM.

47. Ms A was transferred to ICU overnight for high dependency nursing care. She received IV antibiotics and made a good recovery, with no further significant bleeding.

48. Ms A was transferred to GAU later on 9 March, and discharged on 12 March on oral antibiotics. A scan on 22 April showed a normal uterus, and her periods had returned to normal, although heavy. She was seen by Dr D for follow-up on 1 May 2015. A further scan

[17] Imaging of blood flow in the arteries using a CT scan and injection of a contrast agent.

[18] Injection of particles into the uterine arteries via a catheter inserted in the groin, with the aim of reducing blood flow to the uterus by blocking the arteries.

[19] Dilation and curettage is a medical procedure in which the uterine cervix is dilated and a curette (a surgical instrument that has a scoop, ring, or loop at the tip) is inserted into the uterus to scrape away the endometrium.

[20] A blood product extracted from frozen plasma, which is rich in clotting factors and may be used to promote clotting in cases of severe haemorrhage.

on 27 May 2015 showed a normal uterus, and she was well when she attended a clinic visit on 28 May 2015. Future fertility and pregnancy were discussed.

Response from CDHB

49. CDHB sought an independent review from obstetrician and gynaecologist Dr J. Dr J stated the following:

a) On 3 October 2014, when Ms A was seen by RN B, her blood loss should have been measured, and a vaginal examination should have been performed. The care was suboptimal.

b) By 9 October 2014, Ms A's presentation with crampy pain and bleeding was consistent with retained POC. There were opportunities to diagnose Ms A on 12 October 2014, 26 October 2014, 27 October 2014, 28 October 2014, and 9 December 2014.

c) On 9 December 2014, a vaginal scan to assess the uterine cavity and endometrium would have been appropriate, or a decision to proceed to a hysteroscopy and curettage.

50. Dr J made several recommendations, including:

a) Vaginal examinations should be undertaken when women are admitted with vaginal bleeding, unless the diagnosis is absolutely certain and the examination would not alter management.

b) Women with a diagnosis of septic miscarriage should have a surgical evacuation of the uterus, once their sepsis has been treated with antibiotics and any resuscitative measures undertaken.

c) Whilst caution in proceeding to evacuation of retained POC is appropriate where an AVM is suspected, unless there is certainty that the uterus is empty, it should be performed.

51. CDHB implemented all of Dr J's recommendations.

52. CDHB told HDC that it accepts the following:

a) Ms A should have received a vaginal examination on 3 October 2014.

b) In hindsight, by 26 October 2014 there was evidence of POC, and more careful consideration should have been given to the surgical option. CDHB accepts that the care provided was sub-optimal.

c) A complete miscarriage is diagnosed by either total conceptus being viewed by medical staff or histologically[21] confirmed products of conception having been passed and an ultrasound confirming an empty uterus.

[21] Microscopic examination of the tissue to determine its origin.

d) Women with a diagnosis of septic miscarriage should have a surgical evacuation of the uterus once their sepsis has been treated with antibiotics and once any resuscitative measures have been undertaken. CDHB's policy has been amended to reflect this change, and this will now form a part of its audit plan.

e) Discharging Ms A on 17 December 2014 with no follow-up in the presence of abnormal bleeding was sub-optimal care.

f) Staff should be aware that retained POCs are a much more common diagnosis than an AVM, and that an AVM is less likely to cause abdominal pain.

53. CDHB further advised the following:

a) Vaginal examinations are presently indicated in CDHB gynaecology guidelines, and this will be emphasised more thoroughly in orientation for new resident medical officers and made available on CDHB's internal website.

b) An "intentional rounding" process has been implemented where nurses pro-actively visit all patients every two hours within the Gynaecology Assessment Unit. CDHB has also implemented early warning scores and a referral pathway for patients with vaginal bleeding who are admitted from ED.

c) Detailed guidelines regarding the management of AVM have been disseminated. These make it clear that a hysteroscopy, if performed, should confirm absence of AVM and presence of retained POC on direct visualisation before subsequent removal of retained POC by D&C.

d) An improved system has been introduced for recording blood loss.

Response from Dr C

54. Dr C told HDC that on 17 December 2014 Ms A's symptoms were settling and, in anticipation of a complete resolution, he was comfortable with her GP providing on-going follow-up, with referral to the DHB if appropriate.

55. Dr C advised HDC that he has changed his practice to ensure that there is complete resolution of the presenting complaint within the hospital outpatient setting prior to discharging a patient to GP care.

Response from Dr D

56. Dr D sought advice from Dr K, a gynaecologist and fertility specialist. Dr K stated the following:

a) It is sometimes not necessary to order an ultrasound to confirm a complete miscarriage. There is an onus on clinicians to avoid unnecessary investigation of patients to prevent undue stress on imaging services and to minimise the level of invasiveness for patients.

b) Opinion would be divided among gynaecologists as to whether an ultrasound would have been ordered for Ms A in these circumstances.

c) Most gynaecologists would feel more comfortable being able to rely on a confirmatory ultrasound in circumstances such as Ms A's.

d) Some gynaecologists would be happy to rely on clinical findings on examination, and, if the bleeding has slowed down, to discharge the patient after reasonable observation.

e) If Ms A's care is deemed to be a departure from an acceptable level of care, he would consider this to be a mild departure at most.

57. Dr D told HDC the following:

a) On 27 October 2014, surgical management was discussed with Ms A but not offered. He recalls that Ms A did not want surgical intervention at the time.

b) He considers that he provided appropriate care to Ms A, and that this is supported by the opinion of Dr K.

c) Since the complaint, he has prospectively audited his clinical notes or proofread notes written on his behalf, to ensure that an accurate and contemporaneous record of events is kept, which fully captures the extent of his discussion with patients.

d) He has set up regular monthly morbidity review meetings within the department, which give an overview of difficult cases across all the obstetric and gynaecology teams.

e) It is common practice for reviews of clinical guidelines to take place every three years.

f) If a clinical guideline is out of date, there is an expectation that clinicians keep up to date with their medical knowledge and be guided by the latest evidence-based practice.

g) When he saw Ms A in October 2014, the DHB guideline on the management of miscarriage (discussed in more detail below) was already in the process of being re-written, as it was due to be updated.

h) The 2006 guideline was obsolete and wholly inadequate in content to guide safe clinical practice at the time (2014), and this guideline ought not to be used to assess the standard of care.

Relevant standards

58. CDHB's 2006 guideline "Early Pregnancy Loss (Miscarriage)" included the following:

- The definition of "complete miscarriage" is: "All products of conception have been spontaneously miscarried."

- The diagnosis of complete miscarriage is: "Either total conceptus has been viewed by medical staff or historically confirmed POC have been passed and USS [ultrasound] shows an empty uterus."
- The guideline for management is: "Dilation and Curettage should be offered (especially if over seven weeks gestation). Alternative option is to await the spontaneous completion of the miscarriage. The patient should be advised to return to GAU should this not occur and/or she continues to have persistent vaginal bleeding."

59. The new "Miscarriage" guideline (July 2015) notes:

- "Complete miscarriage: refers to complete expulsion of pregnancy tissue from the uterus; evidenced clinically by reduction in pain, vaginal bleeding, size of uterus and closed or closing cervix."

60. Management options are noted as:

- "Expectant management — to be used as a first-line management strategy for the first 14 days in women with a confirmed diagnosis of miscarriage if she so desired after counselling. The total time period for expectant management should not exceed 4 weeks. This is not advised if there is evidence of infection."
- "Medical management — (administering misoprostol) noted to be an effective treatment for confirmed first trimester missed miscarriage or retained products of conception following incomplete miscarriage."
- Surgical management: "Surgical uterine evacuation for miscarriage should be performed using suction curettage and not sharp curettage as the risk of complications is lower."

Responses to provisional opinion

61. The parties were all given the opportunity to respond to relevant sections of my provisional opinion.

62. Ms A raised some issues, which have been incorporated into the report where relevant.

63. CDHB's response has been incorporated into the report where relevant. CDHB has accepted the opinion and the recommendations. It stated that work is underway to review and potentially update its Miscarriage Guideline to ensure that the guidance around management of bleeding with retained products of conception is as clear as possible, and there is a link to the AVM Guideline.

64. Drs E and D raised some issues, which have been incorporated into the report where relevant.

65. In relation to the care he provided on 8 March 2015, Dr E stated that checking haemoglobin alone would not have helped to prevent Ms A from going into shock later that day. He contended that throughout that morning her blood loss was assessed appropriately.

66. Dr C did not provide any further comment.

Opinion: Dr D — adverse comment

67. On 27 October 2014, Ms A was seen by Dr D prior to her discharge. He diagnosed a complete miscarriage and no hysteroscopy was sought. Dr D documented that no follow-up with an ultrasound would be required.

68. The guidelines in place at the time of Ms A's care were the 2006 guidelines, which specify that a complete miscarriage is not confirmed until either total conceptus has been viewed by medical staff, or histology has confirmed that POC have been passed and an ultrasound shows an empty uterus. Likewise, CDHB accepts this as the way to diagnose a complete miscarriage.

69. I note that the guidelines at the time were being reviewed, as they were not completely up to date clinically. Dr D was aware that the guidelines were out of date, and told HDC that there is an expectation that clinicians keep up to date with their medical knowledge and be guided by the latest evidence-based practice. I accept this. Although the 2006 guidelines were technically still in place, and any draft guidelines not yet in effect, I acknowledge that they were under review and not necessarily clinically up to date.

70. Dr D obtained a peer opinion in relation to the standard of care he provided. Dr K stated that sometimes it is not necessary to order an ultrasound to confirm a complete miscarriage. He referred to the current CDHB guidelines, which define a complete miscarriage as being "evidenced clinically by a reduction in pain, vaginal bleeding, and the size of uterus and closed or closing cervix". He stated that seeking an ultrasound after every miscarriage would put undue strain on services.

71. I note, however, that in several respects Ms A's clinical history differed from standard clinical history. Ms A had received a blood transfusion and had been treated for sepsis.

72. Dr K stated that opinion would be divided among gynaecologists about whether an ultrasound should have been ordered for Ms A on 27 October 2014. He considers that some gynaecologists would rely on clinical findings and would be willing to discharge a patient after a period of observation. I note Dr K's opinion that most gynaecologists would

feel more comfortable relying on a confirmatory ultrasound, given Ms A's medical history. He stated that if this is deemed to be a departure from an acceptable level of care, he would consider it to be a mild departure at most.

73. My expert advisor, Dr Vasan, acknowledges that clinically it appeared that Ms A had experienced a complete miscarriage. Dr Vasan advised that although there were clinical indications of a complete miscarriage, as Ms A had experienced recurrent bleeding and POC had been confirmed earlier by ultrasound, it was important, at the very minimum, to order a further ultrasound to confirm whether a complete miscarriage had now occurred. Dr Vasan considers that not doing so represents a moderate departure from the expected standard of care.

74. Dr Vasan advised HDC that her peers would agree that in the presence of sepsis an incomplete miscarriage has to be managed either by surgical evacuation or by way of reliable investigations (such as an ultrasound) to confirm complete miscarriage before discharge of the patient. Although the incidence of first trimester miscarriages is very common, the need for imaging must be prioritised individually. Sepsis is a significant factor for maternal morbidly and mortality.

75. I also note that CDHB's independent reviewer, Dr J, stated the following:

> "At the very least a vaginal scan to assess the uterine cavity and endometrium would have been appropriate, or indeed a decision to proceed to the definitive diagnostic (and therapeutic) option of hysteroscopy and curettage, could have been made."

76. Dr Vasan advised:

> "With evidence of infection it was imperative to take adequate measures to confirm uterus was empty. She had an admission a week ago with infection, RPOC [retained products of conception] and elevated beta HCG. She was managed with IV antibiotics and sent home.
>
> With recurrent bleed and US [ultrasound] reporting RPOC it was important to at least order US even if clinically she appeared to have had complete miscarriage since she spiked temperature in this admission and was started on antibiotics.
>
> Prompt Surgical evacuation (after stabilization with appropriate antibiotic treatment) is indicated in the presence of infected products of conception or ongoing vaginal bleeding (CDHB miscarriage guidelines/RANZCOG/RCOG guidelines of miscarriage management)."

77. I consider that there is consensus that most gynaecologists would have carried out an ultrasound in the circumstances of Ms A's presentation on 27 October 2014.

78. As Ms A's bleeding continued unresolved at numerous consultations with DHB staff, it is clear from Dr Vasan's advice that at some point an ultrasound should have been carried

out. In balancing the three peer opinions before me, and the circumstances of this case, I consider that an ultrasound was indicated at this stage. I acknowledge the relevance of the new draft guidelines on his decision-making at the time, but I am critical that Dr D did not order an ultrasound in all the circumstances. I note that Dr D has reflected on these events, and has set up regular monthly morbidity review meetings within the department, which give an overview of difficult cases across all the obstetric and gynaecology teams.

Opinion: Dr C — adverse comment

79. Ms A was first diagnosed with retained POC in October 2014. Following this, Dr C provided care to Ms A on several occasions.

80. Dr Vasan advised that Ms A's medical treatment with misoprostol on 26 October 2014 with no ultrasound confirmation that the miscarriage was complete was contraindicated. He said that in his view this was "suboptimal care".

81. In addition, Dr C saw Ms A on 4 December 2014 when she presented with hCG levels that were slow to resolve. Dr C saw Ms A again on 17 December 2014. She still had on-going bleeding, but was not examined physically. Dr C noted that her uterus still likely retained POC but that this appeared to be resolving naturally. He discharged her advising conservative management and follow-up of her beta hCG levels in four weeks' time.

82. I note that Dr C told HDC that on 17 December 2014 Ms A's symptoms were settling and, in anticipation of a complete resolution, he was comfortable with her on-going follow-up to be with her GP, with referral to the DHB if appropriate. Dr Vasan advised, however, that in the presence of ongoing abnormal bleeding and a history of infection requiring inpatient admission, IV antibiotics, and blood transfusion, a pelvic ultrasound was warranted to rule out retained products of conception. As Ms A's bleeding continued unresolved at numerous consultations with DHB staff, it is clear from Dr Vasan's advice that at some point an ultrasound should have been carried out. I am critical that Dr C did not take the opportunity to order an ultrasound in October, and, in particular, in December 2014 in light of Ms A's history of ongoing bleeding and infection. I note that he has changed his practice to ensure that a patient's presenting complaint has been completely resolved within the hospital outpatient setting prior to discharging the patient to her GP.

Opinion: Dr E — adverse comment

83. Dr E saw Ms A in the morning of 8 March 2015. She was bleeding at what was noted to be an "acceptable level", although at 6.30am it had been noted that she was bleeding slightly more than usual. Dr E suggested that she undergo a hysteroscopy. By this date, Ms A had

experienced vaginal spotting and episodes of heavy vaginal bleeding for some months, and attempts at diagnosing the source of the bleeding had been unsuccessful. Dr E checked Ms A's haemoglobin levels from the previous two days (119g/L on 7 March 2015 and 131g/L on 6 March 2015), but a further test was not taken at that time.

84. Dr Vasan has advised that Ms A's blood loss on 8 March 2015 was not assessed appropriately, as her haemoglobin was not checked that morning. In Dr Vasan's opinion, this was suboptimal. I accept that advice and am concerned that Dr E, as the consultant who viewed her that morning, did not check Ms A's haemoglobin on the morning of 8 March 2015.

Opinion: CDHB — breach

85. DHBs are responsible for the operation of the clinical services they provide, and can be held responsible for any service failures. CDHB had a duty to ensure that Ms A received quality services.

86. Ms A first presented with pelvic pain and vaginal bleeding in early October, and experienced ongoing complications that did not subside until May 2015. During this time, Ms A was admitted to hospital at least six times — four were acute visits, and she received care from no less than seven individual providers. During the course of her care, Ms A experienced an infection, and required two blood transfusions. She continued to bleed, and the cause of the bleeding was not assessed adequately until eventually she required activation of the major haemorrhage protocol and admission to ICU on 8 March 2015.

87. On 3 October 2014, Ms A was admitted and discharged from the hospital twice, as she had had pelvic pain and two episodes of heavy bleeding. On her second admission, Ms A was seen by a registered nurse, who discussed Ms A's condition with a registrar. However, a vaginal examination was not undertaken by either the nurse or the registrar. Dr Vasan has advised that because of the risk of sepsis and morbid haemorrhage associated with an incomplete miscarriage, a vaginal examination was necessary to assess whether the cervix was open, and whether emptying of the uterus was required. I am guided by this advice and am critical that this did not occur. I note that CDHB has accepted that Ms A should have received a vaginal examination on 3 October 2014.

88. Further, as outlined above in relation to both Dr C's and Dr D's care, despite her history and symptoms, Ms A was discharged on several occasions without having had an ultrasound. Both my expert advisor and CDHB's independent reviewer consider that an ultrasound should have been carried out during Ms A's admissions to establish the cause of the ongoing bleeding. Despite numerous opportunities to carry out an ultrasound, this assessment did not take place. I am very critical that an ultrasound did not take place after 24 October until Ms A was assessed following an admission to [DHB2] via its Emergency

Department in late December. In addition, I am concerned that Ms A's haemoglobin was not re-checked on the morning of 8 March 2015 despite the ongoing bleeding and the fall in her haemoglobin level the previous day.

89. I consider that CDHB staff failed to re-evaluate the ongoing conservative management of Ms A's bleeding effectively in a timely fashion. Dr Vasan has advised that the delay in the surgical emptying of Ms A's uterus, and her compromised care, were a result of the care being managed in parts rather than her circumstances being looked at as a whole. I am guided by this advice, and consider that as a result, the overall care provided by CDHB was substandard. CDHB has accepted the failings in this case.

90. I am critical that over a prolonged period of time, many CDHB staff did not assess the cause of Ms A's ongoing bleeding adequately, and did not treat it effectively, and that the bleeding continued until she became significantly unwell and required ICU care. By failing to provide services to Ms A with reasonable care and skill, CDHB breached Right 4(1) of the Code of Health and Disability Services Consumers' Rights.[22]

Recommendations

91. I recommend that CDHB:

a) Provide HDC with a copy of its audit plan for the previous year (2017–2018) reflecting the changes made to CDHB's policy on miscarriages. This is to be sent to HDC within three months of the date of this report.

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

Follow-up actions

92. A copy of this report with details identifying the parties removed, except the expert who advised on this case and CDHB, will be sent to the Medical Council of New Zealand, and it will be advised of Dr E's, Dr C's, and Dr D's names.

93. A copy of this report with details identifying the parties removed, except the expert who advised on this case and CDHB, will be placed on the Health and Disability Commissioner website, www.hdc.org.nz, for educational purposes.

[22] Right 4(1) states: "Every consumer has the right to have services provided with reasonable care and skill."

Appendix A: Independent advice to the Commissioner

The following expert advice was obtained from an obstetrician and gynaecologist, Dr Sornalatha Vasan:

"I Dr Sornalatha Vasan have been asked to give independent opinion on the standard of care provided to [Ms A] by Canterbury District Health Board (CDHB).

I am a Fellow of the Australian and New Zealand College of Obstetricians and Gynaecologists and am on their Expert Witness Register.

I am also a fellow of the college of Obstetricians and Gynecologists in South Africa from where I qualified as an Obstetrician and Gynecologist in 1998.

I work as a general O&G Specialist and I am an examiner for RANZCOG and supervisor for ITP trainees in New Zealand.

I have no personal or professional conflict in this case.

I have read the following documents you provided:

- Complaint to HDC [date] (including response to [DHB] on 24/7/15 and further emails to CDHB dated 24th July, 3rd August and 17th November 2015
- Canterbury DHB response (from […]) dated 3 February 2016
- CDHB letter to [Ms A] (from [DHB]) dated 5 June 2015
- CDHB letter to [Ms A] (from Dr Oliver) dated 7 September 2015
- CDHB letter to [Ms A] (from […]) dated 10 April 2015
- Response input from […] dated 30 December 2015
- Response from CDHB 26 August including statement from [RN F], [Dr G], [Dr H], [Dr I], reviews conducted by [an O&G] and [Dr J], CDHB policy and procedure documents
- CDHB miscarriage guidelines 2006 and 2015 version
- Response from [Dr C] 14 July 2016 and supplementary response on 18 September 2016
- Response from [Dr D] 11 August 2016 and supporting material
- Response from [Dr E] 26 August 2016
- CDHB Clinical records
- [DHB2] clinical records
- GP records

Summary of events as per notes provided:

34 years old Primigravida diagnosed with likely missed miscarriage following US on 26/08/14 at 6 weeks gestation.

04/09/14 Follow up — Ultrasound (referred as US arranged by LMC) confirmed missed miscarriage. Seen by GP almost 3 weeks later! On 22/09/14 and referred to Gynecological assessment unit (GAU).

On 23rd September [Ms A] was seen in (early pregnancy assessment service) EPAS in CDHB by nurse and she chose to wait another week before any intervention was decided. On further phone call as per discussion [Ms A] wished to wait for another week.

[Ms A] attended ED on 3/10/14 at 4 AM with vaginal bleeding. She was assessed by [Dr J] who described her as looking pale, Pulse 70bpm; BP 115/65. Her bleeding was getting lighter. No vaginal examination was reported. Nursing records at 6.30 AM mention that she was having moderate bleeding with clots. She was discharged home a few hours later for FU with her GP but on her way home she had further active bleeding and phoned GAU. She was seen in GAU at 8.40 am by RN B who discussed her care with registrar — no examination was done. Since her observations were normal and bleeding had settled she was discharged home with advice for GP FU in 2 weeks.

On 9th October 14 [Ms A] phoned GAU at 3.30 PM reporting fresh gush of vaginal bleeding with crampy pelvic pain. [An RN] advised her to monitor her blood loss and phone back in an hour. [Ms A] phoned in an hour reporting she had changed 2 pads but bleeding had settled and pain was reducing. She was advised to contact her GP or GAU if she had further bleeding or ED after hours.

On 12/10/14 [Ms A] attended 24hours surgery with Septic miscarriage and was admitted to CDHB. Products of conception was digitally removed from cervix on admission and she was treated with intravenous antibiotics for 48 hours and Misoprostol. US reported retained products of conception (RPOC) [or POC]. Group B streptococci were isolated from Culture. Fever settled over 24hours and bleeding had reduced so she was assessed to have had a complete miscarriage and was discharged on oral erythromycin. GP had changed this to Cefaclor and metronidazole due to diarrhea.

Due to ongoing vaginal bleeding and pain on **24/10/14** GP organised pelvic US in community which reported RPOC.

[Ms A] was admitted to CDHB Gynae ward on **26/10/14 at 03.00 hours via ED** with heavy vaginal bleeding and abdominal cramps. US, two days prior to this reported retained POC. Tissue removed from cervix (histology confirmed necrotic decidua) and syntometrine given to reduce bleeding. On admission HB 97 but fell to 69 overnight. Beta HCG was 134. She was reviewed by Consultant [Dr C] who transfused 2 units of blood and prescribed Misoprostol. Temp rose to 38.6 after Misoprostol. Blood cultures were taken and started on IV Cefuroxime and metronidazole. Temperature and bleeding settled.

On **27/10/14** reviewed by SMO — [Dr D], removed a small clot from cervix, uterus was found to be normal size with closed cervix and minimal bleeding; Assessed as clinically complete miscarriage. She was given another unit of blood and was discharged to GP care on **28/10/14** as bleeding was minimal. No further US was requested. [Ms A] declined anti D. She was counseled on contraception and advised to take oral iron (but not prescribed) by RMO.

04/12/14: referred by GP with persistent HCG (9) and ongoing vaginal spotting. She was seen in OPD by Consultant [Dr C] who advised (but wasn't examined) for HCG to be repeated in 4 weeks and be reviewed if needed.

On 29th December she was seen in [DHB2] with PV bleeding (flooding). US performed there reported ? Low flow AVM. HB was 127 and was discharged for GP FU/further care in CDHB and was prescribed Tranexamic acid.

12/01/15 referred again by GP with continuous vaginal spotting since miscarriage in October 2014. With US finding from [DHB2] queried need for hysteroscopy.

[Ms A] was seen by SMO [Dr C] on 17th February in gynae clinic. HCG was 2 on 25/01/15. No findings have been documented. Pelvic US was requested in 4 weeks and FU in 6 weeks. Hysteroscopy was not recommended. [Ms A] was prescribed Provera which she did not take.

[Ms A] presented to ED on 6th March 2015 at 1 AM with heavy bleeding with cramps. She was seen by [a house officer] who then discussed with [Registrar] at 5am. As her HB (131) and observations were stable it was felt that she didn't need admission. US was arranged for that day followed by review in GAU.

[Ms A] was seen in GAU at 12.42 Pm by [RN F] and [Registrar] at 5 pm. US in CDHB that day reported as consistent with AVM; differentials of RPOC, gestational trophoblastic disease. [The registrar] discussed her care with SMO [Dr E] who reviewed [Ms A] (no documentation in the notes) and planned to admit her for interventional radiologist opinion/MRI.

[Ms A] was stable overnight; was seen by [Dr H] — SMO next morning who discussed plan for radiological review and to remain inpatient until then. At 4.15 PM same day [Ms A] had a brisk vaginal bleed of 300 mls.

[Dr H] was called in who assessed her at 16.45, advised nil by mouth (NBM); IV Tranexamic acid; IV fluids; FBC, group and hold , coags. Discussed with interventional Radiologist.

[The] Radiologist wasn't convinced it was AVM after reviewing films from [DHB2] and recommended CT angiogram or MRI. CT angio was arranged and planned OT for ERPOC if bleeding increased.

CT angio did not report obvious AVM — reported 2 bleeding points in the uterus/difficult scan. Radiologist was prepared to embolise but will be on both uterine arteries which would impair her future fertility. SMO [Dr H] reviewed [Ms A] at 22.30 on 07/03/15, explained CT findings, impact of embolization and planned hysteroscopy with proceed to ERPOC next morning since her bleeding was minimal and she was stable then.

On 08/03/15 at 6.30 AM [Ms A] was seen urgently due to her high HR — 170bpm by [SHO] and [Registrar] and assessed her as stable with HR of 80, slightly increased PV bleeding but rest of observations normal. SMO [Dr E] saw her at 10 AM, reviewed clinical status, radiological findings and considered Hysteroscopy for next day (Monday).

At 16.50 same day Registrar [Dr G] was called to review her due to onset of heavy vaginal bleeding. Her pulse was 143; temp 37.7; BP 110/70 and on discussion with SMO [Dr E], IV antibiotics were started and she was booked for urgent Hysteroscopy and D&C.

At 6.30 PM she was transferred to theatre. Anesthetist [Dr I] documents that she was unwell on arrival to theatre tachycardic, pulse 130/mt, BP 120 and peripherally shut down. Massive transfusion was activated, she was given 5 units blood, 4 units FFP, and 3 units cryoprecipitate. She remained unwell after procedure requiring Phenylephrine and IV fluids. It was also noted that she suffered significant adverse reaction to Syntocin and she was admitted to ICU overnight for high dependency nursing care.

[Dr E's] operation report: Hysteroscopy D&C. 08/03/15:

> Not actively bleeding. Bimanual nodularity in posterior fornix — appears endometriotic.
>
> Saline hysteroscopy ? calcified POC — removed with polyp forceps. Minimal bleeding, for ICU admission and repeat FBC.

She was transferred to Gynae ward next day and gradually recovered. She was discharged home on 12th March 2015.

[Ms A] was subsequently seen in Gynae OPD on 20th April and 28th May by [Dr D], SMO. She had settled with no further symptoms of bleeding or pain and pelvic US was normal. She was then discharged to GP care.

Requested advice on:

Overall standard of care provided to [Ms A] by CDHB

Overall care was substandard A missed miscarriage (commonly occurring condition) was managed in aliquots leading to delay in emptying uterus by surgical evacuation to

6 months from onset of symptoms causing significant morbidity of hemorrhage, sepsis requiring massive blood transfusion and intensive care management.

Standard and appropriateness of care provided by CDHB staff specifically:

- ***During her consult at the EAPS on 23rd September 2014:***

[Ms A] is 34 yrs. old Primigravida diagnosed with likely missed miscarriage following US on 26/08/14 at 6 weeks gestation.

On 04/09/14 FU-US (arranged by LMC) confirmed missed miscarriage. Seen by GP 3 weeks later on 22/09/14 and referred to GAU for further management.

[Ms A] was seen in EPAS in CDHB on 23rd September by nurse and she chose to wait another week before any intervention was decided. On further phone call as per discussion [Ms A] wished to wait for another week.

Her care at EAPS on 23rd September 2014 was very appropriate and is accepted standard of care.

- **During her presentation on 3rd October 2014**

[Ms A] Attended ED on 3/10/14 at 4 am with vaginal bleeding. She was assessed by [Dr J] who described her as looking pale, Pulse 70bpm; BP 115/65. Her bleeding was getting lighter. No vaginal examination was recorded. Nursing records at 6.30 AM mention that she was having moderate bleeding with clots. She was discharged home a few hours later for FU with her GP but on her way home she had further active bleeding and phoned GAU. She was seen in GAU at 8.40 am by RN B who discussed her care with registrar — no examination was done. Since her observations were normal and bleeding had settled she was discharged home with advice for GP FU in 2 weeks.

[Ms A] was having expectant management for missed miscarriage aiming for spontaneous complete miscarriage. When she presented with vaginal bleeding, looking pale it was important to examine her vaginally to assess if cervix was open and if she required emptying of uterus. An incomplete miscarriage can lead to morbid hemorrhage and risk of sepsis.

Discharging her to GP care without adequate assessment was deviation from standard care.

- **The advice given to [Ms A] when she contacted GAU on 9th October 2014.**

On 9th October 14 [Ms A] phoned GAU at 3.30 PM reporting fresh gush of vaginal bleeding with crampy pelvic pain. [An RN] advised her to monitor her blood loss and phone back in an hour. [Ms A] phoned in an hour reporting she had changed 2 pads but bleeding had settled and pain was reducing. She was advised to contact her GP or GAU if she had further bleeding or ED after hours.

During the process of spontaneous miscarriage one is expected to bleed with crampy pain. It was appropriate to advise her to monitor for an hour and call back.

Since she phoned back saying bleeding had settled and pain was less ***advice given to contact GP or GAU or ED after hours if further bleeding occurs is appropriate and acceptable standard of care.***

- **On 26th October 2014 — an acute presentation with septic incomplete miscarriage — seen by [Dr D], discharged 29th October 2014**

[Ms A] presented acutely via ED on 26th October at 3.00 hrs. with significant vaginal bleeding, mild to moderate lower abdominal pain radiating to back. In the history of presenting complaint it was noted that she had been admitted a week ago with fever and Strep B endometritis (+ve blood and swab cultures), US reported 3 areas of RPOC 20mm, 10 mm & 10 mm; treated with cefuroxime & metronidazole, discharged on erythromycin. Due to diarrhea and vomiting changed to cefaclor and metronidazole by GP.

She had started bleeding 3 days ago. US 2 days ago reported persistent RPOC. She had stopped antibiotics previous day. She was assessed as P86 BP 96/55 T 36.6 C RR 14.

Abdomen was tender but no rebound. POC removed digitally from cervical os when she had brisk bleeding and syntometrin 1 amp was given IM.

On discussion with registrar she was admitted to Gynae ward. HB 97 (114 on 24/10/14) and beta HCG 134 (170 on 24th Oct 14).

Following Ergometrine bleeding slowed, complained of blurred vision, headache and chest heaviness. ECG was performed but no significant abnormality was detected. Planned team review mane.

WR — [Dr C], assessed as ? Incomplete/complete miscarriage and planned Misoprostol 2 units RBC and not for antiD.

At 11.40 temp 38.6°C, blood cultures taken IV cef and met started.

On 27/10/14 assessed as afebrile, still looking pale and planned to change to oral antibiotics and ? DC home.

At 11.20 assessed by [Dr D] — HB after 2 units of RBC 87, symptomatic of anemia. On PV small sized RV uterus os closed minimal PV loss.

Clinical impression of complete miscarriage was made and planned to transfuse one more unit of RBC, no further scans requested, FBC tomorrow and aim for DC next day. On 28/10/14 HB 97, No PV bleeding or abdo/pelvic pain; assessed as complete miscarriage and discharged home on contraceptive advice.

Complete miscarriage is diagnosed by either total conceptus has been viewed by medical staff or histologically confirmed POC have been passed and ultrasound scan shows an empty uterus. (Early pregnancy loss guideline W&CH/GUG/:03 page 3 of 4 issued Nov 2006)

With evidence of infection it was imperative to take adequate measures to confirm uterus was empty. She had an admission a week ago with infection, RPOC and elevated beta HCG. She was managed with IV antibiotics and sent home.

With recurrent bleed and US reporting RPOC it was important to at least order US even if clinically she appeared to have had complete miscarriage since she spiked temperature in this admission and was started on antibiotics.

Prompt Surgical evacuation (after stabilization with appropriate antibiotic treatment) is indicated in the presence of infected products of conception or ongoing vaginal bleeding (CDHB miscarriage guidelines/RANZCOG/RCOG guidelines of miscarriage management).

Care was suboptimal and significant deviation from standard care.

- **[Dr C's] review at out patients on 17 December 2014**

On 4th December 2014 [GP] referred [Ms A] again to Gynae OPD for assessment due to elevated beta HCG (9) with ongoing daily vaginal bleeding.

She was seen by [Dr C] on 16th December 2014 and noted that she had small amounts of bleeding on and off daily and a mucousy discharge but no offensive or irritating vaginal loss. [Dr C] also noted that histology from 26/10/14 reported POC. Plan was made to repeat beta HCG in the beginning of January with anticipation that it will be < 4 (negative) and resume spontaneous cycles. No further follow up was arranged.

If there were no symptoms i.e. ongoing vaginal bleeding it was reasonable to repeat beta HCG until negative but in the presence of ongoing abnormal bleeding with history of infection requiring inpatient admission, IV antibiotics , blood transfusion, pelvic US is warranted to rule out RPOC.

Discharging her with no further follow up in the presence of abnormal bleeding was suboptimal care and deviation from standard care.

- [Dr C's] review in clinic on 17 February 2015

[Ms A] was again referred to Gynae service by her GP with ongoing vaginal bleeding since initial episode of miscarriage and US finding from [DHB2] on 29th December reporting possible AV malformation in uterine cavity when she presented with vaginal flooding. [Ms A] was querying need for hysteroscopy due to US finding.

She was seen by [Dr C] on 17th February2015 in outpatients department.

He was pleased to find out that beta HCG had become negative but she was having persistent vaginal spotting. Also noted US findings of AV malformations at [DHB2] but was unclear to veracity of this diagnosis in this situation. [Dr C] discussed in length further management options. [Ms A] was reluctant to go on Provera. [Dr C] explained that hysteroscopy was unlikely of benefit at this point and had associated risks. Requested pelvic US in 4 weeks followed by review with US report. AV malformation is not a common occurrence. Since beta HCG had normalised and in the event of recent miscarriage it was imperative to rule out RPOC.

Requesting pelvic US and arranging follow up was accepted standard of care.

- **Her final acute admission on 6 March 2015 and [Dr E's] review on 8 March 2015.**

On 6th March 2015 at 04.40 hrs [Ms A] presented to ED with heavy PV bleeding and lower abdominal/pelvic pain which had started a week ago. She woke up at 01.00 with heavy bleeding with clots and since it was ongoing came to ED. She was given IV Tranexamic acid on arrival in ED.

HB was 130. Beta HCG <2. She was discussed with [gynae registrar] who advised that she was stable and requested outpatient US later that day followed by review in GAU.

She was later seen in GAU by [registrar] at 5 PM. US verbally reported as 90 to 95% AVM with differentials of RPOC/GTD.

Vaginal examination was performed and reported as tender, small anteverted uterus with no active bleeding. She was discussed with [Dr H] (SMO) and [Dr E] (SMO). Planned to admit her; interventional radiologist opinion/MRI. [Dr E] was to assess her that night.

Seen by [Dr H] on 07/03/15 at 10 hrs in WR; assessed as AVM likely and interventional radiology request was sent.

[Dr H] was called in at 16.45 due to brisk vaginal bleeding (up to 450 mls). Planned NBM, IV Tranexamic acid, CBC, group and hold, coags and IV line.

Discussed with [interventional radiologist] who wasn't convinced it was AVM and recommended CT angiogram. Planned for OT, ERPOC if bleeding increased.

CT angiogram verbally reported as no obvious AVM 2 bleeding points in uterus, difficult scan. Radiologist suggested embolisation of both uterine arteries which could impair future fertility. She was seen by [Dr H] at 22.30 on 7th March 2015 who discussed CT angiogram findings. Since she was stable, not bleeding heavily planned review next morning for possible hysteroscopy and proceed to ERPOC if RPOC seen.

On 08/03/15 at 6.30 AM [SHO] and [registrar] were called in to assess [Ms A] due to her pulse rate of 170. Assessed as stable with HR of 80, bleeding only slightly worse than normal and planned to continue monitoring her.

She was seen by SMO [Dr E] at 10.00, assessed as HR 95, afebrile, BP low but acceptable; bleeding on pad acceptable. HB 119 — on 07/03/15 at 16.45. She was assessed as clinically stable and Planned Hysteroscopy in acute list next day (Monday). For HB mane and continue Tranexamic acid.

At 16.50 same day [Dr G] (Registrar was called in) assessed her since she was bleeding heavily and actively. Her pulse was 143, T 37.7, BP 110/70.

[Dr G] discussed with [Dr E] and booked her for urgent Hysteroscopy, D&C and started IV antibiotics.

At 18.30 her HB was 84. Anesthetist [Dr I] recorded that she was acutely unwell, pulse 130/mt; peripherally shut down and Major hemorrhage protocol commenced. She was resuscitated with 5 units RBC, 4 FFP, 2 cryoprecipitate. She was given 1.5 liters of crystalloids and phenylephrine infusion but remained acidotic and unstable.

During hysteroscopy calcified POC was seen which was removed with polypectomy forceps uneventfully and her bleeding settled. She was admitted to ICU and managed until stable. She also suffered adverse reaction to syntocinon IV intra operatively.

On 9th March her HB was 99, Platelets 94, BP normal with normal PV loss and she was transferred to gynae ward around 11.40 am. She recovered subsequently and was discharged home on 12th march with OPD FU with [Dr D].

She was bleeding since admission and was requiring Tranexamic acid. On 8th March after an episode of significant tachycardia although she clinically appeared stable blood loss was not appropriately assessed and HB was not checked. Care was **suboptimal**. She eventually went into shock requiring massive transfusion, resuscitation and ICU management with vasopressor.

Overall management since her admission on 6th March was accepted standard of care.

References:
CDHB miscarriage guidelines

RANZCOG/RCOG guidelines of miscarriage management"

The following additional expert advice was obtained from Dr Vasan on 12 July 2018:

"• **On 26th October 2014 — an acute presentation with septic incomplete miscarriage — seen by [Dr D], discharged 29th October 2014**

[Ms A] presented acutely via ED on 26th October at 3.00 hrs with significant vaginal bleeding, mild to moderate lower abdominal pain radiating to back. In the history of presenting complaint it was noted that she had been admitted a week ago with fever and StrepB endometritis (+ve blood and swab cultures), US reported 3 areas of RPOC 20mm, 10 mm & 10 mm; treated with cef & met, DC on erythromycin. Due to diarrhea and vomiting changed to cefaclor and metronidazole by GP.

She had started bleeding 3 days ago. US 2 days ago reported persistent [sic] RPOC. She had stopped antibiotics previous day.

She was assessed as P86 BP 96/55 T 36.6 C RR 14.

Abdomen was tender but no rebound. POC removed digitally from cervical os when she had brisk bleeding and syntometrin 1 amp was given IM.

On discussion with registrar she was admitted to Gynae ward. HB 97 (114 on 24/10/14) and beta HCG 134 (170 on 24th Oct 14).

Following Ergometrine bleeding slowed CO blurred vision, headache and chest heaviness. ECG was performed but no significant abnormality was detected. Planned team review mane.

WR — [Dr C], assessed as ? incomplete/complete miscarriage and planned Misoprostol, 2 units RBC and not for antiD.

At 11.40 temp 38.6°C, blood cultures taken IV cef and met started.

On 27/10/14 assessed as afebrile, still looking pale and planned to change to oral antibiotics and ? DC home.

At 11.20 assessed by [Dr D] — Hb after 2 units of RBC 87, symptomatic of anaemia. On PV small sized RV uterus os closed minimal PV loss.

Clinical impression of complete miscarriage was made and planned to transfuse one more unit of RBC, no further scans requested, FBC tomorrow and aim for DC next day.

On 28/10/14 Hb 97, No PV bleeding or abdo/pelvic pain; assessed as complete miscarriage and discharged home on contraceptive advice.

With evidence of infection it was imperative to take adequate measures to confirm uterus was empty. She had an admission a week ago with infection, RPOC and elevated beta HCG. She was managed with IV antibiotics and sent home.

With recurrent bleed and US reporting RPOC it was important to at least order US even if clinically she appeared to have had complete miscarriage since she spiked temperature in this admission and was started on antibiotics.

Misoprostol is contraindicated in the presence of infection and surgical evacuation is indicated. (CDHB miscarriage guidelines/RANZCOG/RCOG guidelines of miscarriage management)

***Standard of care was suboptimal*.**

I also want to bring to your attention part of [Dr K's] report relevant to my opinion:

> 'However, Dr Vasan's [sic: [Dr D's] name is notably absent from [Ms A's] complaint and it seems that [Ms A] specifically wished to have clinical management under the care of [Dr D] based on the comments in [Dr D's] report. The excessive length of time to reach a diagnosis and to provide definitive

> treatment for [Ms A] likely stemmed from institutional issues of interrupted continuity of care that are sometimes seen within the public health system.'
>
> 'As mentioned above, I consider that most gynaecologists would have ordered an ultrasound scan in these circumstances, but some would have relied on their clinical findings and not ordered an ultrasound scan during that admission.'

As mentioned in my report [Ms A] had had repeated admissions with retained products leading to heavy vaginal bleeding and sepsis. Septic incomplete miscarriage is managed by surgical evacuation after optimising the patient with antibiotics, fluids, blood products if needed. (Please refer to CDHB miscarriage guidelines/RANZCOG/ RCOG guidelines of miscarriage management.)

Having not had surgical evacuation it was important to confirm the findings with US due to sepsis although clinically she showed signs of complete miscarriage.

Treating [Ms A] medically with Misoprostol and not confirming miscarriage was complete before DC was suboptimal care.

I did not mention that [Dr D's] care was substandard.

As [Dr K] mentioned, in Public system due to lack of continuity of care patient management can be compromised as in this case. Although incidence of 1st trimester miscarriages are very common as quoted by [Dr K], need for imaging have to be individually prioritized and not dismissed for trivial reasons. Sepsis is a significant factor for maternal morbidity and mortality.

My peers would agree that in the presence of sepsis an incomplete miscarriage has to be managed by surgical evacuation and if not done then reliable investigation should be undertaken to confirm complete miscarriage before discharge of the patient.

I am concerned that [Dr K] has not considered the clinical need for appropriate management of this patient.

Regards

S Vasan"

The following additional expert advice was obtained from Dr Vasan on 27 July 2018:

> "For the avoidance of any doubt, can you please clarify if you consider any of the individual providers departed from expected standards of care, and if so, whether this departure represented a mild, moderate or significant departure from expected standards of care?
>
> [Of the episodes managed by [Dr C] on admission, and [Dr D] before discharge]
> Both managements were moderate departures from standard of care.
>
> Latha Vasan"