

**A Decision by the
Aged Care Commissioner
(Case 22HDC01091)**

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Introduction

1. This report is the opinion of Carolyn Cooper, Aged Care Commissioner, and is made in accordance with the power delegated to her by the Commissioner.
2. The report discusses the care provided to Mrs A at a public hospital (Health New Zealand|Te Whatu Ora (Health NZ)¹).
3. Mrs A presented to the Emergency Department at the public hospital twice over two days and, sadly, she died the following day. The Coroner determined the cause of death as an acute aortic dissection.²
4. Initially, a complaint was received from Mrs B, Mrs A’s daughter, in 2018 immediately after Mrs A died. The complaint was reviewed by this Office, and information was gathered (including a response from relevant parties), and the Deputy Commissioner decided to

¹ On 1 July 2022, the Pae Ora (Healthy Futures) Act 2022 came into force, which disestablished all district health boards. Their functions and liabilities were merged into Health NZ. All references in this report to the district health board now refer to Health NZ.

² A serious condition in which a tear occurs in the inner layer of the body’s main artery (the aorta).

close the complaint without further action, allowing the Coroner's investigation to be completed.

5. In January 2022, the Coroner contacted this Office with further information, including a report from Dr D, a cardiothoracic surgeon. This information prompted a closed file review (CFR) by this Office with the Aged Care Commissioner deciding to proceed with formal notification of investigation into the care provided to Mrs A.

6. The parties directly involved in the investigation were:

Mrs B	Complainant/daughter
Health NZ	Provider
Dr C	Medical officer of special scale (MOSS) ³

7. The following issues were identified for investigation:

- *Whether Health New Zealand/Te Whatu Ora provided Mrs A with an appropriate standard of care during Days 1–3 (inclusive).*
- *Whether Dr C provided Mrs A with an appropriate standard of care on Day 1.*

8. Information was also received from:

Ambulance service	Summary of care
Coroner	

9. Independent advice was obtained from an emergency physician, Dr Penelope Jeffrey (Appendix A).

Background

10. As part of her 2018 complaint, Mrs B advised that Mrs A was under the care of her GP, who was treating her for high blood pressure. Prior to the first presentation to the ED, Mrs A had been in good health without symptoms of illness.

Admission 1

11. On Day 1⁴ Mrs A collapsed at her daughter's home after complaining of chest pain and shortness of breath. Mrs A was laid on the floor and the ambulance was called. As Mrs A lived some distance from a hospital, a nurse⁵ attended in the first instance until the ambulance arrived.

³ At the time of the events, Dr C was a MOSS at the Emergency Department. A MOSS is a non-training position for a doctor who has not yet specialised or not yet gained a postgraduate qualification.

⁴ Relevant dates are referred to as Days 1–3 to protect privacy.

⁵ The ambulance service utilises the skills of specially trained rural GPs and/or rural nurses to support the ambulance service where the response time for assistance would otherwise be significant or where additional medical skills would assist with the patient's condition.

12. The ambulance service recorded that prior to Mrs A's family calling for an ambulance, Mrs A had been sitting at the table when she experienced central to left-sided chest pain lasting three to five minutes, and she felt nauseous. Mrs A described the pain as crushing and non-radiating.
13. The ambulance service recorded that when they arrived at 10.21am, Mrs A was lying on the floor, and the nurse was administering intravenous (IV) fluids. The ambulance service recorded that at this time Mrs A was no longer experiencing chest pain or shortness of breath, she did not have a headache or dizziness, she had no pain in her abdomen, and she was not nauseous. She also told the ambulance service that she had normal bowel movements and passing of urine. The ambulance service recorded that Mrs A's radial pulse⁶ was good and strong and her skin was cool to touch.
14. Throughout their assessment, including during transit to the ED, the ambulance service recorded three sets of vital signs,⁷ with Mrs A's heart rate between 48 and 58 beats per minute (low).
15. Initially, Mrs A's blood pressure was also low, but it improved after the administration of 100ml of IV fluids. All three assessments indicated that Mrs A had a capillary refill time⁸ of two seconds (normal), and her temperature was recorded as 35.7°C (slightly below the normal range).⁹
16. The ambulance service performed the first of three electrocardiograms¹⁰ (ECGs), which showed a T wave inversion (an abnormal sign).¹¹
17. The ambulance service recorded Mrs A's appearance as initially pale and improving to normal by the time she arrived at the ED. While in transit to the ED, Mrs A experienced some further chest pain when taking a deep breath.
18. Based on these assessments, the ambulance service classified Mrs A as a status 3 — meaning an unlikely threat to life.
19. Mrs A was admitted to the ED at 11.27am for assessment by Dr C. Dr C was working alongside two experienced senior medical officers (SMOs).
20. Mrs B's 2018 complaint noted that while in the ED she told Dr C the following:
 - Mrs A was in her seventies and was very fit and active and led a healthy lifestyle.

⁶ The pulse on the wrist under the thumb.

⁷ Measurements of the body's basic functions, including temperature, pulse rate, respiration rate (rate of breathing), and blood pressure.

⁸ A rapid test used to assess the blood flow through peripheral tissues to identify blood flow issues and/or dehydration.

⁹ Normal body temperature can range between 36.1°C and 37.2°C.

¹⁰ A simple, non-invasive test that records the electrical activity of the heart.

¹¹ Inverted T waves on an ECG are considered abnormal when the inversion is deeper than 1.0mm and can indicate life-threatening events such as acute coronary ischaemia, pulmonary embolism, or central nervous system damage.

- Mrs A had a very high tolerance to pain.
 - Mrs A was telling her that the pain in her chest and neck was terrible.
 - For Mrs A to be complaining of pain, it must be severe.
21. In ED, Mrs A had two further ECGs performed, one immediately on her arrival and the other at 3.16pm. These were also recorded in Mrs A's records as abnormal indicated by T wave inversion.
22. On arrival in the ED, Mrs A's pain score¹² was recorded as 2/10, but no further pain scores were documented throughout the admission.
23. The triage nurse in ED assessed Mrs A as triage^{13, 14} thus requiring a doctor to review her within 10 minutes of triage. Therefore, the triage nurse placed Mrs A's file at the front of the line to ensure that Mrs A was next to be seen.
24. In his 2023 response to HDC, Dr C advised:

'I picked up [Mrs A's] file at 11:45am and noted her vitals to be satisfactory (blood pressure 141/76, heart rate 51 bpm, oxygen saturation 96%, respiratory rate 18, temperature 36.3°C, with a pain score of 2/10). I read through the ambulance patient report prior to assessing [Mrs A]. I then proceeded to interview both [Mrs A] and her daughter ([Mrs B]) who was also present at bedside. [Mrs A] described her pain as starting acutely at 9:30am, central, and radiating to left neck. It was associated with diaphoresis,¹⁵ nausea, shortness of breath, light-headedness, and feeling cold and clammy. Her pain became worse with inspiration and improved sitting forward. She had shortness of breath at the time of the pain (as corroborated by [Mrs B]). [Mrs A] was normally very independent and active.

On exam, [Mrs A] had stable vital signs (aforementioned) but was mildly distressed with a pain score of 2/10. Her heart sounds were dual, and there were no murmurs, rubs, or gallops. Her jugular venous pulse was not elevated and there was no lower extremity oedema. On chest auscultation, fine inspiratory crepitations were appreciated in the right lower lung area, and normal elsewhere. Examination of [Mrs A's] abdomen was normal.'

25. In both the 2018 and 2023 response, Dr C advised that at 11.40am he did the following blood tests:

¹² Using a scale from 0 to 10: 0 indicates no pain; 1 to 3 indicates mild pain; 4 to 7 indicates moderate pain; 8 and above indicates severe pain.

¹³ The assessment of patients on arrival to decide how urgent their illness or injury is and how soon treatment is required.

¹⁴ Triage 2 means imminently life-threatening or important time-critical and must be seen within 10 minutes.

¹⁵ Excessive and abnormal perspiration.

- C-reactive protein (CRP)¹⁶
 - Complete blood count (CBC)¹⁷
 - Glucose¹⁸
 - Liver function tests (LFT)¹⁹
 - Troponin T²⁰ (TnT)
26. The blood test results were all normal.
27. Throughout her admission, Mrs A was administered IV diclofenac²¹ and oral aspirin and paracetamol. At 1.50pm Mrs A was administered a 'Pink Lady'²² in liquid form. Following this, Mrs A showed signs of improvement, and it is recorded in her clinical records that at 2.30pm she was having cups of tea and eating sandwiches.
28. A chest X-ray 'identified features that may suggest an element of pulmonary oedema²³ or evolving infective change', but unfortunately, the written report was not available that day.²⁴
29. Dr C advised in his 2018 response to the complaint that diagnoses of pericarditis, pulmonary embolism, and aortic dissection were considered. However, these were ruled out due to the absence of indicative ECG, decreased intensity of pain, lack of risk factors, and lack of typical features such as sharp, tearing or ripping chest pain and unstable vital signs. He also told HDC that Mrs A's condition appeared to improve, with the 'Pink Lady' reducing her pain, and she had an overall positive response to ED treatment. For these reasons, Dr C considered that Mrs A might have been suffering from gastrointestinal reflux rather than a primary cardiovascular event.
30. Mrs B advised in her complaint that although Mrs A showed some relief following administration of the 'Pink Lady' and paracetamol, she continued to experience pain and was declined further pain relief out of concern for her low blood pressure.

¹⁶ A protein made by the liver. The level of CRP increases when inflammation is present in the body.

¹⁷ A blood test used to look at overall health and help to detect a wide range of conditions.

¹⁸ A test mainly used to screen for diabetes by measuring the level of glucose (sugar) in the blood.

¹⁹ A test to check the levels of certain enzymes and proteins in the blood. Levels that are higher or lower than usual can indicate liver problems.

²⁰ The level of the protein troponin in a sample of blood — raised levels can indicate that the patient is having, or has had, a heart attack.

²¹ A medication that reduces swelling (inflammation) and pain. It is used to treat aches and pains, as well as problems with joints, muscles, and bones.

²² A term used to describe a mixture of a liquid antacid and a local anaesthetic. It is given by mouth to treat ED patients and to help determine whether chest pains are related to the heart or the digestive tract.

²³ A condition caused by too much fluid in the lungs. The fluid collects in the air sacs of the lungs, making it difficult to breathe.

²⁴ The report was available at 7.09am the following day. Dr C explained that often the reports are not available outside of business hours and typically not until 1–2 days after the X-ray has taken place.

31. Mrs B explained in her complaint that on multiple occasions she reiterated her concern about her mother's pain levels and pain threshold to the medical staff to no avail. She also provided medical staff with further detail about Mrs A's family history, which included the sudden passing of a close family member due to an aortic aneurism. Mrs B was assured by the medical staff that they were aware of this history. Mrs B left Mrs A in the ED at 4.30pm.
32. After five and a half hours in the ED, Mrs A was discharged at 5pm with a prescription for anti-reflux medication and advice that what she was experiencing was not cardiac related.
33. Dr C's only record of his assessment and care of Mrs A was the discharge summary completed at 4.57pm. The summary states:
- '[Impression] chest pain secondary to oesophageal cause ...
- Patient discharged with advice and appropriate medications ... GP follow up required ... written advice given verbal advice given.'
34. There is no record of consideration of other diagnoses or use of appropriate ED tools such as the Emergency Department Assessment of Chest Pain Score (EDACPS²⁵) to assess Mrs A's symptoms.
35. Although not present for Mrs A's discharge, Mrs B explained that she found it nonsensical that Mrs A was advised verbally that she was being discharged with indigestion medication when the presenting complaint in the discharge summary was documented as:
- '... Acute onset of chest pain at 9.30am, central, radiating to L neck, assoc with diaphoresis, feeling cold and clammy, lightheadedness, and nausea. Pain worse on inspiration, improves sitting forward [Mrs B said that when asked, Mrs A said it improved a "little"]. No history of SOBOE,²⁶ normally very independent and active.'
36. Mrs B advised that whilst at home throughout the evening of Day 1, Mrs A continued to experience pain in her chest, left shoulder, and neck, with shortness of breath.

Admission 2 — Days 2–3

37. Mrs B explained in her original complaint that Mrs A continued to feel unwell on Day 2 and therefore, she rested on the couch throughout the day and was cared for by her husband.
38. Mrs B recalled receiving a telephone call from Mr A at approximately 8.15pm advising that Mrs A had suddenly felt considerably worse and felt as if she might vomit. When Mr A had returned from fetching her a bucket, Mrs A was having what appeared to be a tonic-clonic seizure.²⁷ The ambulance was called.

²⁵ The EDACPS is used to predict short-term risk of major adverse cardiac events in patients presenting with chest pain.

²⁶ Shortness of breath on exertion.

²⁷ Tonic-clonic seizures cause violent muscle contractions and loss of consciousness.

39. The ambulance service's care summary recorded that a nurse attended in the first instance. Mrs A was in a supine position on the couch, and the nurse found that Mrs A had experienced an episode of urinary incontinence.
40. The nurse assessed Mrs A as having a lowered Glasgow Coma Scale²⁸ (GCS) score. She had a good radial pulse but was diaphoretic (sweating) and was not coherent when attempting to answer questions.
41. The ambulance service recorded that they arrived at Mrs A's home at 8.15pm and found her lying on the couch being attended to by the nurse. Mrs A was opening her eyes to respond to questions and was denying chest pain. She was coherent and had pale/grey skin. Mrs A's chest was clear, and she was short of breath until administered oxygen.
42. The first set of vital signs was recorded by the ambulance service at 8.02pm (taken by the nurse) as a heart rate (pulse) of 70 beats per minute, blood pressure of 108/81mmHg, and oxygen saturations of 80%. An ECG demonstrated that Mrs A was in normal sinus rhythm. Throughout its care summary, the ambulance service recorded pain scores of zero. The ambulance service started Mrs A on IV saline and administered oxygen and 300mg of aspirin.
43. Mrs A was transported to ED by the ambulance and was admitted at 9.45pm as a triage 2 under night house officer²⁹ Dr E.
44. The triage nurse recorded a blood pressure of 116/84mmHg, pulse of 95 beats per minute and oxygen saturations of 91%. IV fluids were continued, and Mrs A was placed on 2 litres of oxygen per minute.
45. Mrs B explained in her complaint that at this ED presentation Mrs A was having difficulty breathing, her blood pressure continued to be low, her oxygen saturation levels were being monitored and kept dropping (sometimes as low as 40%), and she was in considerable pain, making it difficult to get comfortable. Mrs B felt that the medical staff showed no concern when the alarm went off for the oxygen monitor and nobody attended to it.
46. In her 2018 response, Dr E recalled that she commenced assessment of Mrs A at 10pm by obtaining a history of events leading to this ED admission, and Mrs B helped with this information. Dr E recalled that since leaving ED the previous day, Mrs A had experienced gradually worsening chest pain, with some radiation to her neck and generally she was feeling unwell, dizzy, lightheaded, and short of breath.
47. Dr E recorded that Mrs A was pale and cold, but she was awake and alert, with a regular pulse and a clear chest, and a tender but soft abdomen, and she had had regular bowel movements prior to attending ED.

²⁸ The Glasgow Coma Scale is used to objectively describe the extent of impaired consciousness in acute medical and trauma patients. The scale assesses patients according to three aspects of responsiveness: eye-opening, motor, and verbal responses.

²⁹ A junior doctor in the first two years out of medical school.

48. Dr E responded to Mrs B's concerns about the oxygen saturation monitor explaining that as Mrs A had very cold hands, this could cause the oxygen saturation monitor to provide inaccurate readings. Dr E said that if Mrs A's oxygen saturations had been as low as 40, it would have been medically impossible for her to have been as alert and conscious as she was.
49. Blood tests were performed at 9.50pm and showed normal haemoglobin³⁰ levels and platelets.³¹ However, Mrs A had elevated white blood cells (15.5) and CRP (86), which suggested infection, and a creatinine level of 92, which can suggest dehydration. Mrs A's kidney function had deteriorated, and her liver function tests were abnormal, with a troponin T that was slightly raised but not enough to be diagnostic.
50. Dr E said that not long after her arrival in the ED, Mrs A vomited, and the vomit contained specks of blood. Mrs A also had a loose bowel motion that showed fresh red blood. Four further episodes of post-rectal bleeding were recorded in Mrs A's notes.
51. The ECG continued to be normal, and Mrs A's notes record that she was no longer having chest pain.
52. Mrs B advised that throughout this time, she further reiterated her concerns about Mrs A's family history, to which Dr E reassured them that whatever was going on was not heart related, but they would get to the bottom of it. As Mrs A's pain was intolerable, they requested more than the administered IV paracetamol, but this was declined because of concern that it would lower Mrs A's blood pressure further.
53. In her 2018 response to the complaint, Dr E mentioned that she does not recall specifically being made aware of Mrs A's family history. The clinical records of Mrs A's presentation on Days 2–3 contain no documentation of her family history.
54. Based on her assessment and Mrs A's patient history prior to and since attending the ED, Dr E made a provisional diagnosis of a gastrointestinal bleed.
55. At 11.37pm Dr E telephoned general surgeon Dr F, who requested an abdominal/pelvic computed tomography (CT)³² scan with contrast. The CT scan was performed as per the gastrointestinal bleed protocol, and Dr E advised in the 2018 response to the complaint that a radiologist gave her the following verbal report:

'[A]cute cholecystitis³³; free fluid in the abdomen and pelvis but no free air; thick walled distal sigmoid and rectum suggesting colitis; bilateral pleural effusions³⁴; large pericardial effusions³⁵; all are signs to suggest impaired cardiac function.'

³⁰ A protein in red blood cells that carries oxygen to the body's organs and tissues and transports carbon dioxide from the organs and tissues back to the lungs.

³¹ Cells that help the blood to clot.

³² A medical imaging technique used to obtain detailed internal images of the body.

³³ Inflammation of the gallbladder, a small digestive organ beneath the liver.

³⁴ A build-up of fluid between the layers of tissue that line the lungs and chest cavity.

56. In her 2018 response to the complaint, Dr E advised that she explained to the family that on the CT there was evidence of colitis (inflammation of the bowel/rectum), which was causing the bleeding. She explained that the cause of the colitis was unclear, but that immediate management consisted of fluids and a blood transfusion if deemed necessary. Dr E also included her response that the CT was suggestive of an infection of the gallbladder, which at this time would have been managed by IV antibiotics and at a later date would likely have required a cholecystectomy.³⁶ Dr E explained that there was also fluid around Mrs A's heart and lungs, which she was not sure could be an acute problem. Following discussion between Dr E and Dr F, Mrs A was transferred to the Intensive Care Unit (ICU) for more constant monitoring and to be reviewed in the morning by a surgeon and an anaesthetist. The anaesthetist agreed with the ICU admission and advised that the ICU physician on duty the next day would assess the pericardial effusion further.
57. Mrs B advised that when Mrs A was transferred to ICU, the doctor explained to the family that she would get more attention there. Although Mrs A continued to be in pain, the family were assured that she would be fine, and they were advised to go home for rest and to come back for the ward round at 8am.
58. After her transfer to ICU at 2.20am, Mrs A vomited once without evidence of blood. She was administered ondansetron,³⁷ and a catheter³⁸ was inserted to enable monitoring of her fluid balance. A stool chart was commenced to monitor her bowel motions and rectal bleeding. IV fluids were continued, and Mrs A remained on oxygen.
59. One minor post-rectal bleed was recorded after Mrs A's admission to ICU. Her observations remained satisfactory, and further blood tests showed that a blood transfusion was not required. At 4am Mrs A was administered paracetamol for neck pain, and she went to sleep. Blood tests showed a continued slightly increased troponin T level, but again not enough to be diagnostic, and further blood tests were planned for the morning.
60. At 6.55am Dr E was made aware that Mrs A had gone into cardiac arrest in ICU, and Dr E attended to support resuscitation attempts already underway. Sadly, however, despite CPR and nine doses of adrenaline, Mrs A could not be revived, and her time of death was recorded as 7.30am.
61. In her complaint, Mrs B recalled receiving a telephone call at 7am advising her that Mrs A had gone into cardiac arrest and had not been able to be resuscitated. On arrival at the hospital, the family were told that staff had been unable to save Mrs A, and she was likely

³⁵ A build-up of extra fluid in the space around the heart. If too much fluid builds up, it can put pressure on the heart.

³⁶ Surgery to remove the gallbladder.

³⁷ A medication used to treat and prevent nausea and vomiting.

³⁸ A flexible tube used to empty the bladder and collect urine in a drainage bag.

to have died from a pulmonary embolism.³⁹ It was later determined by post mortem that Mrs A had died from an acute aortic dissection with a fatal hemopericardium.⁴⁰

62. Mrs B explained that Mrs A's family feel robbed of the option of surgery for her, and the biggest component of their complaint concerns the first admission, and a diagnosis of aortic dissection not having been considered or made.

Advice to Coroner from cardiothoracic surgeon Dr D

63. At the request of the Coroner, Dr D reviewed the care provided to Mrs A. He advised:

'It is my opinion that at the time of the second presentation with chest pain, abdominal pain and hypotension an aortic dissection should have been considered in the differential diagnosis. Although this does not seem to have been considered on the initial clinical assessment the presence of a pericardial effusion and associated radiological findings of poor visceral perfusion seen on the abdominal CT scan should have signalled the need for a CT scan of the aorta with IV contrast to exclude aortic dissection. This would have been a diagnostic test that confirmed an acute aortic dissection contained to the ascending aorta. This would have in turn led to more aggressive medical management and a referral to cardiothoracic surgery capable centre and may have allowed lifesaving surgery to be offered to the patient.'

64. Dr D's advice prompted the Coroner's referral of this matter to HDC. While it does raise questions about the standard of care provided to Mrs A during her second admission, I have not relied on Dr D's advice, as there were no cardiothoracic surgeons in the treating team during Mrs A's second admission at the public hospital.

Dr C's training/experience relevant to complaint

65. In its 2023 response to HDC's independent advice, Health NZ told HDC that at the time of Mrs A's presentation to the ED, Dr C had been appointed as a MOSS. Simultaneously, as it is a rural hospital, Dr C was undertaking registrar training under the rural physician training pathway.
66. Health NZ explained that Dr C was on the same roster as the ED SMOs and practised independently. Health NZ stated: '[G]iven [Dr C] had 10 years postgraduate experience, he was deemed to be capable of working with minimal supervision.'
67. In his 2023 response, Dr C stated: 'I was very early on in my emergency medicine training but was given a senior position. In retrospect, I should have declined that position.' Dr C explained that in his first month in the role he worked alongside senior emergency medicine physicians, and thereafter he was deemed safe for working with remote supervision. Dr C advised that on the day he saw Mrs A, he was in his second month in the role.

³⁹ A blood clot that becomes stuck in an artery in the lung, blocking blood flow to part of the lung.

⁴⁰ Accumulation of blood in the space around the heart.

Further information from Dr C*Consideration of aortic dissection*

68. In his 2018 response, Dr C said that he considered aortic dissection and that this was his standard practice when patients presented with chest pain. Dr C stated that he did consider the character of pain, migration of pain, associated neurological, abdominal or limb symptoms, past medical history of hypertension, the family history, examination features such as bilateral pulses or blood pressures, and the appearance of the mediastinum (including the aorta) on the chest X-ray.
69. Dr C explained in his 2018 and 2023 responses that in Mrs A's case, he ruled out the diagnosis of aortic dissection because of her lack of pain and normal vital signs, and therefore Mrs A did not have typical features of aortic dissection.

Assessment of life-threatening conditions other than aortic dissection

70. Having noted the abnormalities in the ECG from the ambulance service, Dr C organised two further ECGs to be taken. He said that there were no patterns on the ECG to suggest acute myocardial infarction, and this is why he ruled out myocardial infarction. In a response to HDC in 2023, Dr C explained that he had noticed that there was a T-wave inversion in the lateral precordial leads v5–v6, which as an independent finding is associated with increased mortality in ischaemic heart disease.
71. Dr C said that he also considered and discounted the diagnosis of pericarditis due to the absence of indicative ECG changes, and the diagnosis of pulmonary embolus due to the lack of risk factors. Dr C did not refer to having used the Well's Criteria⁴¹ and/or a D dimer⁴² test to rule out a pulmonary embolism.
72. Dr C said that he did not know about the EDACS tool at the time of Mrs A's presentation, as he was very new to emergency medicine. In his 2023 response, Dr C advised that if the EDACS tool had been used, he considers that Mrs A would not have met the criteria for direct admission to the Coronary Care Unit.
73. Dr C told HDC: '[I]n retrospect I realized that I should have consulted with a senior prior to discharge.' He said that he did not appreciate the importance of documenting how he systematically ruled out all critical causes of chest pain.
74. Dr C also said that he did not consider seeking a cardiology opinion because this was not something that was done as a matter of course, and usually, patients were referred to internal medicine first. However, Mrs A's clinical records contain no evidence that a referral to internal medicine was made.

Discharge advice

75. In his 2023 response, Dr C was unable to recall whether a written discharge summary was provided to Mrs A. However, he stated:

⁴¹ A tool used to assess the risk of a blood clot.

⁴² A blood test used to check for blood-clotting problems.

'[Mrs A] was provided with detailed verbal advice as I do with all my patients. This is to ensure I can ascertain their understanding of the situation and the steps to take including if they continue to suffer from the same or different symptoms.'

Documentation

76. In both his responses, Dr C noted his regret for the significant lack of documentation in Mrs A's records at the time of the investigated presentation. Dr C recalled being under considerable pressure at the time of Mrs A's presentation due to the expectation that patients were to be seen and discharged from ED within six hours.

Responses to provisional opinion

77. Mrs B was provided with an opportunity to respond to the 'background' section of my provisional opinion. Mrs B:
- Reiterated her concern that Mrs A's pain levels were not acknowledged or managed, including a misleading statement around pain gradually worsening when it had not abated;
 - Reiterated her concern about Mrs A's oxygen saturation levels not being managed or the machine continuously being described as not working; and
 - Disputed the recording in Mrs A's clinical records that she had a cup of tea and ate sandwiches, which indicated that she was feeling better, when Mrs B recalls her mother having only a bite of a sandwich and a sip of tea because she was feeling so unwell.
78. At this time, I acknowledge that Mrs B's comments were made in response to the 'background' section of my provisional report. I trust that the full copy of my opinion will provide assurance that her complaint has been assessed thoroughly.
79. Dr C was provided with an opportunity to respond to relevant parts of the provisional opinion. He did not provide a response.
80. Health NZ was provided with an opportunity to respond to the provisional opinion, and it accepted the decision and the proposed recommendations.
81. Health NZ provided HDC with a copy of its March 2024 policy on supervision of RMOs in the ED.

Opinion: Introduction

82. First, I express my condolences to Mrs A's family for their loss in such traumatic circumstances. I acknowledge the stress Mrs A's family were under when seeking a diagnosis for her in the ED and then ICU.

Opinion: Dr C — breach

83. At the time of the events, Dr C was employed at Health NZ as a MOSS, and therefore he had a responsibility to ensure that Mrs A was assessed appropriately and not discharged until all presenting symptoms had been reviewed adequately.

Consideration of aortic dissection

84. My independent advisor, emergency medicine specialist Dr Penelope Jeffrey, noted the difficulties faced by ED physicians when reviewing patients presenting with chest pain, and the known difficulties in identifying and diagnosing aortic dissection. I understand from Dr Jeffrey's advice that misdiagnosis of this condition in the ED is as high as 38% as per the Canadian Medical Association Journal.⁴³
85. Dr Jeffrey advised that she and her peers are of the opinion that relying on a reduction of chest pain following oral antacid and/or local anaesthetic is a common pitfall in the assessment of chest pain.
86. It has been difficult to ascertain the depth of assessment undertaken by Dr C when Mrs A presented to the ED on Day 1 due to the lack of documentation. Dr C's only records of his assessment of Mrs A are contained in the discharge summary of Day 1, and do not provide information about his consideration of aortic dissection or other diagnoses prior to discharging Mrs A with a diagnosis of reflux.
87. Dr Jeffrey considers that utilising the EDACS tool with a patient experiencing symptoms such as Mrs A's would have been standard practice at the time of these events, and Mrs A would not have been low risk on this tool. Dr Jeffrey advised that not using the EDACS tool was a severe departure from accepted practice.
88. Dr Jeffrey said that given Mrs A's concerning symptoms of sudden onset pain radiating to the throat, and her associated collapse, her age, and her history of hypertension, it was a severe departure from accepted practice to discount the diagnosis of aortic dissection at this stage.
89. Notwithstanding the challenges faced by ED clinicians in diagnosing aortic dissection, and in light of Mrs A's symptoms that gave rise to her admission to ED, I accept Dr Jeffrey's advice and am concerned that Dr C ruled out the diagnosis of aortic dissection. Although this is a rare diagnosis, it is one with severe consequences, and I am not satisfied that appropriate steps were taken to allow Dr C to exclude this confidently. This, combined with Dr C not seeking input from his senior colleagues, which was available to him, or making use of the EDACS tool when ruling out the diagnosis, leads me to find that Dr C did not provide Mrs A with an acceptable standard of care when discounting the diagnosis of aortic dissection.

⁴³ <https://www.cmaj.ca/content/192/29/E832>

Consideration of other cardiac conditions

90. Dr C advised that he discounted pulmonary embolism and pericarditis due to the lack of risk factors. However, again the exclusion of this diagnosis and how he came to this conclusion was not documented.
91. Dr Jeffrey advised that pulmonary embolism was a relevant illness to exclude due to Mrs A's pain on inspiration, shortness of breath, and collapse, all of which would not be usual with pain related to reflux.
92. Dr Jeffrey explained that although pulmonary embolism was not the cause of Mrs A's illness, it would be expected practice for the Wells' criteria and/or D-dimer tools to be used to rule out this diagnosis based on her symptoms. Dr Jeffrey advised that given that there is no documentation of these methods having been utilised, she considers that they were not used, and not using them is a severe departure from the expected standard of care.
93. In Dr C's 2023 response, he advised that he came across ADD-RS⁴⁴ and the D-dimer clinical tools after the complaint was received from Mrs B. He said that although not common practice in 2018, he utilises them now.
94. I accept Dr Jeffrey's advice in relation to the utilisation of these screening tools. I am satisfied that Dr C did not know of or use these assessment tools in ruling out pulmonary embolism or aortic dissection as a possible cause of Mrs A's symptoms, and therefore I find that he deviated from the accepted standard of care.
95. Dr Jeffrey also identified that in 2013 Mrs A had undergone assessment for chest pain, and it was recorded that there should be a low threshold for angiography if presenting with further chest pain in the future. Therefore, Dr Jeffrey considered that Dr C not seeking cardiac advice prior to discharging Mrs A was a severe departure from accepted practice.
96. I consider that had the appropriate review of Mrs A's history been undertaken, along with the advice from Mrs A's family about the significant family history, it would have been appropriate for Dr C to have obtained cardiac advice prior to Mrs A's discharge, and not doing so was a severe departure from the expected standard of care.

Supervision

97. Dr C had been appointed to a role in which he could work independently, although appropriate senior medical staff were available for consultation when considering causes for the symptoms Mrs A was experiencing.
98. Dr Jeffrey advised that usually a training doctor would need senior supervision when assessing a patient who appeared stable but had symptoms such as Mrs A was experiencing.

⁴⁴ A tool used to detect the risk of aortic dissection.

99. Given Dr C's inexperience, highlighted by his lack of knowledge of the EDACS tool and other validation decision tools, I would have expected him to have contacted senior medical colleagues to discuss Mrs A's presentation and possible causes for her symptoms. I consider that his failure to utilise the supervision available to him was a deviation from the expected standard of care.

Documentation

100. The requirement for doctors to keep clear and accurate clinical records is set out in the MCNZ statement (August 2008), 'The maintenance and retention of patient records'. The statement notes that doctors 'must keep clear and accurate patient records that report relevant clinical findings; decisions made; information given to patients [and] any drugs or other treatment prescribed'.
101. Dr C's documentation at the time of the incident was very brief and has hampered the investigations into the care provided to Mrs A. I appreciate that Dr C has been forthcoming in responding further to the complaint and investigation, particularly given that it has been five years since the incident occurred. However, the time elapsed makes his subsequent descriptions of events difficult to rely on.
102. I agree with Dr Jeffrey's comment that workload pressures, especially in an understaffed or busy ED, can result in brief documentation. Regardless, in this type of presentation, at the very least it would have been expected that Dr C's documentation would include regular pain scores and vital observations, the discounting of diagnoses as discussed above, Dr C's interpretation of the chest X-ray, and clear instructions regarding symptoms of concern that should prompt re-presentation to the ED. These points were not documented.
103. Dr Jeffrey advised:
- 'Whatever the reason on that day, I regard the brevity of documentation of a patient presenting after collapsing, complaining of chest pain and in ED for over 5 hours as a severe departure from accepted practice.'
104. Dr Jeffrey advised that the failure to document the discharge advice provided is a moderate departure from the expected standard of care. I accept Dr Jeffrey's advice.
105. I consider that Dr C's failure to document Mrs A's presentation in a manner that included vital observations, discounting of diagnoses, interpretation of the chest X-ray, and clear instructions regarding the circumstances under which to re-present to ED, is a departure from the expected standard of care and the standard set out in the MCNZ statement.

Conclusion

106. Dr C ruled out the diagnosis of aortic dissection despite Mrs A's presentation and concerning symptoms. He did not utilise appropriate tools for discounting other relevant differential diagnoses, and he did not utilise the supervision available to him or seek cardiology advice before discharging Mrs A from her first ED presentation. Accordingly, I

find that Dr C failed to provide Mrs A with services with reasonable care and skill, in breach of Right 4(1) of the Code of Health and Disability Services Consumers' Rights (the Code).⁴⁵

107. I acknowledge that Dr C has since explained that he considered aortic dissection and other cardiac causes for Mrs A's presentation. However, as there is no contemporaneous documentation providing evidence of this, I am unable to rely on the responses as fact, particularly given the time elapsed since these events. Dr C's documentation of his care of Mrs A did not meet the expected standards as set out by MCNZ and, therefore, I find that this amounts to a breach of Right 4(2) of the Code.⁴⁶

Opinion: Health NZ — adverse comment

108. Based on information provided by Health NZ, I have concluded that the clinical decisions made by Dr C were his alone, and that he was individually accountable for those decisions. He also did not seek collegial support, as would be expected and was available to him. Therefore, I find that Health NZ did not breach the Code. However, I make the following comments.

Pain relief and vital sign monitoring — adverse comment

109. I am concerned that throughout Mrs A's admissions to the ED there is a lack of documentation of Mrs A's vital signs and pain scores in her clinical records and there were ongoing issues with the monitor that were not rectified, which is the responsibility of nursing staff to complete with oversight from the treating doctor.
110. Mrs B stated that despite the documentation or lack thereof, Mrs A was in severe pain during this admission and was refused stronger pain relief owing to concerns that it might lower her blood pressure. I agree with Dr Jeffrey's advice that there is almost never a scenario in which severe pain cannot be treated immediately, even when blood pressure is very low.
111. Dr Jeffrey advised that if severe pain was present and not treated, this would be a severe departure from the accepted standard of care. Dr Jeffrey also considered that it was a moderate departure from accepted practice that vital signs were not measured from 2.50pm until discharge at 5pm, and I accept this advice.
112. It is difficult to ascertain Mrs A's level of pain and how well it was monitored due to the lack of documentation. The lack of pain scores and vital sign monitoring leads me to conclude that Mrs A's pain was not well assessed, monitored, and managed throughout her ED presentation on Day 1, and that from 2.50pm until 5pm her vital signs were not assessed adequately.

⁴⁵ Right 4(1) states: 'Every consumer has the right to have services provided with reasonable care and skill.'

⁴⁶ Right 4(2) states: 'Every consumer has the right to have services provided that comply with legal, professional, ethical, and other relevant standards.'

Serious Adverse Event (SAE) review — adverse comment

113. Health NZ advised in its response that it had undertaken a serious adverse event review of the incident around Mrs A's care. As part of this process, Health NZ utilised the Te Tāhū Hauora | Health Quality & Safety Commission Severity Assessment Code (SAC) rating and triage tool and determined that the incident was a SAC 3 event.⁴⁷
114. I note with concern that in its most recent response to this complaint, Health NZ advised that it had misplaced the final SAC 3 report. However, I understand that the issues contributing to this have been rectified and, although this specific report has not been located, future reports are stored in a more accessible and robust manner.

Standard of care during second admission

115. At the time of Mrs A's second admission, Dr E was a house officer. Dr Jeffrey advised that given the complex and unusual combination of symptoms Mrs A was experiencing, it would have been unlikely for Dr E to achieve a correct diagnosis without guidance from an experienced doctor.
116. Therefore, Dr E's decision to discuss Mrs A's worsening presentation with the surgeon on call was appropriate given that the most prominent symptom was lower gastrointestinal bleeding with vomiting and some abdominal tenderness.
117. Dr E proceeded to CT and other diagnostic measures under the guidance of Dr F and arranged an appropriate admission to ICU for monitoring, and she arranged for further review with an anaesthetist and a surgeon in the morning.
118. Dr E has documented Mrs A's second admission thoroughly, including consideration of diagnoses based on the symptoms, discussions had with both the family and senior medical staff, and the plan going forward.
119. Dr Jeffrey advised that both the assessment and documentation of the assessments by Dr E were thorough and of an appropriate standard, which I accept.
120. Mrs B's complaint also provided a detailed description of her and her family's experience of both admissions to ED and the subsequent admission to ICU. Mrs B said that the family felt they were robbed of the opportunity for surgery for Mrs A, due to a lack of diagnosis on the first day when Mrs A was under Dr C's care.

Supervision

121. At the time of Mrs A's presentation, Dr C had just finished a month of supervision, and two senior colleagues were available for him to contact as and when required for presenting patients. Therefore, I am not critical of the amount of supervision or oversight available for Dr C. I would have expected Dr C to contact his senior colleagues if he needed guidance.

⁴⁷ <https://www.hqsc.govt.nz/resources/resource-library/severity-assessment-code-sac-rating-and-triage-tool-for-adverse-event-reporting/>.

122. It appears that the departure from the accepted standard of care was Dr C's lack of utilising the senior colleagues available to him throughout the assessment of Mrs A, as outlined above.

Changes made since events

Dr C

123. Dr C has been forthcoming in advising of the following changes made to his practice since the time of these events:
- Through literature review Dr C became aware of the aortic dissection detection risk score along with D-dimer values that may be useful when considering further work-up in at-risk patients.
 - Dr C presented Mrs A's case at a Morbidity and Mortality Review — a meeting to discuss sub-optimal patient outcomes, investigate pitfalls, and propose solutions to avoid such events in the future. He proposed using the aortic dissection risk calculator along with a teaching session on this rare disorder to all ED staff members.
 - Dr C has undertaken several steps to educate himself further, including using online resources, listening to podcasts, and reading books and cases specific to emergency medicine presentations and the use of ECG and chest X-rays.
 - He routinely uses the validation decision tools such as ADD-RS, EDACS, Wells' score/ PERC rule⁴⁸/Years.⁴⁹
 - He has learnt the importance of collegial support and asking for advice in unknown or difficult situations.

Health NZ

124. Health NZ advised that following this incident it revised the way it employs MOSS-grade doctors to work in the ED. Any new doctors now undergo three months of supervision to ascertain their level of experience, before being placed on the SMO roster.
125. Health NZ provided copies of relevant documents updated and/or implemented since the incident, including the 'Accelerated chest pathway', 'Consultant on-call — when to contact', and the 'RMO investigation Guidelines Midnight to 8am'.
126. Health NZ accepted Dr Jeffrey's recommendation for 'routine daily use of a structured risk assessment approach to Aortic Dissection to be introduced to [the] ED' and advised that as part of its junior doctor training programme it has weekly teaching sessions. Since the incident with Mrs A, Health NZ has included in the rotation a session based on chest pain and its differential diagnoses, including aortic dissection.

⁴⁸ A tool used to rule out pulmonary embolism.

⁴⁹ An algorithm used to help rule out pulmonary embolism.

Recommendations

Health NZ

127. I am pleased to see that the update to the accelerated chest pathway has been adapted to include consideration of aortic dissection. I recommend that within three months of the date of this opinion, Health NZ provide details of education around using this tool, and communication of it for those working in the ED.
128. I recommend that within three months of the date of this opinion, Health NZ undertake an audit of patients who have presented with a primary concern of chest pain since the update to the pathway and analyse and provide to this Office details of the completion rate of the pathway.
129. Documentation standards by Dr C and those responsible for regular observation and pain scores were lacking at the time of the event. I would like assurance that documentation standards have improved since these events. Therefore, I recommend that Health NZ conduct an audit of at least 10 records throughout 2018 and 2023 for ED presentations to audit the adherence to documentation standards. Health NZ is to provide the results to HDC within six months of the date of this opinion.
130. I recommend that within three months of the date of this opinion, Health NZ provide a description of topics added to the education sessions as a result of this complaint and the recommendations made by Dr Jeffrey in her independent advice report — including, but not limited to, the use of bedside echocardiograms of the aortic root and heart, using tools such as ADD-RS and D-dimer, the importance of pain scoring, pain relief options when there is concern about low blood pressure, and interpretation of ECG and chest X-rays.

Dr C

131. I recommend that Dr C provide a letter of apology to Mrs A's family. This should be provided to HDC, for forwarding, within three weeks of the date of this opinion.
132. I recommend that Dr C undertake an audit of 30 of his patient records and discharge summaries for patients presenting with chest pain to determine the degree of compliance against documentation standards and routine use of validated decision tools: ADD-RS, EDACS, Wells/PERC/Years. The summary of findings with self-identified corrective actions (if any) is to be provided to HDC within six months of the date of this opinion.
133. I recommend that Dr C undertake refresher training on clinical documentation requirements and implement strategies to enable adequate contemporaneous documentation, especially when under a time constraint, and report back to HDC that the training has been completed and changes made to improve his documentation, within six months of the date of this opinion.
134. I recommend that Dr C use an anonymised version of this case for wider education of his current employer. This should be in the form of a case study presentation detailing the actions and decisions when treating Mrs A, and the results of these actions and decisions, and the appropriate course that should have been taken to arrive at a more desired

outcome. Evidence confirming the content and delivery of the presentation should be provided to HDC within six months of the date of this opinion.

Follow-up actions

135. A copy of this report with details identifying the parties removed, except the advisor on this case, will be sent to Health NZ and the Medical Council of New Zealand and placed on the Health and Disability Commissioner website, www.hdc.org.nz, for educational purposes. The Medical Council will be informed of Dr C's name.
136. A copy of this report will be sent to the Coroner.

Appendix A: Independent clinical advice to Commissioner

The following independent advice was obtained from Dr Penelope Jeffrey:

'The office of the Commissioner is seeking my opinion on the care provided by [the] District Health board ... to [Mrs A] during her two visits to the Emergency Department (ED) during the period [Days 1–3].

I have read and agree to follow the Commissioner's *Guidelines for Independent Advisors*, and have prepared my report in accordance with these guidelines.

My Qualification is MBChB (1993, Otago).

I am vocationally registered in Emergency Medicine, as a fellow of the Australasian College for Emergency Medicine since 2008.

I have practised as an Emergency Physician in a tertiary hospital in New Zealand from 2009–present.

I advise that commenting on the initial Emergency Department (ED) assessment, management and discharge of [Mrs A] on [Day 1], and the subsequent assessment in the ED on [Day 2] falls within my area of expertise.

I have commented on the admission to the Intensive care unit on [Day 3] under the care of a Surgeon and an Anaesthetist however this is my opinion as an Emergency Physician.

I have no personal or professional conflict of interest with regard to this case.

I have been provided and have read copies of the following documents:

1. Complaint by [Mrs B] dated 12/07/18
2. Response from [the DHB], consisting of a response from [Dr C] a Rural hospital medicine and General practice Registrar and a response from [Dr E] PGY (post graduate year)
3. There was no response provided by the [DHB] from other doctors involved in the admission on [Day 3] — [radiologist], Surgeon [Dr F], Admitting ICU [anaesthetist].
3. Copy of clinical records and Radiology images ...
4. Ambulance care summaries from [Day 1] and [Day 2]

Advice requested

I was asked to review the above documentation and advise

1. Whether I consider the care provided to [Mrs A] during her admission to ED on Day 1, was appropriate and consistent with the accepted standards of practice at the time;

2. Whether I consider that [Mrs A's] presenting symptoms and clinical history were appropriately assessed and treated on Day 1;
3. Whether I consider the care provided to [Mrs A] following her readmission to ED on Day 2, was appropriate and consistent with the accepted standards of practice at the time;
4. Any other matters in this care that I consider warrant comment

For each question, I was asked to advise:

- a. What is the standard of care/accepted practice?
- b. If there has been a departure from the standard of care or accepted practice, how significant a departure (mild, moderate, or severe) do I consider this to be?
- c. How would it be viewed by my peers? (Note — as this opinion is my own, and unless stated I have not consulted with peers, so I have not commented specifically on the view of my peers).
- d. Recommendations for improvement that may help to prevent a similar occurrence in future.

Summary of Events:

[Mrs A] was [a woman in her seventies] with a history of high blood pressure and dyslipidaemia (risk factors for heart and blood vessel disease) and depression. She had previously been assessed for chest pain in 2013, including an Exercise test, and the advice to future doctors in the clinical record was to 'have a low threshold for angiography if further chest pain'.

[Mrs A] took heart and blood pressure medications (Metoprolol, Quinapril, Hydrochlorothiazide and Aspirin) as well as a cholesterol lowering medication and an antidepressant.

At 09.30 on Day 1 [Mrs A] developed chest pain while at rest at home, and after 10 minutes an ambulance was called. This was dispatched immediately and paramedics attended at 10.21.

[Mrs A] was found lying on the floor. [Mrs B] states that [Mrs A] fainted in her chair, paramedic notes state "family lay [her] on the floor", but did not document loss of consciousness as such.

A nurse in attendance at the scene had inserted an IV and was administering IV fluids — 100ml was given.

The paramedics report that [Mrs A] described pain lasting 3–5 minutes — onset while sitting at a table ([Mrs B] reports onset while bending over), felt in the centre and left chest, crushing in nature, and associated with nausea. At the time of this initial paramedic assessment, however, she had no chest pain (her pain score was 0/10), no

shortness of breath, no nausea or abdominal pain, no bowel or bladder symptoms, and she was not dizzy on standing.

She was pale and her skin was cool to touch but a strong radial pulse was present.

[Mrs A's] heart rate was low (not unusual in a patient taking Metoprolol), and her blood pressure was very low at 80/60.

Her breathing rate and oxygen levels were normal.

En route to hospital [Mrs A's] blood pressure normalised and her pallor resolved. At some time after 11am, she voiced that she had developed pain in the chest on taking a deep breath.

An ECG was done by the paramedics at 10.37 — this was abnormal. T wave inversion was present in leads 2, 3 and AVF, and likely but less obviously T wave flattening in leads V4–6.

The ECG machine interpreted the T wave inversions correctly as “Abnormal ECG. Inferior/lateral T wave abnormality may be due to myocardial ischaemia”. Other less concerning abnormalities of “Sinus bradycardia, poor R wave progression and long QT — probable normal variant” were also automatically interpreted on the ECG.

It should also be noted here that the less concerning findings were more prominently displayed on the ECG, but also that automatic reports should always be backed up by human interpretation. The ECG was not mentioned in the paramedic documentation.

The Ambulance officers recorded the “Primary clinical impression” as “Atypical chest pain” and “code 3: unlikely threat to life” was assigned.

At 11.20 the ambulance arrived at hospital and Triage assessment occurred at 11.27. [Mrs A's] pain was 2/10 in severity, worse on breathing in, and was noted to be radiating into the neck. The nurse noted there was no shortness of breath or cough.

The triage nurse noted the low blood pressure in the ambulance but that this had now normalised after the 100ml of saline.

The nurse assigned a triage code of 2 (= should be seen within 10 mins).

The triage nurse did not note seeing the ambulance ECG and did not document any concern reported by paramedics regarding the ECG.

An Emergency department ECG was done at 11.27.

This was also abnormal — showing now clear T wave inversion in leads V5–V6. The T wave inversion in leads 2, 3 and AVF seen in the ambulance had resolved.

[Dr C] viewed the ECG and wrote a correct interpretation noting a low heart rate and the presence of T wave inversion in leads V5 and V6.

Blood tests were taken.

At 11.45 [Mrs A] was assessed by [Dr C]. The documentation of this assessment is in the form of the final discharge summary completed at 16.57.

[Dr C] documented that [Mrs A] had experienced “acute onset” of chest pain radiating to the neck and associated with diaphoresis (sweatiness), feeling cold and clammy, with lightheadedness and nausea. The pain was noted to be worse on inspiration, and improved on sitting forward. [Dr C] noted that there was “no history of SOBOE” (shortness of breath on exertion). It is not clear if this is relating to the current symptoms or days leading up to the presentation, as [Mrs A] had not mobilised since the onset of pain it would suggest in the lead up period — and no shortness of breath is documented by paramedics or at triage, however in [Dr C’s] response letter to the commissioner he states that [Mrs A] was experiencing shortness of breath at the time of his assessment, as is also described by [Mrs B].

[Dr C] noted that vital signs were normal.

Cardiovascular Respiratory and Abdominal Examination was noted as normal other than some fine crepitations (audible sounds) in the base of the right lung.

Vital signs were documented between 12.15 and 14.50 and were relatively normal. No further vital signs were done after this (in [Mrs B’s] complaint she states that the blood pressure cuff and oxygen monitor were not reattached to [Mrs A] after a trip to the bathroom).

No further pain score was documented during the admission apart from the 2/10 on arrival.

A Troponin (a highly sensitive blood test looking for heart muscle damage) was normal. Other blood results were also unremarkable.

At 12.10 Intravenous fluid of 1 litre was given as a “bolus” (given all at once) with intravenous Diclofenac (anti-inflammatory and pain relief) plus oral Aspirin (used if a doctor is suspecting impending or current heart attack).

At 12.50 Paracetamol pain relief was given — suggesting ongoing pain at this time.

At 13.50 a “Pink lady” was given — this is a term sometimes still used for liquid antacid mixed with local anaesthetic and is used to relieve pain from acid reflux.

At 13.50 Nursing notes state that [Mrs A] had been for a Chest Xray and had “slight nausea”.

The Xray showed abnormal changes at both lung bases. This was reported by [the radiologist] as possibly due to pulmonary oedema (fluid developing in the lungs due to heart problems) or evolving infection. It is not clear whether the report was available to [Dr C] — likely not as the report is documented as being dictated at 07.09 the next day. The Aorta does not appear abnormal on this Xray however this is common in Aortic Dissection.

[Dr C's] documentation does not mention his interpretation of the Chest Xray.

At 14.30 Nursing notes state that [Mrs A] was having cups of tea and eating sandwiches.

At 15.16 a further ECG was done — the T wave inversion in V5 and V6 were the same as that on the first arrival ECG. New T wave inversion was also now present in lead AVL and probably lead 1 also, although this is subtle.

A further Troponin blood test taken at 15.30 — the result of this (normal) was reported at 16.34.

[Mrs A] was discharged at 1700.

The discharge summary states [Mrs A's] chest pain had been relieved by the "Pink lady", that [Dr C's] impression was "chest pain of oesophageal cause" and she was discharged with a prescription for anti-reflux medication. The discharge summary indicated written and verbal advice was given but not what that advice was. [Dr C] in his response advises that he told [Mrs A] to return if her pain or shortness of breath recurred.

At 19.42 on [Day 2] an ambulance was again called to [Mrs A's] home, was dispatched immediately, and reached her at 20.21. She had told family she was experiencing nausea, and she had then been observed to collapse and become unconscious with seizure activity and urinary incontinence.

The same nurse as the day before was in attendance at the scene and reported to paramedics that on her arrival [Mrs A] was sweaty and grey, not fully conscious, and not answering questions coherently, with laboured breathing, but a good pulse and saying "no" when asked about pain. The collapse of the previous day was noted, and that [Mrs A] had been discharged with likely indigestion as she had "responded well to a Pink Lady" and Troponins had been negative.

[Mrs A] was observed by the paramedics now to be conscious but pale, with grey and mottled skin colour, and she was sweaty and short of breath. She denied pain but reported she had been experiencing chest pain through the night after discharge and that day before the collapse. Her blood pressure and oxygen levels were low. Her heart rate was normal.

Oxygen was applied, Aspirin was given and an IV inserted, with 200ml of fluid given.

An ECG was done — this was reasonably unremarkable — the T wave inversion seen the previous day had resolved.

En route to hospital [Mrs A] improved although she still remained pale. Her blood pressure which had remained very low during transit had improved slightly but was still low for someone with hypertension at 100/80.

She still denied pain and the pain score was 0/10 throughout transport. The clinical impression noted was “Collapse and Hypotension” (low blood pressure) and a code of “2 — possible threat to life” was assigned.

[Mrs A] arrived at hospital at 21.45 and was seen by the triage nurse immediately.

The nurse noted that [Mrs A] had experienced chest pain throughout the day with nausea, and a collapse with seizure activity and incontinence. [Mrs A] looked pale with mottled legs and was agitated.

At 21.50 another IV was inserted and blood tests sent.

At 22.35 1000ml of fluid was given over an hour.

At 2200 [Mrs A] was assessed by [Dr E]. Her documentation is thorough and found on the ED Medical assessment form and a later Medical admission form.

[Dr E] began by noting the presentation to ED the day before with chest pain, “improved with a Pink Lady”, with stable ECG, no interval changes, and unremarkable blood test results.

She noted [Mrs A’s] past history of Hypertension and Depression and also of Chest pain in 2005 and 2013 with the ECG and Exercise test results from 2013 and the recommendation for low threshold for angiography if ongoing chest pain. She also noted a syncopal (collapse) episode in 2004.

[Dr E] then took the history of the current presentation — she noted that [Mrs A’s] chest pain had been gradually worsening since the day before and reported it as “? like reflux” (but that [Mrs A] had not suffered from reflux before), a “gripping” pain, radiating into the neck. She noted [Mrs A] also reported “some” but “not significant” amount of abdominal pain, and that she felt short of breath, lightheaded, dizzy and unwell.

[Dr E] noted the history of collapse with warning of feeling lightheaded, the family’s observation of a seizure lasting 5 minutes, and then decreased responsiveness and looking like she was going to die, and the hypotension at the scene.

[Dr E] documented that [Mrs A] had vomited once since arriving in ED, with blood speckling in the vomit, and had now passed 2 large bowel movements with approx. 150 ml fresh red blood mixed into the stool.

She also documented that [Mrs A] complained of neck pain which was a chronic (longstanding) problem for her.

[Dr E] examined [Mrs A] and noted she looked unwell, was pale and cool to touch, with prolonged central and peripheral capillary refill (signifying poor blood supply to the skin common in many causes of severe unwellness), an irregular pulse, normal heart sounds, otherwise unremarkable chest examination (but only examined at the front and sides of the chest — as is often the case when a patient is very unwell and Xrays are planned) and a soft non-distended abdomen with upper abdominal tenderness to palpation, and normal bowel sounds.

Vital signs are charted every 20–30 minutes — [Mrs A's] heart rate was steady at 70–80 and blood pressure initially low, improving a little but remaining low after fluid administration. Oxygen levels were slightly below normal to low normal — requiring a small amount of oxygen to achieve this initially but no oxygen required after a few hours. Pain score was not charted.

An ECG was relatively normal with only occasional extra beats seen.

Blood results showed initially normal haemoglobin (which can be a measure of blood loss but can be normal early in even significant blood loss), with moderately raised white cells and moderately raised CRP (the former can be a stress response or sign of infection or inflammation, the latter a more reliable sign of infection).

Kidney function blood tests had deteriorated slightly compared with the day prior. Troponin was raised, compared with normal the day before. (Troponin elevation can be a non-specific sign: causes include a heart attack, but also heart strain due to severe unwellness of any cause, or in the context of abnormal kidney function can be elevated in the absence of heart problems.)

Liver tests were mildly abnormal. Glucose was mildly raised which can be a non-specific illness response.

A Chest Xray was taken. This showed worsening abnormal lung changes plus fluid accumulation in the lung bases (these changes are reasonably non specific and can be due to problems in the lung such as infection, or problems with the heart, or can occur in other general severe unwellness including with cholecystitis).

The heart and the mediastinum (which includes the first part of the aorta) appeared unchanged from the day before given the differing projection of the two films.

The report of this Xray was dictated at 02.24 — the time at which the formal report was available to [Dr E] is not clear and she did not note her own interpretation of the Chest Xray findings in her documentation. Given that by this time [Dr E] had discussed the case with [the radiologist] who had agreed to perform an abdominal CT, I think this is an oversight and [Dr E] and [the radiologist] had both likely seen the CXR

abnormalities (which were also visible on CT and reported in [Dr E's] documentation of the CT), and the lack of documentation is an oversight.

At 00.05 another litre of fluid was given to [Mrs A] over an hour, antibiotics were started and paracetamol given.

At 23.37 [Dr E] discussed [Mrs A's] presentation with the surgeon on call who advised a CT abdomen. This was reported by [the radiologist] as showing thickening of the low end of the bowel indicating likely colitis (inflamed bowel, which can be due to many causes — including low blood flow to the bowel) and which was thought by [the radiologist] to be the likely cause of blood in bowel motions, plus free fluid in the abdominal cavity.

The CT scan also showed thickening of the gallbladder wall suspicious for Acute Cholecystitis (recent onset inflammation of the gallbladder). In addition changes in the liver and spleen were present that [the radiologist] reported as suggesting poor cardiac function and decreased venous return to the heart. [The radiologist] noted that the abdominal Aorta and its branches appeared normal.

The whole chest had not been scanned, but the bottom of the lungs and heart were visible on this abdominal scan. [The radiologist] noted pleural effusions (fluid around the lung) on both sides, and a large pericardial effusion (fluid around the heart).

The findings were discussed by [the radiologist] with [Dr E] at 01.40, and at 01.52 [Dr E] called [the surgeon] with the results of the CT scan.

A plan was made for [Mrs A] to be admitted to Intensive care unit (ICU) under the care of [the surgeon]. [Dr E] also discussed the admission with the ICU admitting anaesthetist who also agreed with the plan and advised that the ICU Physician on duty would review [Mrs A] the next day with respect to “work-up” (diagnosis of the cause) of the pericardial effusion.

[Dr E] documented her admitting impression as “GI (Gastrointestinal) bleed”, “? Acute Cholecystitis” and “Chest pain ? significance”, and that the collapse and seizure at home had likely been due to low blood pressure.

In line with the plan agreed with [the surgeon], [Dr E] prescribed IV fluids and antibiotics, pain relief and thromboembolic prevention stockings, gave instructions for urine and bowel motion monitoring. ECG was to be repeated if chest pain recurred, and repeat Haemoglobin and Troponin tested at 0200. A plan was made for blood transfusion and Tranexamic acid (a medication that aids clotting) if a significant haemoglobin or blood pressure drop occurred or if further significant bleeding in the bowel motions was seen.

The repeat blood tests at 0200 showed a small drop in haemoglobin to 128 (insignificant given the diluting fluid that had been given).

At 02.20 [Mrs A] passed further bowel motions with blood.

At 03.30 ICU nursing staff note the admission to ICU. I was not provided with the ICU vital signs chart. [Dr E] in her response notes that pain scores of 1/10 and 4/10 were recorded (the latter for neck pain but the neck pain was noted to be a long term pain for [Mrs A]).

Chest and Abdominal pain was noted on the ICU admission visual body diagram.

In the nursing notes [Mrs A] is noted to remain stable during the night, other than needing a small amount of oxygen to maintain low normal oxygen levels and being very tired. Her heart rate was stable in the 70s and blood pressure was noted to have now improved to 140/- .

A further 1000ml of fluid was given over 4 hours.

At 0600 [Mrs A's] blood pressure was noted to be very high — 180/122. No note is made of whether this was notified to medical staff.

At approximately 06.55 [Mrs A's] heart rate dropped and she collapsed. CPR was commenced and multiple doses of Adrenaline were given.

[Dr E] in her response documents that needle aspiration of the fluid around the heart was attempted on 3 occasions during resuscitation but I cannot see this documented in the notes. I believe there is a page of resuscitation notes that documents the resuscitation between 7.09 and 07.27 that is missing, however as it is clear that [Mrs A] would not have survived the resuscitation, I have not asked for these notes to be found.

The [on call physician] was present during the initial resuscitation, as was the medical house officer [Dr C], and [Dr E].

[The anaesthetist] was documented at the scene at 07.28, performing cardiac ultrasound. Resuscitation was continued for 31 minutes, however was not successful and [Mrs A] passed away at 07.30 on [Day 3].

My Opinion on the questions posed by the Commissioner

As a preface to my opinion:

Chest pain assessment in the Emergency department is a complex task due to the large number of potential causes of chest pain, and because any one particular cause for chest pain may present in many different ways.

Aortic Dissection can be an exceedingly difficult diagnosis to make. It can present in a vast number of ways and symptoms may overlap with the symptoms of many other diseases¹.

Even Emergency specialists, who are the clinicians most experienced in diagnosis of Aortic Dissection, often struggle to identify the condition. As correctly stated by [Dr C] in his response, rates of misdiagnosis in the Emergency department are reported to be as high as 38%².

As Aortic dissection is also a rare disorder³, many clinicians will never have personally diagnosed a case. This is especially true of doctors in the first few years of clinical practice. In my experience and that of my peers, a junior doctor would commonly not be able to identify the diagnosis of Aortic dissection without senior help.

The definitive test for Aortic dissection is CT Aortography (CTA). This cannot be used in every patient presenting to the Emergency department with chest pain however, as this would cause harm through contrast and radiation exposure, and also as discovery of other incidental findings can expose a patient to the harm of further diagnostic tests or treatments for a condition that may never have troubled them. Over-use of finite health resource also precludes this approach.

A high degree of suspicion for Aortic Dissection is needed, combined with a systematic clinical rule-out approach, using CTA when clinically indicated^{1,2}.

Emergency Medicine Specialists are doctors who specialise in achieving a diagnosis from undifferentiated symptoms.

Bedside or point of care Echocardiography can greatly aid diagnosis of Aortic dissection⁴.

Echocardiography skills are usually acquired at a mid–late stage of training in some specialties, for example in Emergency, Intensive care, Rural Care or Cardiology specialties.

Were [Mrs A's] presenting symptoms and clinical history appropriately assessed and treated on Day 1?

DIAGNOSTIC PROCESS

This was difficult to assess due to the brevity of contemporaneous documentation by [Dr C].

The standard of care in cases of chest pain, is for life-threatening causes to be considered and systematically ruled out. Some of these conditions are mentioned by [Dr C] in his response — Aortic Dissection, Myocardial infarction, and Pulmonary Embolism.

Aortic dissection

It is not apparent from the very brief clinical documentation on [Day 1] that [Dr C] did consider Aortic Dissection as he states in his response. For example there is no documentation of enquiry into the character of the pain, any migration of pain, associated neurologic, abdominal or limb symptoms, the past medical history of hypertension, family history, examination features such as bilateral pulses or blood

pressures, or the appearance of the mediastinum (including the Aorta) on the Chest X-ray.

In addition, an episode of collapse and hypotension at the scene was not mentioned by [Dr C].

[Dr C] states in his response that he did consider Aortic Dissection. He states he discounted the diagnosis due to the lack of severe ripping or tearing pain radiating to the back, lack of neurologic symptoms, lack of widened mediastinum on Chest X-ray, documented low pain score of 2/10, the normal vital signs, lack of risk factors such as smoking or connective tissue disorders, and the rarity of Aortic dissection.

[Dr C] states due to “rapid relief of pain with ‘Pink Lady’, an impression of reflux seemed most likely”. Relying on a reduction of chest pain following oral antacid/local anaesthetic (ie using this as an indicator of reflux as the cause for the pain) in my opinion and that of my peers is a common pitfall in the assessment of chest pain.

I do note the documented low pain scores in the ambulance and at triage and other factors that would be less common in Aortic dissection such as pain on inspiration, improved on sitting forward.

From [Dr C’s] response, he is now aware of the use of the ADD-RS+ D dimer clinical decision tool. Use of this tool is common in 2022 but was not standard of care in 2018.

Given [Mrs A’s] concerning symptoms of sudden onset pain radiating to the throat and associated collapse, her age and past history of hypertension, and while I recognise the known difficulties with diagnosis of Aortic Dissection, in my opinion it was a **severe departure from accepted practice** to discount the diagnosis at this stage.

As noted in my preface above however, a training doctor would usually need senior supervision to recognise this — especially in a stable patient as [Mrs A] appeared to be at that time.

Adequacy of assessment for life threatening conditions other than Aortic Dissection

Myocardial Infarction

[Dr C] did take steps to rule out Myocardial infarction by reviewing ECGs and ordering two troponin blood tests.

[Dr C’s] clinical documentation at the time and in his response however, does not show he saw the abnormalities present on the ambulance ECG. In his response he describes the automated report of the less concerning abnormalities of “Sinus bradycardia, poor R wave progression and long QT — probable normal variant”, but not the “Inferior/lateral T wave abnormality may be due to myocardial ischaemia”.

Regarding the abnormal lateral T wave inversion [Dr C] saw on the ECG in the Emergency department, he did not document whether he took steps to check whether those changes were present on old ECGs. It is likely that the old ECGs would

only have been available if the hard copy notes were called down to the Emergency department. A description of an ECG in the previous record of prior presentations can be helpful in this situation — the past notes are documented as describing lateral ST depression but not T inversion and it is unclear whether those changes were present during the exercise test or at rest.

[Dr C] also stated that there were no changes on the second ED ECG — however there is new T wave inversion in AVL and 1 (subtle).

It is not apparent whether [Dr C] used the EDACS tool which would be standard of care at the time. Even if the ECGs had been normal and with the negative Troponins, [Mrs A] would not be low risk using this tool. Given the previous advice to have a low threshold for cardiology review in the event of further chest pain, in my opinion a Cardiology opinion should have been sought.

Not reviewing the ambulance ECG, or not recognizing the abnormality on the ambulance ECG, or not taking steps to ensure that the abnormal findings of the Emergency department ECG had been present on old ECGs or not using the EDACS tool would all be **a severe departure from accepted practice.**

Not seeking Cardiology advice before discharge is in my opinion **a severe departure from accepted practice.**

Pulmonary embolism

[Dr C] in his response mentions discounting Pulmonary embolism due to the lack of risk factors, but not that he used a tool such as Well's Criteria +/- D dimer to rule out the diagnosis. Nor is this mentioned in the documentation on the day of assessment. This is a relevant illness to exclude due to [Mrs A's] pain on inspiration, shortness of breath (not documented at the time but described by [Dr C] in his response and [Mrs B's] complaint) and collapse — all of which would not be usual with pain related to reflux.

Although not the cause of [Mrs A's] illness, if these methods were not used, this would be **a severe departure from accepted practice.**

Chest X-Ray review

This was ordered by [Dr C] as [Mrs A] was presenting with acute chest pain, worse on inspiration, shortness of breath (as above — not documented at the time but described by [Dr C] in his response and by [Mrs B]) and had an abnormal chest examination. It is also relevant as assessing the Aortic contour on a Chest X-ray is part of the assessment for Aortic dissection (although not a sensitive test — and the Aortic contour was not abnormal that day.)

Neither [Dr C's] interpretation of the Chest X-ray nor any knowledge of a formal Radiology report of the Chest X-ray are mentioned in his documentation that day.

The Chest X-ray did not show signs of Aortic dissection, but was not normal with abnormalities not explained by a diagnosis of reflux.

The Chest X-ray findings were either not appreciated by [Dr C], or were seen but not further pursued.

As above I am not sure if the formal report of the abnormalities was available to [Dr C].

Discharging [Mrs A] with the abnormal Chest X-Ray findings not explained **is a severe departure from accepted practice.**

DISCHARGE ADVICE

It is not clear what advice was given on discharge and in what form.

The discharge summary states that written advice was given to [Mrs A] but this was not supplied to me. The standard of care would be a discharge summary given to [Mrs A] at the time of discharge containing clear instructions regarding symptoms of concern that should prompt re-presentation to the Emergency department or GP follow-up. [Dr C] in his response states that [Mrs A] was told to return if her pain recurred or concerns arose, and that it is his routine practice to advise patients to return if symptoms worsen.

If such advice was not at least verbally provided, it is **a severe departure from accepted practice.** If provided verbally but not in written form this would **be a moderate departure from accepted practice.**

DOCUMENTATION

[Dr C's] documentation was extremely brief and appears to be found only on the discharge summary — presumably completed at the time of discharge. There is a tick on the paper clinical record in a box saying “see electronic attendance summary” suggesting this was common practice in the department however this is accepted standard only in a quick assessment of a minor case. This is because documentation of the medical assessment must be available to nursing and other staff during the patient's stay to enable information sharing and minimise error.

It must be noted workload pressures especially in a busy or understaffed Emergency department may result in brief and non-contemporaneous documentation. For example a doctor may be called urgently from a patient they have just seen to attend to a new urgent case requiring resuscitation, before they have had a chance to write notes on the first patient.

Whatever the reason on that day, I regard the brevity of documentation and the lack of contemporaneous documentation in a patient presenting with collapse and chest pain and in the ED for over 5 hours as **a severe departure from accepted practice.**

PROVISION OF SPECIALIST MEDICAL EXPERTISE IN THE EMERGENCY DEPARTMENT

[Dr C] in his response stated that he was a Medical officer in [the] ED and a Rural hospital medicine and General practice Registrar (training doctor). From my question to the DHB, [Dr C] was working in [the] ED as a training placement, to contribute to his qualification.

I am not clear whether [Dr C] had access to direct senior supervision in his workplace on the day in question. To my questioning on this point, the DHB stated that [Dr C] was supervised in his remote and rural qualification but not whether that supervisor was available to him on site on the day. My assumption is that they were a remote supervisor and not available in the workplace. The DHB also stated that [Dr C] “worked alongside” two senior medical officers that day. It is not clear to me whether [Dr C] was employed to work independently to those senior doctors or directly under their supervision. This is an important distinction, as especially in a busy Emergency department, unless a doctor knows that there is a direct line of supervision provided, concern of interrupting a busy colleague that one is “working alongside” is a significant barrier to seeking out an opinion from a more experienced diagnostician. In addition, due to the recognised stages of learning⁵ trainee doctors other than those in a very late stage of training should not be left to decide which of their cases they need help with, but instead should be expected to discuss all except the most minor of cases with an on-site supervisor.

It is difficult to successfully diagnose Aortic Dissection in the ED without the help of an Emergency Specialist.

Requirements for Emergency Departments in smaller centres in NZ to provide training doctors with senior supervision by an Emergency Specialist is out of my scope of practice so I will not comment as to whether any lack of supervision for [Dr C] that day is a departure from accepted practice.

Was the care provided to [Mrs A] during her admission to ED on [Day 1] appropriate and consistent with the accepted standards of practice at the time?

Triage and Medical/Nursing assessment were completed in a timely manner.

MONITORING

Vital signs were not measured from 14.50 until discharge at 1700. [Mrs B] reports that monitoring was removed after [Mrs A] went to the toilet. Given that the second Troponin (ruling out myocardial infarction) was still awaited until 16.34, in my opinion this a **moderate departure from accepted practice**.

PAIN RELIEF

After the initial IV Diclofenac at 12.10, additional paracetamol given at 12.50 and the pink lady at 13.50 — which all suggest [Mrs A] was experiencing ongoing pain. The pain score is not filled out during the admission however. I note the low (2/10) pain score at triage and [Dr C’s] documentation that pain had resolved at discharge (after the pink lady).

Although not ideal, pain scores are commonly omitted from documentation as other factors may be used to determine administration of pain relief eg a question such as “would you like some more pain relief?”. For this reason the lack of documentation of pain score is only a **mild departure from accepted practice**.

[Mrs B] states that despite the documentation above, [Mrs A] was in severe pain during this admission and was refused stronger pain relief due to concerns it might drop blood pressure. Actually there is almost never a scenario in which severe pain cannot be immediately treated even when blood pressure is very low.

If severe pain was present and not treated, this would be a **severe departure from accepted practice**.

Recommendations for improvement that may help to prevent a similar occurrence in future:

1. [The] Emergency Department be staffed to ensure Emergency specialist supervision of training doctors. This would provide clinical diagnostic expertise including bedside ultrasound skills. A bedside Echo of the Aortic root and heart may have helped make the diagnosis.
2. [The] Emergency Department review with the [medical school] whether they are providing suitable supervision to Rural Hospital medicine trainees on their clinical placements.
3. Routine daily use of a structured risk assessment approach to Aortic Dissection be introduced to [the] Emergency Department. An example of such an approach is use of a tool such as ADD-RS + d-Dimer.

In my department our Aortic Dissection pathway involves pre-test probability assessment (a modified ADD-RS tool), combined with requirement for ED SMO review of the patient if low risk (ie not going straight to CTA), CXR, Bedside Echocardiography, and use of D dimer and CTA as needed. This has been described by one of my colleagues as a “game changer”.

It is my personal experience that our Emergency Specialists routinely need to remind less experienced staff (who have usually never seen a case of Aortic Dissection) to use the pathway.

If training doctors are required to practise in [the] ED without Emergency specialist supervision, the use of whatever risk assessment tool is chosen would need to be continually promoted by another means. It could be included in orientation material for doctors (along with other scoring systems such as EDACS for acute coronary syndrome and Wells/PERC/YEARS for Pulmonary embolism), but in the absence of senior supervision, routine consideration of the diagnosis/use of the clinical risk assessment tool would need to be promoted by other means. An example would be a check box on documentation.

I cannot stress highly enough that the diagnosis of Aortic Dissection needs to be considered in every patient with chest pain, and this needs frequent if not daily promotion amongst all medical and nursing staff, not just formal intermittent education sessions (although these help).

In addition orientation to the Emergency department for doctors could include a specific session on Emergency department chest pain assessment with particular focus on strategies for ruling out life threats.

4. Routine request of past hard copy medical records in all patients with chest pain should be made to enable comparison of ECGs (in my institution this is done for all patients given a triage code 2).
5. [The] Emergency and Radiology departments review reporting of radiology from the Emergency department.

Ideally reporting Emergency images should be prioritised, and reports issued as soon as possible with consideration to the feasibility of providing clinicians with a report while the patient is still in the department. The reports should go straight onto the digital information system, allowing Emergency doctors to access them. The timely “sign off” of reports by Emergency clinicians should also be prioritised and documented by the ED.

The reason for my advice here is that if the Chest Xray formal report had been available to [Dr C], even if he had not recognised the abnormalities himself, having seen the report he may not have discharged [Mrs A] but instead consulted with a Medical physician or a Cardiologist, providing another opportunity for correct diagnosis. Alternatively if the Xray was not reported till the next day but when issued was immediately seen for sign-off by an Emergency clinician, [Mrs A] may have been called back to hospital before her condition deteriorated.

6. Digital clinical information system be used in the ED (not just for discharge documentation). These commonly used systems can be accessed anytime by treating staff from anywhere in the department, allowing contemporaneous documentation and immediate information transfer between staff. It saves clinician time (eg cut and pasting instead of writing notes manually and then typing the same information onto the discharge summary). It can also enable documentation of vital signs and a supervising doctor’s input into the case.
7. The discharge summary template be pre-populated with mandatory fields such as “Specific advice given to patient” and/or “Reasons to seek medical attention after discharge”. If digital information systems communicate, discharge summaries can be auto-populated with Pathology and Radiology reports.
8. Staff education around use of pain scoring on the vital signs chart, pain relief options in case of low blood pressure concerns, and removal of monitoring and replacement after patient movements.

9. [Dr C] be provided with my opinion. Depending on his area of current practice, [Dr C] could consider

- Reviewing his approach to diagnosis of chest pain — particularly with regard to systematic rule-out of life threats before entertaining a reflux diagnosis.
- Ensuring routine use of validated decision tools (ADD-RS, EDACS, Wells/PERC/Years)
- Review of ECG and CXR interpretation skills
- Acquisition of Bedside Ultrasound/Echo skills
- Strategies to enable adequate contemporaneous documentation especially when under time constraint.

I note that [Dr C] in the intervening 4 years may have done all of the above.

It is clear from his response that he had changed his medical practice already at that time.

Do I consider the care provided to [Mrs A] following her readmission to ED on [Day 2], was appropriate and consistent with the accepted standards of practice at the time?

In my opinion both the initial assessment and documentation of this by [Dr E] in the Emergency department on [Day 2]–[Day 3] was thorough and of appropriate standard for her level of experience.

[Mrs A] was by now clearly very unwell on this second presentation. The clinical picture had progressed. There was by now an extremely complex and unusual constellation of symptoms, signs and abnormal investigation results — confounding the assessment and making the correct diagnosis more obscure rather than more obvious — especially given the normal appearance of the abdominal Aorta on CT scan.

With this clinical picture, I am in absolutely no doubt that a PGY 3 doctor would not be able to achieve the correct underlying diagnosis without guidance from a more experienced doctor.

I have assumed that [Dr E] at that time did not have an Emergency Specialist supervising her in the ED. She instead discussed the case with the surgeon on call, which given the now very prominent symptom of lower GI bleeding/vomiting and some degree of abdominal tenderness on examination was appropriate.

The plan for ICU admission was made, with subsequent consultation with [the anaesthetist] — described as the anaesthetist covering ICU admissions.

It appears [Mrs A's] symptoms at this time, including her collapse, were thought by this senior admitting team of [the surgeon] and [the anaesthetist], to be due to gastrointestinal blood loss due to colitis, +/- infection from the inflamed gallbladder.

The chest pain was apparently still not explained (although it should be noted that an inflamed gallbladder can at times cause chest pain), nor the pericardial and pleural effusions.

There is no contemporaneous documentation from either [Dr F] or [the anaesthetist] to enable insight into their decision making process — for example whether these doctors were aware of [Mrs A's] presentation the day before and the extent of the chest pain she had experienced over the previous 36 hr.

No response to the commissioner was provided by the DHB from these two senior admitting doctors nor from [the radiologist].

In addition it is not clear to me whether [the surgeon] and [the anaesthetist] +/- [the radiologist] spoke together in person regarding [Mrs A's] case, or all just spoke with [Dr E], which seems more likely from [Dr E's] documentation.

It is evident from the documentation supplied, the planned overnight management pathway, and the verbal information relayed to family as reported by [Mrs B], that the unifying diagnosis of Aortic dissection was not considered at any time. As above I do not think this is unusual given the now extremely confusing clinical picture, especially with a normal looking descending aorta on CT. I note that a general surgeon and an anaesthetist would be unlikely to have experience diagnosing Aortic dissection.

The following is the perspective of an Emergency Physician:

I am critical that given the findings on CT of both pericardial effusion and signs of decreased venous return to the heart, along with the history of chest pain and collapse and [Mrs A's] signs of severe illness, that none of the three senior doctors (Surgeon/Anaesthetist/Radiologist) advised an urgent bedside Echocardiogram to rule out the immediate life threat of Pericardial tamponade (which can be due to Aortic dissection — or due to another cause).

I am presuming Echo was within the scope of practice of [the anaesthetist], as it is documented he was performing it during the attempted resuscitation of [Mrs A]. It may be that the appearance of the pericardial effusion on CT was reassuring with regard to the possibility of tamponade, but it is out of my scope of practice to comment on this.

I regard this as **a severe departure from expected standard.**

Recommendations for improvement that may help to prevent a similar occurrence in future.

1. As above, Emergency Specialist supervision be provided for junior doctors in [the] ED — providing diagnostic expertise and ultrasound skills.

2. Review in person by a more senior doctor than a PGY 3 would seem reasonable for patients sick enough to require ICU admission, even if they appear stable at the time.

In addition SMO to SMO discussion between admitting specialty SMO (in this case surgical) and admitting ICU SMO may help.

Other matters in this care that I consider warrant comment

I am critical that the DHB did not provide a response to the commissioner from the 3 senior doctors involved with [Mrs A's] care.

A Radiology opinion on the imaging would be relevant — particularly with regard to whether any signs of dissection on the CT were missed and whether it was reasonable that the appearance of pericardial effusion and impaired venous return to the heart did not raise suspicion of cardiac tamponade.

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