Health New Zealand|Te Whatu Ora
Te Pae Hauora o Ruahine o Tararua MidCentral

A Report by the
Health and Disability Commissioner

(Case 21HDC00234)

HEALTH & DISABILITY COMMISSIONER
TE TOIHAU HAUORA, HAUĀTANGA

Contents

Complaint and investigation

1. The Health and Disability Commissioner (HDC) received a complaint from Mrs A and her family about the services provided by Health New Zealand|Te Whatu Ora (Health NZ) Te Pae Hauora o Ruahine o Tararua MidCentral. The following issue was identified for investigation:

- *Whether Health NZ|Te Whatu Ora Te Pae Hauora o Ruahine o Tararua MidCentral provided [Mr A] with an appropriate standard of care between [Month9] 2019 and [Month13] 2020.*

2. The parties directly involved in the investigation were:

Mrs A	Complainant/family spokesperson
Health NZ Te Pae Hauora o Ruahine o Tararua MidCentral	Provider
Palmerston North Hospital	Provider
Health NZ	Provider
Dr B	Provider/cardiologist

3. Independent clinical advice was obtained from cardiologist Dr Ian Crozier (Appendix A).

Information gathered during investigation

Introduction

4. Mrs A[1] complained about the care provided to her late husband, Mr A, at Palmerston North Hospital (Health NZ Te Pae Hauora o Ruahine o Tararua MidCentral[2]). Her concerns relate to Mr A's delayed diagnosis of subacute bacterial endocarditis (SBE — an infection of the inner surface of the heart). Mrs A also raised specific concerns about consultant cardiologist Dr B in relation to his assessment and reporting of Mr A's condition.

5. Mrs A believes that several opportunities to diagnose Mr A's SBE were missed over three months, during which he deteriorated. Sadly, Mr A died. I extend my sincere sympathies to Mrs A and family for their loss.

Background

6. At the time of events, Mr A was aged 74 years. Mrs A told HDC that in his late sixties he had gone trekking. He was a lifelong tramper, and in his seventies he was fit and active. Asthma was a minor problem, mainly occurring at night, and never while exercising. He had never

[1] Mrs A is a retired surgical registered nurse.
[2] Formerly MidCentral DHB.

had symptoms of a cough, sputum, or shortness of breath on exertion prior to developing heart failure in Month10.

Heart valve issues

7. On 14 Month1 Mr A's general practitioner (GP), Dr C, sent a referral to the Palmerston North Hospital requesting that Mr A have an echocardiograph[3] to investigate a pansystolic murmur (a heart murmur). The referral was prioritised as urgent (to be completed within two months). An echocardiograph on 7 Month5 showed severe aortic stenosis (narrowing of the aortic valve restricting blood flow from the heart to the aorta and forcing the heart to work harder). The cardiologist completed the report on 10 Month5 and requested that Mr A be seen by a cardiologist at Palmerston North Hospital.

8. On 5 Month6 Mr A was seen by cardiologist Dr D. Dr D's clinic letter noted that 'asymptomatic severe aortic stenosis' had been identified and stated: '[P]atient is fairly asymptomatic from cardiac viewpoint — Is a tramper. Good peripheral pulses without oedema (fluid retention).' Dr D's plan was to assess the function of Mr A's heart with an exercise tolerance test (ETT),[4] and from the outcome of the ETT determine whether an aortic valve replacement (AVR) was required. Dr D completed a referral form for an ETT, marked as urgent.

9. On 16 Month8 Mr A underwent an ETT at Palmerston North Hospital.

23 Month8

10. On 23 Month8 Mr A consulted Dr C because two weeks previously his finger had been spiked by a rose thorn. The thorn had been removed but his finger had been festering for a few days. Mr A had first reported to Dr C in early Month6 that he was having bowel symptoms and at this visit he reported that his bowel motions had changed over the previous two months, and were looser and, at times, blood stained. He requested screening for bowel cancer.

11. Mrs A told HDC that her husband first experienced night sweats and rigors on the night of 23 Month8, which continued during Month9, with associated and intermittent low-grade temperature spikes (37.5°C–38°C), despite Dr C prescribing two courses of antibiotics.

12. On 11 Month9 Dr C referred Mr A to Palmerston North Hospital surgical services for assessment regarding 'a three-month history of frequent pink to red bleeding following bowel motion'.

13. On 21 Month9 Dr C contacted the cardiology administrator requesting the ETT report from 16 Month8. The administrator emailed cardiologist Dr E regarding the request.

[3] A procedure that uses high energy sound waves (ultrasound) to look at tissues and organs inside the chest. Echoes from the sound waves form a picture of the heart on a computer screen.
[4] An ETT involves having two ECG scans — one while exercising and one while resting — to show how the heart copes while under stress.

14. The ETT report from 16 Month8 was unable to be located, so Dr E dictated a clinic letter to Dr C reporting 'Normal exercise stress test for aortic stenosis with no fall in blood pressure and no symptomatic aortic stenosis throughout exercise or recovery'. Mrs A stated that this indicated that Mr A's aortic stenosis was asymptomatic on 16 Month8. The clinic letter referred to the ETT having been done to look for cardiac symptoms to help with the timing of bowel surgery.

15. Mrs A told HDC that there appeared to have been some misunderstanding, in that Dr D's request for the ETT in Month8 following Mr A's appointment with Dr D was confused with the referral on 11 Month9 relating to bowel symptoms.

29 Month9 — hospital admission

16. On 29 Month9 Dr C referred Mr A to Palmerston North Hospital Emergency Department (ED) due to Mr A's ongoing symptoms. Dr C also had a telephone discussion with a medical registrar at Palmerston North Hospital in the presence of Mr and Mrs A regarding the referral.

17. In the referral, Dr C queried SBE as a possible cause of Mr A's ongoing symptoms. The referral states:

> '[F]luctuant fevers, chills, night sweats for the last around 1/12 [one month]. [Impression]: ?sepsis[5] ?source Potential risk for SBE given valve issues and fluctuating fevers/sweats.'

18. Following Dr C's provision of the referral, Mr and Mrs A went to the ED. Mrs A stated that when they arrived, they delivered the referral letter to ED staff in a sealed envelope. In response to the provisional opinion, she said that her impression at the time was that they were taken straight through into the ED rather than having to wait because they had the letter. Consequently, she cannot understand how the letter could have been mislaid or not read by the admitting doctors.

19. Mrs A said that no doctor interviewed Mr A or took a history of his symptoms or his illness during the admission process and, had that been done, the letter would have been less crucial. She said that although Dr C specifically sent Mr A to the hospital because of concerns about sepsis, fever was not mentioned in the admission notes, and Mr A's heart murmur was not documented. She stated: 'I believe no one from the medical teams has read the letter from the GP.' Mrs A said that it is unclear why there appears to have been nothing done in response to Dr C's reference to the 'potential risk for SBE'.

20. The ED notes refer to a gastrointestinal (GI) bleed, but there is no documentation regarding SBE. A staff member of the ED, Dr G, stated that while GP referral letters are important to clinicians in the ED as such letters can help to guide patient care, emergency clinicians must first know that such letters exist, which is not always the case. Mr A was seen by consultant Dr F. Dr G stated that it is not clear that Dr F actually saw the letter from Dr C. Dr G said: 'In

[5] Bacterial infection spreading to the blood. This is a life-threatening condition.

our ED we are often reliant on GP letters being faxed into the department; such letters are inconsistently placed in the patient's physical chart.'

21. Dr F recorded Mr A's history as:

> '[P]atient has been feeling generally unwell for quite some time. Describes intermittent GI bleed, weakness, fatigue, [shortness of breath], night sweats … has been having episodes of low blood pressure … yesterday had a near-syncope (faint) event on standing … seen by his GP today and noted to be tachycardic (fast heart rate) and tachypnoeic (rapid and shallow breathing).'

22. Dr F recorded Mr A's vital signs, which were within the normal range (including his temperature). Dr F noted that Mr A had bibasilar crackles (abnormal sounds in the lower lungs), and that there had been a large drop in Mr A's haemoglobin (a protein in red blood cells) over the previous month. Dr F referred Mr A to general medicine for admission regarding a GI haemorrhage. Dr G told HDC that Dr F cared for a patient who complained of GI bleeding and had signs and symptoms consistent with GI bleeding, and Dr F appropriately referred Mr A for admission to hospital under the medical team.

23. Dr G referred to Dr C's comment at the end of his referral letter: '[Discussed with] med[ical] reg[istrar] — for initial workup in [the] ED.' Dr G said that it seems that Dr C tried to refer Mr A directly to the general medical team for hospital admission and made his concern that Mr A had SBE clear to the medical registrar. Dr G said that the medical registrar appears to have accepted Mr A on behalf of the ED, but there is no documented communication between the medical registrar and any emergency medicine specialist. There is also no documentation that Dr C attempted to speak directly with an emergency medicine specialist. Dr G stated:

> 'At our hospital it is not uncommon for registrars to accept patients on behalf of emergency medicine without any discussion or direct notification. It is, therefore, not at all surprising that [Dr F] does not seem to have had any knowledge about [Mr A's] GP's concerns about SBE.'

24. Dr G said that it is not clear whether the medical registrar to whom Dr F referred Mr A for admission was the same medical registrar who had taken the call from Dr C.

25. The clinical notes from the post-admission ward round state that Mr A '[d]enie[d] recent weight loss, night sweats * 1–2 weeks,' which was an error as the referral mentioned '1/12' (one month). An ejection systolic murmur[6] is documented, but there is no entry regarding fever or rigors. Nothing is noted regarding the concerns that Dr C expressed in the referral.

26. On 30 Month9 Mr A underwent a chest X-ray. The report states: '[C]ardiomegaly[7] with failure.' The report notes right upper lobe inflammatory changes within the lung and queries

[6] A murmur that occurs during the ejection of blood into the arteries.
[7] Enlarged heart.

whether these were current or chronic. The report states that if recurrent features of infection were present, a repeat X-ray was recommended in six weeks' time.

27. A senior staff member acknowledged the absence of clinical staff response to the potential risk for SBE. He stated that admitting doctors must review the information on the GP referral, and clerking by junior medical staff must include a review of all aspects of the patient's presentation. Dr G commented that it seems that the senior staff member is attempting to lay the miscommunication of Dr C's concerns regarding SBE at the feet of ED staff. Dr G stated:

> '[The senior staff member] also seems to imply that not documenting the GP's concerns in the ED note somehow absolves the medical team of responsibility for their lack of investigations into possible SBE.'

28. Dr G told HDC that the breakdown in communication between Dr C, ED medical staff, and the general medical team is not the fault of any one individual or any one service. It is a system problem that has been well identified for at least the last decade but has been seemingly resistant to any practical solution. Dr G said that although there is now an email address for GPs to send referral letters directly to the ED, the emailed letter must be printed off and placed in the patient's paper chart. The timeliness of the printing is variable, as it must fit in with the ED administrative staff's already heavy workload, and there is still the possibility of a piece of paper getting lost or misplaced. He said that there is no contemporaneous electronic connection between a GP's referral letter and the patient's hospital record.

29. Dr E stated that Mr A was admitted under general medicine from 29 Month9 until 1 Month10 with clinical and radiological indications of heart failure, and he had elevated BNP (a biomarker used to diagnose and monitor heart failure). However, his clinical picture of iron deficiency anaemia, raised C-reactive protein (CRP — a protein released in response to inflammation), hyponatraemia (low levels of sodium in the blood), per rectum (PR) bleed, and change in bowel habit raised the possibility of a bowel malignancy. Dr E stated that the medical team felt that a bowel malignancy would explain Mr A's symptoms and presenting complaint.

30. The senior staff member told HDC that the clinical impression of Mr A's condition was PR bleeding and possible pneumonia. Mr A was treated for pneumonia with antibiotics (Augmentin and azithromycin) and given an iron infusion to treat the low haemoglobin. He was referred to gastroenterology for a colonoscopy,[8] as the main diagnosis was related to the GI bleeding. During his admission to hospital, Mr A was afebrile (he had no fever), and blood cultures[9] were not taken.

[8] A procedure involving the insertion of a flexible telescope to examine the GI tract.
[9] A laboratory test to identify microorganisms such as bacteria or fungi in the blood sample.

31. Mrs A stated that as Mr A was given regular paracetamol for shoulder pain during his hospital stay, it was unsurprising that he remained afebrile. She said that the night sweats continued while he was in hospital, and she took his wet pyjamas home each day to wash.

32. On 1 Month10 Mr A was discharged home. The gastroenterology referral (completed by Dr C on 11 Month9) was received, triaged, and marked as 'urgent' by the gastroenterology department.

33. On 1 Month10 Dr C documented the following regarding the discharge summary: '[N]ew anaemia, high CRP, changed bowel habit — doesn't really explain fever/chills however.'

34. Mrs A told HDC that after Mr A was discharged, he had night sweats and rigors only on the first night out of hospital (1 Month10), and they did not recur. However, the signs of heart failure began over the next few weeks.

35. On 12 Month10 Mr A attended the gastroenterology service for a colonoscopy.[10] A mass was found in his rectum, and a referral was sent to the colorectal service for an urgent review. CT and MRI scans were ordered to investigate the mass further. Subsequently, Mr A was found to have rectal carcinoma (cancer).

22 Month10 — hospital admission

36. Mrs A told HDC that after Mr A was discharged from hospital on 1 Month10, he had worsening shortness of breath on exertion.

37. On 22 Month10 Mr A presented to the Palmerston North Hospital ED and was seen by a senior doctor Dr I. Dr I documented that Mr A had a primary complaint of shortness of breath and noted that he had been anaemic with a haemoglobin of 88g/L (normal range 130–170g/L) prior to his discharge from hospital on 1 Month10. Dr I noted that Mr A was undergoing investigations for a rectal mass that had been found on colonoscopy.

38. On physical examination, Dr I noted that Mr A was tachycardic (fast heart rate) and tachypnoeic (rapid breathing) but afebrile, and that he had crepitus (crackles) in his lung bases. Dr I also noted that Mr A had a heart murmur and oedema in his legs. Dr I's differential diagnoses included congestive heart failure, symptomatic anaemia, and pulmonary embolism (a blood clot in the pulmonary artery). Dr I planned to obtain bloodwork and a chest X-ray, and to provide Mr A with a trial of furosemide (a medication used to treat fluid retention).

39. Dr G said that although it is not documented in the ED clinical note, it appears that Mr A was admitted to hospital by the general medical team with a diagnosis of heart failure. Dr G stated that in retrospect, Mr A's symptoms may have indicated SBE, but they also could have

[10] A procedure that examines the inside of the large intestine or colon using a long flexible tube called a colonoscope.

been indicative of heart failure due to anaemia, secondary to bleeding from his rectal cancer.

40. Mrs A told HDC that the plan was to admit Mr A, and for him to be reviewed by the cardiology team to formulate a plan for the management of the aortic stenosis.

41. Dr E told HDC that there should have been an inpatient multidisciplinary discussion between the oncologist, general surgeon, Cardiology, and the cardiothoracic surgeon to plan the treatment for both rectal cancer and severe aortic stenosis during Mr A's admission. Dr E stated: 'The delay in his surgical work-up for both pathologies would have contributed to his poor outcome. I am unsure why the action was not followed through despite [a] documented plan to do so.'

42. Cardiologist Dr B saw Mr A on 22 Month10 as an inpatient. The entry in the patient notes states: 'Impression CHF (congestive heart failure) on a background of severe aortic stenosis, unknown stage bowel cancer, and mild anaemia.'

43. Mr A was afebrile throughout the admission, and blood tests showed minimal elevated inflammatory markers. There is no documentation in the clinical notes of fevers or rigors. The plan was to repeat echocardiography as an outpatient and for follow-up in the cardiology clinic. Mr A was discharged on 23 Month10.

44. On 29 Month10 Mr A was seen by a junior doctor in the outpatient clinic. The registrar noted that Mr A's condition had deteriorated over the last few months, and that he had increasing shortness of breath. Treatment options for rectal cancer were discussed, and Mr A was referred to cardiology urgently for consideration of his aortic stenosis and whether or not he would need a preoperative valve replacement.

Gastrointestinal multidisciplinary meeting

45. On 2 Month11 Mr A's case was presented to a group of surgical and oncology specialist staff to review the results of the investigations to date and determine the most suitable treatment pathway.

46. The outcome of the meeting was sent in a letter to Dr C confirming that there was no sign of metastasis (spread of cancer). The letter stated that there were two large new pleural effusions (fluid around the lung) that were not suspicious for malignancy but were concerning from a cardiac viewpoint. A short course of radiotherapy was recommended, as Mr A was not well enough for chemotherapy. It was understood that a further cardiology work-up and an anaesthetic assessment were pending.

47. On 6 Month11 general surgeon Dr H wrote to Dr E (copied to Dr C) requesting that Dr E arrange to address Mr A's aortic valve issue. Dr H said that Mr A had been referred for a short course of radiotherapy over five days, and that normally they would operate about two to three months after the radiotherapy, which would provide a window in which to address Mr A's aortic valve issues. Mr A was to have an anaesthetic assessment following the valve intervention to determine his strength to undergo surgery. A note on the referral

confirms that Mr A was already on the waiting list for an urgent appointment with the cardiology service.

Cardiology clinic 16 Month11

48. Dr C referred Mr A to the cardiology clinic. Mr A was reviewed by clinical nurse specialist (CNS) J on 16 Month11.

49. In her clinic letter to Dr C, CNS J reported that Mr and Mrs A were anxious about the fact that Mr A had not been seen by cardiology since his discharge from hospital on 23 Month10. Mr A expressed concern about the lack of follow-up and lack of communication between the cardiology service and other services within the hospital.

50. CNS J gave Mr and Mrs A information about heart disease and discussed valvular surgery for aortic stenosis. Transcatheter aortic valve implantation (TAVI — insertion of a new valve through a catheter in the groin or chest) and aortic valve replacement (AVR — open surgery) were discussed, as well as tissue valves (valves made from animal or human tissue) versus mechanical valves (made from mechanical parts) and the risks of coagulation (blood clots).

51. CNS J told Mr and Mrs A that a decision regarding valvular surgery would be decided by a public hospital's cardiothoracic surgeons once Mr A had undergone a carotid ultrasound scan (to assess the carotid arteries in the neck), a dental review, spirometry (a measurement of lung function), cardiac catheterisation,[11] and a further cardiac echocardiograph. CNS J completed and forwarded the required referrals for these investigations.

52. CNS J reassured Mr and Mrs A that Mr A would be seen by Dr B within four to six weeks, which was the timeframe for follow-up identified on the 23 Month10 discharge summary. This appointment was booked for 3 Month12.

53. The ultrasound carotid doppler completed on 27 Month11 organised by CNS J showed 70–79% stenosis (narrowing) in the right carotid artery.

Radiation therapy

54. Mr A completed his course of radiation therapy on 29 Month11 and was discharged from the radiotherapy service. He had an appointment to attend the surgical clinic on 17 Month12 to arrange the cancer surgery.

3 Month12

55. On 3 Month12 Dr B saw Mr A in the Cardiology outpatient clinic. Mr A was accompanied by Mrs A and his adult daughter. Mrs A stated that there were factual errors relating to Mr A's medical history in the report written by Dr B following the outpatient appointment.

[11] A procedure in which a thin flexible tube (catheter) is inserted into a blood vessel and guided to the heart to diagnose and/or treat heart conditions.

56. Mrs A told HDC that in just over two months, Mr A had gone from being a fit, well, energetic 74-year-old to being chronically short of breath even at rest and struggling to carry out even minor tasks at home. When in hospital on 22 Month10 he had received a new diagnosis of congestive heart failure, and his condition had deteriorated markedly since then, so in this follow-up appointment they were expecting a clinical assessment that would explain what was happening and why and hopefully accelerate the treatment process.

57. Dr B stated that it was intended that the clinic review of Mr A would be after he had an urgent echocardiograph. However, there was a wait for echocardiography at that time, so he arranged to see Mr A on 3 Month12 prior to his echocardiograph. Dr B stated that he expedited the echocardiograph, which was performed on 22 Month12.

58. Mrs A stated that Dr B used most of the appointment to outline the different modes of treatment for aortic valve stenosis, and they were shocked when he suggested a 12-month timeframe for treatment, given how rapidly Mr A's heart condition was deteriorating, and also in view of the colorectal cancer. Mrs A said that when she pointed out that Dr H was hoping to have the heart treated urgently in order to operate on the bowel in two to three months' time, Dr B seemed surprised and said that he would email Dr H to see whether there was any flexibility in that timing. Mrs A stated: 'He clearly had no sense of urgency.'

59. Dr B stated that the reference to up to 12 months is incorrect, as the usual waiting time for elective valve surgery can be up to 120 days (around four months), but in Mr A's case it was likely to be less. He said: 'I am sure/it is quite possible the family misheard this.'

60. Mrs A stated that Dr B indicated that the appointment was over, so she pointed out that she was concerned about Mr A's current condition. Dr B then carried out a brief physical examination, noting fluid build-up around Mr A's lungs, sacrum, and lower legs. Dr B increased the furosemide to 120mg daily and doubled the beta-blocker[12] (bisprolol) to 2.5mg. However, at no time did he ask about Mr A's previous health or medical history.

61. Dr B responded that it was not a brief medical examination, and he did not end the visit by saying that the appointment was over. He said that he goes over the plan with the patient and the family many times before they leave the clinic, and he always asks if there are any questions before they leave. He stated that he spends a minimum of 45 minutes with every new clinic patient compiling details of the past and present history and conducts a full clinical examination. He noted that his clinic letter includes detailed clinical findings.

62. Mrs A denied that Dr B questioned Mr A directly or spent 45 minutes compiling details of his past and present history and conducting a full clinical examination.

63. Mrs A told HDC that Dr B's written report contains incorrect statements, which she felt had a direct bearing on the way Mr A's case was managed subsequently. Dr B wrote in his reporting letter that Mr A had been under ongoing cardiology follow-up for severe aortic stenosis for the last couple of years and had started becoming symptomatic from

[12] Medication used to treat heart rate and rhythm.

Month5/Month6. However, Mr A's first contact with the Cardiology Department had been in Month6 when he saw Dr D and received the diagnosis of aortic valve stenosis. At that stage, Mr A was asymptomatic. Mrs A stated that by the time of the Month12 appointment, Mr A had had cardiac symptoms for only about seven weeks.

64. In response to Mrs A, Dr B stated that information came from Mr A. Dr B said that he clearly remembered Mr A saying that his mild symptoms of dyspnoea (shortness of breath) started immediately after Dr D's clinic and, following that consultation, his symptoms had progressed quickly.

65. Dr B reported that Mr A had had a mild degree of asthma and chronic obstructive pulmonary disease (COPD)[13] in the past and had used bronchodilators[14] such as Seretide and PRN (as required) Ventolin over the years to treat the lung conditions. Dr B recorded that he organised an updated full lung function test plus pre- and post- bronchodilators before the cardiothoracic discussion.

66. Mrs A disputed Dr B's claim that Mr A had a history of COPD. She noted that there is no evidence for that in his medical records, and he never had symptoms of the condition. She noted that this appears to be based primarily on lung function tests carried out when he was symptomatic with significant heart failure. The tests were arranged by CNS J as part of a routine work-up for probable valvular surgery, not because Mr A had a history of lung problems.

67. In response to the above, Dr B stated that before the clinic assessment, Mr A had been on a regimen of inhalers (Seretide) when needed, and people who do not have airway disease do not use inhalers. In addition, Dr D's clinic letter dated 5 Month6 stated, 'reactive airway disease'. Formal full lung function tests had been completed at Palmerston North Hospital, and the report states that there was severe restrictive airway disease.

68. Mrs A stated:

> 'We felt that [Dr B], by describing a much slower development of symptoms than actually was the case, and, by introducing a false diagnosis of COPD, caused an ongoing underestimation of the severity of [Mr A's] condition in the weeks that followed.'

17 Month12 admission

69. Dr B stated that they needed the staging of the cancer to plan Mr A's care. Dr B contacted Dr H requesting guidance around a timeframe for the bowel surgery, which would provide direction as to the type of cardiac intervention to control Mr A's severe aortic stenosis.

[13] A lung condition that results in swelling, irritation, and inflammation and limits airflow into and out of the lungs.
[14] Medication that relaxes the muscle bands around the airways.

70. Mr A saw Dr H in the outpatient clinic at around 9am on 17 Month12. In response to the provisional opinion, Dr H stated:

> 'His condition was truly awful, and it was clear to me he was close to death from his cardiac disease. He was transferred directly from my clinic to [the] ED and from there admitted on the same day. The electronic records let us down again. There is only a two-word admission on his ED note that day, which is heart failure and unwell. The medical admission note does not outline the gravity of the situation.'

71. Dr B stated that Dr H's reporting letter was sent to Dr E rather than to him.

72. At 11.28am on 17 Month12 Mr A re-presented to the ED with shortness of breath and swollen legs. He had undergone a dental procedure the previous day and was complaining of episodes of shivering and feeling cold. He was seen directly by the general medical team and was admitted to hospital under the cardiology service with decompensated congestive heart failure secondary to aortic stenosis.

73. On admission, the plan was for furosemide treatment for heart failure, and for blood cultures to be taken, as the admitting doctor queried transient bacteraemia[15] because of Mr A's history of shivering. However, blood cultures were not taken. Dr E stated that he is unsure why the action was not followed through, despite a documented plan to do so.

74. A coronary angiogram[16] was performed on 21 Month12 as part of the work-up for aortic valve surgery.

24 Month12

75. On 24 Month12 Mr A's case was discussed with the public hospital's cardiothoracic team, who accepted Mr A for transfer for an AVR under their team. An updated echocardiograph was requested, and an intravenous iron transfusion was ordered.

76. Mr A's inpatient notes during his wait for transfer to the public hospital for an AVR describe him as mostly feeling well, mobilising independently, eating and drinking satisfactory amounts, and tending to hygiene cares independently. In response to the provisional opinion, Mrs A stated:

> 'We totally disagree with the assessment of [Mr A's] condition at this time. While it is true that he was feeling better initially, as his medications were adjusted, his overall condition visibly deteriorated over the two and a half weeks that he spent in Palmerston North hospital.'

77. Mrs A said that the family do not think the hospital record accurately reflects what was happening with Mr A.

[15] Presence of bacteria in the blood.
[16] A test used to look at the blood vessels within the heart, typically to see if the vessels are blocked.

Public hospital

78. On 4 Month13 Mr A was transferred from Palmerston North Hospital to the public hospital for surgery. In response to the provisional opinion, Dr H stated that he was extremely surprised that having been admitted on 17 Month12 Mr A was not transferred until 4 Month13. Dr H said:

> 'This is in the presence of a relentlessly declining patient, and blood tests indicating increasing levels of heart failure (rising proBNP levels). He also was developing organ failure and had an ultrasound on [24 Month5] confirming a congested failing liver with pleural effusions.'

79. On 7 Month13 a CT scan was completed to consider a TAVI because Mr A was considered high risk for surgical AVR. The CT scan showed features of endocarditis (inflammation of the heart valve). A senior staff member, Dr K, told HDC that on a purely technical note, TAVI may have been possible, but endocarditis is an absolute contraindication for TAVI. On 8 Month13 blood cultures were taken.

80. Dr K stated that an echocardiograph on 11 Month13 showed a significantly reduced left ventricular (LV) function with severe aortic stenosis. There was aortic valve vegetation[17] and a cavity that likely represented an abscess[18] adjacent to the mitral valve annulus (tissue surrounding the mitral valve). Dr K stated that this would be considered to be a very severe complication of infective endocarditis. He stated that the likely agent was *Staphylococcus aureus* (a type of bacteria), which causes very aggressive forms of endocarditis that are difficult to treat.

81. Sadly, Mr A's clinical condition continued to deteriorate, and he was provided with palliative care.

82. Subsequently, Mr A died at the public hospital. The discharge letter states the cause of death as being heart failure on the basis of known severe aortic stenosis, with a further relevant contributor being infective endocarditis with progression.

Further comment by Mrs A

83. Mrs A stated that staff at Palmerston North Hospital had failed to notice or question Mr A's rapid development of heart failure and deteriorating physical condition over three months. She said that Mr A was very unwell during Month12, much more so than the hospital record indicates. When they were told by ward staff on 4 Month13 that he was being transferred to public hospital the next day for surgical AVR, she found that unbelievable, as he was in no fit state for anaesthesia, let alone open-heart surgery. She said that on arrival at another

[17] Abnormal growths that form on the aortic valve due to infective endocarditis where bacteria or fungi infect the heart's inner lining and valve surfaces.
[18] A localised collection of pus surrounded by inflamed tissue.

public hospital, it was no surprise when the doctors immediately cancelled the surgery booking, pending further investigations.

Further comment by Health NZ Te Pae Hauora o Ruahine o Tararua MidCentral

84. Health NZ Te Pae Hauora o Ruahine o Tararua MidCentral provided the following comments:

> 'In none of [Mr A's] three hospital admissions did the history, clinical findings or investigations suggest infective endocarditis. He had a slightly elevated temperature (37.5 degrees) before his first admission which was consistent with the radiologically confirmed right upper lobe pneumonia, but no subsequent fevers. He had an increased white cell count and C-reactive protein (CRP), both markers of inflammation, on 29 Month9 but these improved when his pneumonia was treated with an eight-day course of antibiotics. There was no further fever or rise of the white cell count for almost three months despite no further courses of antibiotics. The CRP was elevated on the admission of 17 Month12, which might not be unexpected in view of his known tumour and recent radiation therapy, but with no significant change in this until his transfer to [the second public hospital] on 4 Month13. In addition, a repeat transthoracic[19] echocardiogram on 22 Month12 failed to show any evidence of endocarditis or deterioration in his aortic stenosis. Cardiologists are wary of endocarditis as it has serious consequences, but it appears there was very little that would justify them making that diagnosis prior to his transfer.'

Responses to provisional opinion

85. Comments were received from Mrs A, Health NZ Te Pae Hauora o Ruahine o Tararua MidCentral, and Dr H. These comments have been incorporated into the 'information gathered' section as appropriate. In addition, the following comments were made:

Health NZ Te Pae Hauora o Ruahine o Tararua MidCentral

86. Health NZ Te Pae Hauora o Ruahine o Tararua MidCentral acknowledged the proposed recommendations and made no further comment regarding the provisional decision.

Dr H

87. Dr H stated that he believes that Dr Crozier's analysis is correct and that the deficiencies in Mr A's care are not contestable. He noted that Dr C's letter clearly outlined that he thought Mr A had SBE. Dr H said that this form of endocarditis is subtle in its presentation but there was a clear point of entry of the infection and the letter alone should have produced several urgent investigations, including a blood culture.

88. Dr H stated that patients with aortic stenosis should be operated on and treated prior to organ decompensation. Once the patient is in heart failure and has cardiomegaly, the salvage rates are lower, and the perioperative mortality is significantly higher. He said that the presence of pleural effusions is noted on Mr A's staging CT scan on 20 Month10, and once a patient with aortic stenosis is in heart failure, they should be transferred and treated

[19] Across the chest wall.

urgently by tertiary cardiac providers. However, there were further admissions and further delays.

89. Dr H said that the key issue is that clearly they missed the diagnosis of endocarditis, but the indication for surgery existed well before Month11, and Mr A should have been transferred to the second public hospital for assessment at that stage.

Opinion: Health NZ Te Pae Hauora o Ruahine o Tararua MidCentral — breach

Introduction

90. At the outset I express my condolences to Mrs A and her family for the loss of their husband and father. It is clear that they found Mr A's rapid deterioration very distressing and believe that the SBE could have been diagnosed and treated earlier, possibly enabling Mr A to have the valve replacement surgery that he needed.

91. When considering the issues in this case, I have been guided by the independent clinical advice provided by cardiologist Dr Ian Crozier.

Diagnosis of SBE and cardiology treatment — breach

Diagnosis of SBE

92. An echocardiograph on 7 Month5 showed that Mr A had severe aortic stenosis, although at that time he was asymptomatic. On 23 Month8 he consulted Dr C because he had an infected finger from being spiked by a rose thorn. That night he began to experience night sweats and rigors and intermittent low-grade temperature spikes, which continued despite Dr C prescribing two courses of antibiotics.

93. On 29 Month9 Dr C referred Mr A to Palmerston North Hospital ED and had a telephone discussion with the medical registrar. The referral states:

> '[F]luctuant fevers, chills, night sweats for the last around 1/12 [one month]. [Impression]: ?sepsis ?source Potential risk for SBE given valve issues and fluctuating fevers/sweats.'

94. Health NZ considered that there was nothing in Mr A's history, clinical findings, or investigations to suggest SBE during Mr A's hospital admissions. In respect of the second admission (22 Month10), Dr G concluded that Mr A's work-up and disposition were 'entirely appropriate [although] in retrospect [Mr A's] symptoms might have indicated SBE'. Dr G's responses also suggest the need to consider the role of the general medical team (as opposed to only the ED staff) in respect of the lack of investigation into possible SBE.

95. In contrast, my independent advisor, Dr Crozier, disagreed that the clinical features were not suggestive of SBE until 6 Month13. He stated that the clinical features were suggestive of SBE from Mr A's first admission to hospital, and were likely to have been present from before his first admission.

96. Dr Crozier stated that the combination of a history of fevers, chills, and night sweats, and the findings of anaemia and markedly elevated CRP in a patient with known valvular heart disease is highly suggestive of SBE. He said that the absence of a fever does not exclude this diagnosis, especially when the infective organism is of low virulence, as was the case with Mr A. Furthermore, the diagnosis of SBE can be confounded by courses of antibiotics, which Mr A received prior to and during his first admission. Dr Crozier said that a short course of antibiotics will not cure SBE but can transiently suppress some of the inflammatory responses such as a fever and an elevated CRP. However, even with this consideration, a diagnosis of SBE should have been considered and investigated during Mr A's admissions to Palmerston North Hospital.

97. No blood cultures were obtained during Mr A's admissions. Dr Crozier considered that it was probable that Mr A had SBE on this first admission to hospital, and he should have been investigated for this with blood cultures. Dr Crozier said that it would have been reasonable also to perform an echocardiograph, but he noted that evidence of endocarditis may not always be apparent on a transthoracic echocardiogram in patients with endocarditis.

98. Dr Crozier stated that the failure to consider and investigate for SBE during Mr A's three admissions to Palmerston North Hospital was a severe departure from the accepted standard of care.

Timing of aortic valve replacement

99. In Month5 Mr A was diagnosed with aortic stenosis but he had no symptoms. Dr Crozier advised that observation and follow-up, rather than aortic valve replacement, was appropriate at that time.

100. However, when Mr A was admitted to Palmerston North Hospital on 29 Month9, Dr F recorded Mr A's history as:

> '[P]atient has been feeling generally unwell for quite some time. Describes intermittent GI bleed, weakness, fatigue, [shortness of breath], night sweats … has been having episodes of low blood pressure … yesterday had a near-syncope event on standing … seen by his GP today and noted to be tachycardic and tachypnoeic.'

101. Dr Crozier advised that an aortic valve replacement should be considered urgently if a patient with severe aortic stenosis develops heart failure. Dr Crozier said that Mr A had heart failure during the admission of 29 Month9, as he was short of breath, the chest X-ray from 30 Month9 was very suggestive of early heart failure, and the BNP was markedly elevated. However, Dr Crozier said that the situation was complicated by the other issues of anaemia, rectal bleeding, and the subsequent diagnosis of a bowel tumour, so he considered that it was reasonable to investigate those other issues initially before planning aortic valve replacement.

102. However, Dr Crozier advised that Mr A's readmission with severe heart failure on 22 Month10 should have prompted more urgent assessment and treatment as an inpatient. Dr B saw Mr A on 22 Month10 and recorded: 'Impression CHF (congestive heart failure) on a

background of severe aortic stenosis, unknown stage bowel cancer, and mild anaemia.' However, the general medical team did not include heart failure in the discharge diagnosis. Dr Crozier noted that they also did not acknowledge the abnormal chest X-ray and BNP, both of which indicated heart failure.

103. Dr Crozier advised that not proceeding more urgently to aortic valve replacement after 22 Month10 was a moderate departure from the accepted standard of care.

104. In relation to the issue of not proceeding more urgently to aortic valve replacement, Dr E commented that there ought to have been a multidisciplinary discussion during the 22 Month10 admission, which did not occur despite a documented plan to do so. Dr E commented further that the delay in surgical work-up for both pathologies (Mr A's cancer and the aortic valve stenosis) would have contributed to his poor outcome.

105. Dr H's view is that the indication for administering valvular surgery existed well before 25 Month11, and Mr A should have been transferred for assessment to public hospital at that stage.

Discussion and conclusion

106. My independent clinical advisor, Dr Crozier, identified two departures from the standard of care — not proceeding more urgently to aortic valve replacement after Mr A's second hospital admission on 22 Month10 (a moderate departure); and failing to consider and investigate for SBE from Mr A's first hospital admission on 29 Month9 (a serious departure).

107. I have carefully considered Health NZ's responses. I have also been mindful to guard against hindsight bias, especially noting the presence of other significant pathologies and symptoms at Mr A's various admissions.

108. Having assessed the evidence, I accept Dr Crozier's advice in relation to both failures of care. In respect of the failure to consider and investigate SBE, Dr Crozier's advice is given weight by the fact that Mr A's GP, Dr C, had queried the diagnosis (suggesting that Mr A's symptoms signalled that possibility) prior to his first admission. In addition, even following discharge on 1 Month10 Dr C was concerned that the discharge diagnoses did not address the concern of night sweats adequately. Moreover, there is partial acceptance by Health NZ that at the second admission the symptoms may have indicated SBE.

109. In respect of the delay in proceeding to a valve replacement, Dr E, as part of Health NZ's response, appears to accept that the opportunity to consider this more urgently was lost as a result of the failure to conduct a multidisciplinary discussion at the 22 Month10 admission.

110. Both these failures were compounded by other errors (discussed further below) — namely, the loss of the GP referral letter during the first admission, the failure to undertake blood cultures, and, as stated above, the failure to conduct a multidisciplinary discussion. Any one of these matters, if conducted, would have offered the opportunity to consider alternative or different diagnoses and treatment pathways.

111. For the above reasons, I find that Health NZ Te Pae Hauora o Ruahine o Tararua MidCentral failed to provide services to Mr A with reasonable care and skill and breached Right 4(1)[20] of the Code of Health and Disability Services Consumers' Rights (the Code).

Continuity of care — breach

112. Although referrals were made when required, it appears that at times there was poor communication between services within Palmerston North Hospital.

GP referral letter

113. On 29 Month9 Dr C referred Mr A to the ED and had a telephone discussion with the medical registrar. In the referral letter, Dr C queried SBE as a possible cause of Mr A's symptoms. Mr and Mrs A delivered the letter when they arrived at the ED. However, it appears that the letter was lost in the system.

114. Dr G told HDC that the breakdown in communication between Dr C, the ED medical staff, and the general medical team is not the fault of any one individual or any one service. He said that it is a system problem that has been well identified for at least the last decade but has been seemingly resistant to any practical solution. Although there is now an email address for GPs to send referral letters directly to the ED, the emailed letter must be printed off and placed in the patient's paper chart. The timeliness of the printing is variable, as it must fit in with the ED receptionist's already heavy workload, and there is still the possibility of a piece of paper getting lost or misplaced. He said that there is no contemporaneous electronic connection between a GP's referral letter and the patient's hospital record.

115. Dr C wrote at the end of his referral letter: '[Discussed with] med[ical] reg[istrar] — for initial workup in [the] ED.' Dr G said that it seems that Dr C tried to refer Mr A directly to the general medical team for hospital admission and made his concern that Mr A had SBE clear to the medical registrar. Dr G said that the medical registrar appears to have accepted Mr A on behalf of the ED, but there is no documented communication between the medical registrar and any emergency medicine specialist. Dr G stated:

> 'At our hospital it is not uncommon for specialty registrars to accept patients on behalf of emergency medicine without any discussion or direct notification. It is, therefore, not at all surprising that [Dr F] does not seem to have had any knowledge about [Mr A's] GP's concerns about SBE.'

Blood cultures

116. On admission on 17 Month12 the plan included blood cultures, as the admitting doctor queried transient bacteraemia, because of Mr A's history of shivering. However, blood cultures were not taken at any stage.

Multidisciplinary discussion

117. Dr E told HDC that during Mr A's admission on 22 Month10 there should have been an inpatient multidisciplinary discussion between the oncologist, general surgeon, cardiology,

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

and the cardiothoracic surgeon to plan the treatment for both the rectal cancer and the severe aortic stenosis. Dr E stated:

> 'The delay in his surgical work-up for both pathologies would have contributed to his poor outcome. I am unsure why the action was not followed through despite [a] documented plan to do so.'

ETT result

118. On 21 Month9 Dr C contacted the cardiology administrator requesting the ETT report from 16 Month8. The ETT report was unable to be located, so Dr E dictated a clinic letter to Dr C reporting that the stress test was normal for a patient with aortic stenosis. The letter referred to the ETT having been done to look for symptoms to help with the timing of bowel surgery.

119. It appears that the request for the ETT, which was made in Month8 following Mr A's appointment with Dr D, was confused with the referral on 11 Month9 relating to bowel symptoms.

Conclusion

120. Under Right 4(5) of the Code, every consumer has the right to cooperation among providers to ensure quality and continuity of services. Overall, I consider that Mr A's care was impeded by inadequate communication within Palmerston North Hospital services (including the failure regarding receipt and actioning of communication from primary care) and, as a result, there were missed opportunities to assess and consider the cause of Mr A's symptoms adequately. Accordingly, I find that Health NZ Te Pae Hauora o Ruahine o Tararua MidCentral breached Right 4(5) of the Code.

Dr B — other comment

121. On 3 Month12 Dr B saw Mr A in the cardiology outpatient clinic. Mrs A said that the written report contains incorrect statements, which she felt had a direct bearing on the way Mr A's case was managed subsequently. Dr B documented that Mr A had been under ongoing cardiology follow-up for severe aortic stenosis for the last couple of years and had started becoming symptomatic from Month5/Month6. However, Mr A's first contact with the Cardiology Department had been in Month6 when he saw Dr D and received the diagnosis of aortic valve stenosis. At that stage, he was asymptomatic. Mrs A stated that by the time of the Month12 appointment, Mr A had had cardiac symptoms for only about seven weeks.

122. In response to the above, Dr B stated that information came from Mr A. Dr B said that he clearly remembered Mr A saying that his mild symptoms of dyspnoea (shortness of breath) started immediately after Dr D's clinic and had progressed quickly.

123. Mrs A stated that Dr B used most of the appointment to outline the different modes of treatment for aortic valve stenosis, and they were shocked when he suggested a 12-month timeframe for treatment, given how rapidly Mr A's heart condition was deteriorating, and also in view of the colorectal cancer.

124. Dr B stated that the reference to up to 12 months is incorrect, as the usual waiting time for elective valve surgery can be up to 120 days, but in Mr A's case it was likely to be less. He said: 'I am sure/it is quite possible the family misheard this.'

125. Mrs A stated that Dr B carried out only a brief physical examination, noting fluid buildup around Mr A's lungs, sacrum, and lower legs. However, he did not ask about Mr A's previous health or medical history. Mrs A denied that Dr B directly questioned Mr A or spent 45 minutes compiling details of his past and present history and conducting a full clinical examination.

126. Dr B responded that it was not a brief medical examination. He stated that he spends a minimum of 45 minutes with every new clinic patient compiling details of the past and present history and conducting a full clinical examination. He noted that his clinic letter states detailed clinical findings.

127. Mrs A was particularly concerned that Dr B recorded that Mr A had a history of COPD. She said that there is no evidence for that in his medical records, and he never had symptoms of COPD. She noted that this appears to be based primarily on lung function tests arranged by CNS J and carried out as part of a routine work-up for probable valve surgery when Mr A was symptomatic with significant heart failure, not because Mr A had a history of lung problems.

128. In response, Dr B stated that Mr A had been on a regimen of inhalers when needed, and people who do not have airway disease do not use inhalers. In addition, Dr D's clinic letter dated 5 Month6 stated, 'reactive airway disease'. Dr B said that formal full lung function tests had been done at Palmerston North Hospital, and the report states that there was severe restrictive airway disease.

129. Mrs A stated:

> 'We felt that [Dr B], by describing a much slower development of symptoms than actually was the case, and, by introducing a false diagnosis of COPD, caused an ongoing underestimation of the severity of [Mr A's] condition in the weeks that followed.'

130. I am unable to resolve the factual differences in the accounts from Mrs A and Dr B and, accordingly, I am unable to reach a determination in respect of the concerns raised by Mrs A regarding Dr B's care. Nevertheless, it is apparent that there was a degree of misunderstanding between both Dr B and Mr and Mrs A. I suggest that Dr B take the opportunity to reflect on the experiences of Mrs A as recounted in her complaint and consider how his practice might be improved for the future.

Changes made since these events

131. Palmerston North Hospital reviewed the management of GP referrals by clinical staff.

132. Discussions with the senior staff of the Emergency Department have taken place regarding the management of patients with a specific indication of SBE.

133. It is now a requirement that admitting doctors review the information on the GP referral, and clerking by junior medical staff must include a review of all aspects of the patient's presentation.

Recommendations

134. I recommend that Health NZ Te Pae Hauora o Ruahine o Tararua MidCentral provide a written apology to Mrs A for its breaches of the Code. The apology is to be sent to HDC, for forwarding, within three weeks of the date of this report.

135. I recommend that Health NZ Te Pae Hauora o Ruahine o Tararua MidCentral consider any further improvement it could make to ensure that documented plans are actioned.

136. I recommend to Health NZ National office that it work with Health NZ Te Pae Hauora o Ruahine o Tararua MidCentral to find a sustainable solution to the issue of referral management between general practice and Palmerston North Hospital, including that referrals are received, read, and filed on the patient's clinical record appropriately and in a timely manner.

137. In relation to the recommendation at paragraph 136 regarding the need for sustainable referral management, I note that other relatively recent cases have identified similar failures in such referral management at Health NZ MidCentral. Recommendations in 20HDC01999, C20HDC01997, and C21HDC02033 sought to emphasise the need for an end-to-end electronic referral system to replace paper-based referral processes (including audit and prioritisation capabilities) both within Palmerston North hospital and between primary and secondary care. Health NZ has previously indicated that following a pause to an eReferral project, this work has been recommenced.

138. I concur with Dr H's observation that many critical events occur as a result of inadequate and inaccurate referral management. I will be watching the progress of these recommendations and initiatives closely.

139. Health NZ Te Pae Hauora o Ruahine o Tararua MidCentral and Health NZ National office is to report back to HDC on the outcome of these recommendations within three months of the date of this report.

Follow-up actions

140. Dr H raised a number of additional matters in his response to the provisional opinion relating to the resourcing of Palmerston North's hospital's cardiology services, delays in cardiology services, transfers between public hospitals, and the prioritisation of patients with concurrent malignancy and cardiac concerns. I will be raising these issues with Health New Zealand separately.

141. A copy of this report with details identifying the parties removed, except Health NZ Te Pae Hauora o Ruahine o Tararua MidCentral, Palmerston North Hospital, and the independent advisor on this case, will be sent to the Cardiac Society of Australia and New Zealand, the Royal Australasian College of Surgeons, the Australasian College for Emergency Medicine, and the Health Quality & Safety Commission Te Tāhū Hauora and placed on the Health and Disability Commissioner website, www.hdc.org.nz, for educational purposes.

Appendix A: Independent clinical advice to Commissioner

The following independent advice was obtained from cardiologist Dr Ian Crozier:

'RE: [Mr A]

HDC ref: C21HDC00234

DOB: …

DOD: …

My name is Ian George Crozier.

I am a registered medical practitioner (10770) and cardiologist.

I have been requested to provide advice to the Commissioner regarding the cardiology care provided to [Mr A] by Palmerston North Hospital.

I am not acquainted with [Dr B].

I am professionally acquainted with [Dr E].

Documents provided:

- Health and Disability Commissioner's summary of case and request for advice.
- Letter of complaint dated 5 February 2021.
- Health New Zealand|Te Whatu Ora Te Pae Hauora o Ruahine o Tararua MidCentral's response dated 18 May 2021.
- [Dr B's] response dated 15 March 2022.
- Clinical records from Health New Zealand|Te Whatu Ora Te Pae Hauora o Ruahine o Tararua MidCentral covering the period [Month5] to [Month13].
- Echocardiogram report from 8 [Month5], dated 11 [Month5] (page … Health New Zealand|Te Whatu Ora Te Pae Hauora o Ruahine o Tararua MidCentral's records), and
- Echocardiogram report dated 22 [Month12].

Case summary: Extracted from HDC summary augmented with my own observations from the documents provided, including the letter of complaint. My comments are shown in (*italics*).

Background:

[Mr A] was diagnosed with severe aortic stenosis 8 [Month5]. At this stage he was well, without symptoms.

He underwent cardiology assessment on 7th [Month6], and a normal exercise test [Month8] 16th. In addition, he had a history of rectal bleeding and he had been referred to surgery for assessment.

He sustained a finger injury from a rose thorn injury in Month8 and developed a reddened finger and received a course of antibiotics. Subsequently he became unwell with fevers and night sweats and received a further course of oral antibiotics.

29 [Month9];

Assessed by General practitioner, [Dr C].

Fluctuant fevers, chills, night sweats for the last around 1/12. Prior to sweats was feeling tired, lethargic
Also since Saturday BP has been low when checked at home (systolic 80s) and has stopped BP meds.
Was also somewhat confused with erratic driving

Last couple of days has been coughing and SOB as well. No orthopnoea, no PND
NO chest pain
Pain in neck from coughing in middle of the night

Weight stable at 73 kg
T 37.5
No splinters, no clubbing
Pulse 124
O2 99
BP 114/75
HS systolic murmur ++
Chest bibasal crackles. Deep sighing breaths
bdo soft, no hepatosplenomegly.

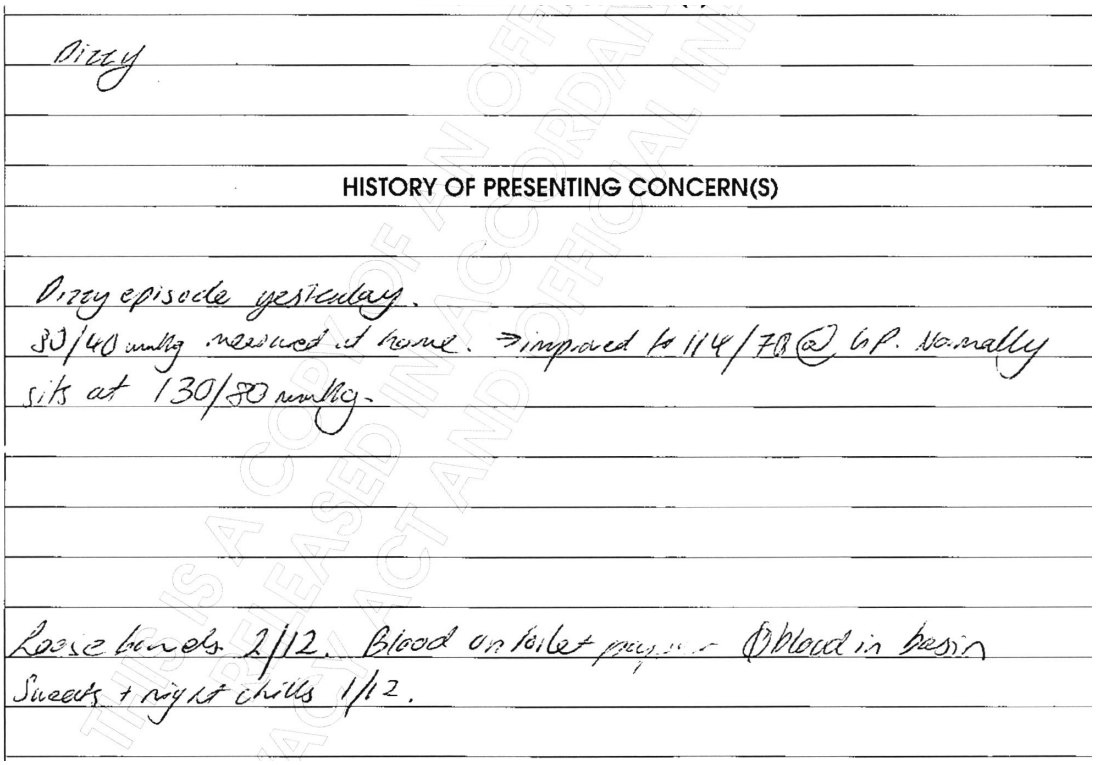
Imp: ? sepsis ? source
Potential risk of SBE given valve issues and fluctuating fevers/sweats

DW med reg - for initial workup in ED

[Mr A] was reviewed in Palmerston North Hospital Emergency Department then admitted to Palmerston North Hospital.

Presenting concern: Dizzy.

The admission record also notes sweats and night chills 1/12 (*one month*).



Dizzy

HISTORY OF PRESENTING CONCERN(S)

Dizzy episode yesterday.
30/40 mmHg measured at home. → improved to 114/78 @ GP. Normally sits at 130/80 mmHg.

Loose bowels 2/12. Blood on toilet paper. ∅ blood in basin
Sweats + night chills 1/12.

CRP 117 (*markedly elevated*)

Anaemia Hb 99

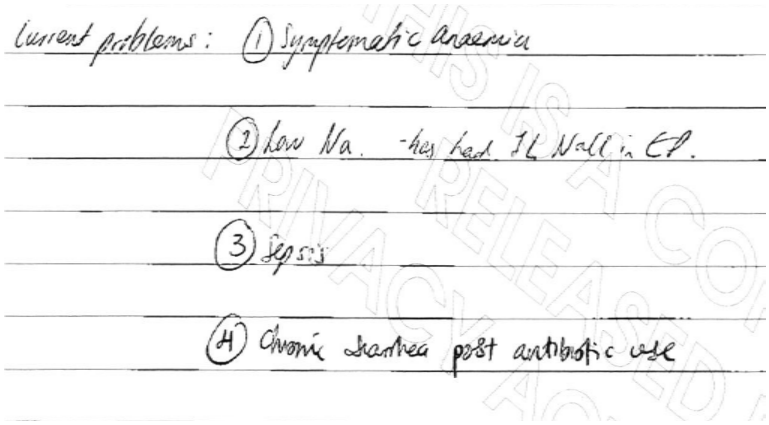
WBC 11.2 with shift to the left (*abnormal, suggests infection or inflammation*).

BNP 650 (normal 0–35, *highly abnormal and indicates heart failure*)

Troponin T 69 (normal 0–13, *highly abnormal, most commonly elevated in myocardial infarction, but can also be elevated in sepsis*)

ECG, Sinus rhythm, PR interval .24, atrial and ventricular ectopy

Afebrile



Current Problem List on admission.

Symptomatic anaemia
Low Na (*sodium*)
Sepsis
Chronic Diarrhoea post antibiotic use.

30 [Month9]

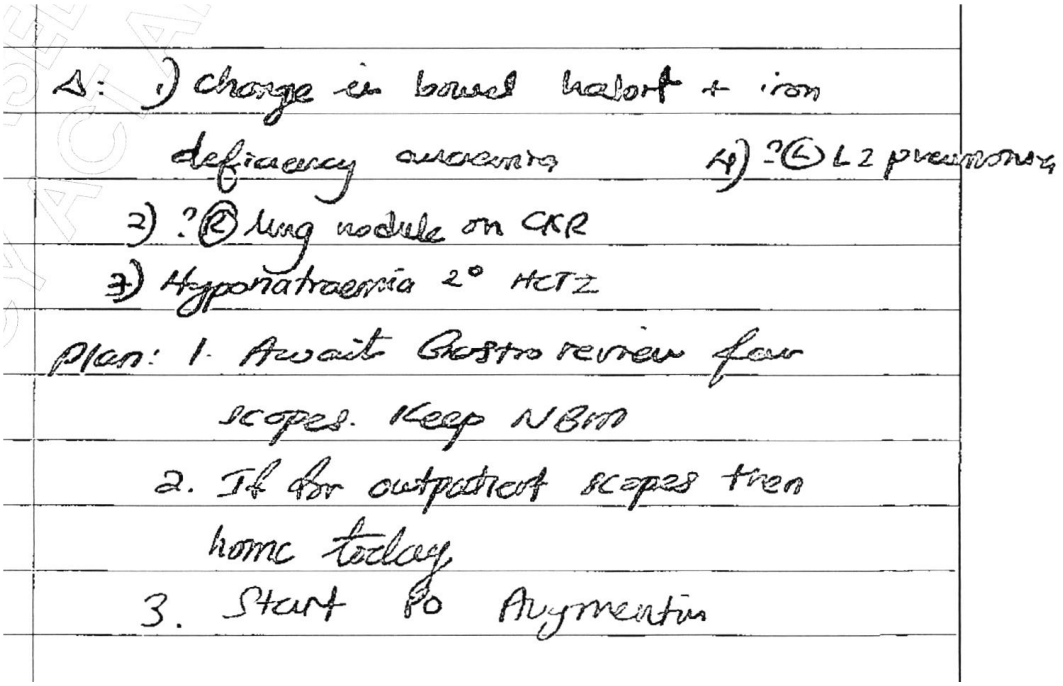
Chest x-ray

Asymmetrical peribronchial opacity is seen in the right upper lobe which could be post inflammatory scarring in the absence of old films - there is slight retraction of the lesser fissure.
Septal lines are present at the bases with a tiny effusion at least on the left and possibly also posteriorly on the right.
Minor osteophytic pointing is noted in the spine.

Conclusion:
Cardiomegaly with failure.
Right upper lobe inflammatory changes -?Current versus chronic - no comparisons.
If the recurrent features of infection, a repeat is recommended in 6 weeks.
Nodule thought to be nipple shadow but repeat with nipple markers is recommended.

1 [Month10];

General Medical ward round


A: 1) change in bowel habit + iron deficiency anaemia
4) ?(L) L2 pneumonia
2) ?(R) lung nodule on CXR
3) Hyponatraemia 2° HCTZ
Plan: 1. Await Gastro review for scopes. Keep NBM
2. If for outpatient scopes then home today
3. Start Po Augmentin

During this admission [Mr A] was reviewed by cardiology, [Dr B].

Extracted from [Dr B's] response.

When [redacted] was first admitted on [redacted] with congestive heart failure, he was admitted under the internal medicine team. The Cardiology team were consulted to help in his management. We detected the reason for decompensating heart failure as progression of aortic stenosis clinically. At that time his cancer staging and histology was not known (this is documented clearly in the discharge summary). We organised an urgent echocardiograph and for clinic review intended following the echo in one month's time. There was a wait for echocardiography at this time and I arranged to see [redacted] on [redacted] prior to his echocardiograph being done. I expedited this and it was performed on [redacted] In addition to the comments regarding 'follow up for Aortic stenosis', as part of the consultation process the Consultant is reliant on direct questioning of the patient about his knowledge of the disease and history taking as clinicians depend on the patient's words and responses.

Discharged.

Clinical Management Summary
Admitted under General Medicine, Team [redacted]

Stool sample; negative for c. diff
Received IV fluid in ED, and required 1x dose of furosemide following this.
Received IV iron replacement.

Some crackles noted on chest during examination while an inpatient, and oral antibiotics started for suspected LRTI.
Referred to Gastroenterology or endoscopy - reviewed and made a plan for outpatient endoscopy

[redacted] emained well, and was therefore able to discharge home with a plan for outpatient investigation as follows.

Discharge Plan
1) Outpatient endoscopy to be arranged by Gastroenterology
2) Complete course of oral augmentin
3) Accuretic stopped

ECG; sinus tachycardia
CXR; no acute changes

CRP 117
BNP 650
Hb 99
Na 123

Diagnoses
Primary Diagnosis
· Change in bowel habit
Secondary Diagnoses
· Iron deficiency anaemia
· Hyponatraemia due to medications

Discharge Medications
· quinapril 20 mg tablet, 20mg PO daily, Unknown Duration
· fluticasone propionate 125 microgram/actuation + salmeterol 25 microgram/actuation inhalation: pressurised, 2 puffs inh BD, Unknown Duration
· amoxicillin 500 mg + clavulanic acid 125 mg tablet, 625mg PO TDS for 5 days, Unknown Duration, 5 days (Print on Script)

12 [Month10];

Colonoscopy. Rectal mass identified.
Urgent surgical referral.
CT and MRI ordered.

19 [Month10];

A MRI was performed on [Mr A's] abdomen and pelvis to investigate for possible rectal cancer. It showed evidence of a stenotic low rectal tumour approximately 2.5 cm from the anal verge, and near circumferential intraluminal mass extending approximately 3.9 cm in length.

20 [Month10];

The following day, a CT was performed on [Mr A's] abdomen and pelvis, for cancer staging, and in the process found aortic calcification.

22 [Month10];

Presented to the emergency department with shortness of breath and orthopnoea. Diagnosed with heart failure and anaemia.

CRP 32
Chest x-ray; Heart failure
Cardiology review, [Dr B]

23 [Month10];

Discharged with plans for echocardiogram and cardiology follow-up.

Diagnoses
Primary Diagnosis
· CHF - B/G of aortic stenosis
Secondary Diagnoses
· Rectal Ca
· Hyponatraemia

Clinical Management Summary
Admitted under general medicine (consultant [redacted]
CHF
- On admission: ACE inhibitor stopped, started on furosemide 80mg daily
Day 1 - Patient feeling much better, improved SOB, furosemide reduced to 40mg on day 1 of admission. Unilateral pleural effusion discussed with radiology - CXR consistent with heart failure but cannot rule out superimposed infection. Patient not clinically infected so not treated with antibiotics. Diagnosis of rectal cancer discussed with patient.
- Seen by cardiology. Plan for medical management of AS until bowel cancer has been staged

29 [Month10];

Surgical outpatients.

Referral letter to cardiology regarding the need for preoperative aortic valve replacement.

2 [Month11];

Discussed at Medical Oncology service meeting.
Radiotherapy recommended

6 [Month11];

Written and phone request to [Dr E] to organise intervention on aortic valve, to facilitate surgery for rectal cancer from [Dr H], surgeon.

10 [Month11];

Oncology outpatient appointment

10 [Month11];

General Practitioner [Dr C].
Increasing shortness of breath.
Fruosemide increased to 80mg, bisoprolol 1,35mg daily.

16 [Month11];

Nurse lead cardiac clinic.

23 [Month11];

Radiotherapy commenced.

27 [Month11];

Radiotherapy completed.

3 [Month12];

Cardiology outpatient review, [Dr B].

5. [redacted] is known with a mild degree of asthma and COPD in the past, therefore he has used Seretide and PRN Ventolin over the years. I organised an updated full lung function test plus pre and post bronchodilators before the Cardiothoracic discussion.
6. [redacted] is awaiting dental review as well. He doesn't have any varicose veins as such.
7. Long-term anticoagulation might be a considerable issue given the cancer presence and the need of possible surgical resection in the future; therefore, I also had a long discussion today about mechanical versus bioprosthetic or tissue valves in case open heart surgery is ever offered in the future. I advised him given his age and the rest of comorbidities entitling high bleeding risk that maybe a bioprosthetic valve may be the way to go forward; however, that can be delineated further once cardiothoracic surgery is involved.

We will be in touch again with [redacted] once his case has been discussed in CTS meeting. [redacted] and his family took all the conversation quite well.

Impression and Plan

1. [redacted] is currently symptomatic with at least NYHA Class 3 from severe aortic stenosis with preserved LV function. Given the evidence of fluid overload I took the opportunity to increase his Furosemide intake today.
2. I would be keen if [redacted] would catch up on a weekly basis to adjust his fluid balance medications.
3. Given the amount of tachycardia which won't help the afterload pressure and the cardiac index, I took the opportunity to increase his beta blocker today.
4. I had a long discussion with [redacted] and his family today about the available options and the timeframes for addressing his valve issue. Most importantly a formal discussion with the Cardiothoracic Team as well as the Structural Heart Disease Team, will take place after the coronary angiogram is performed. Options such as bridging BAV or even permanently putting in a TAVI on an urgent basis could serve a purpose of preparing him for the bowel resection operation; however, that would be better to be decided once we know the exact timeframe for the rectal tumour resection. I am hoping that [redacted] will help us answer this question.

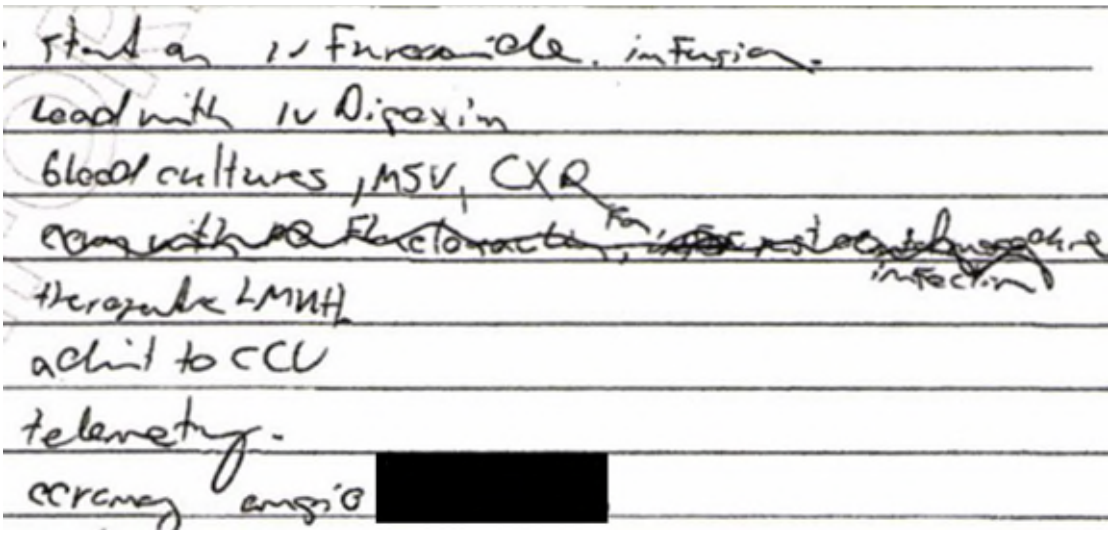
17 [Month12];

Outpatient appointment [Dr H].

Re-presents to Palmerston North Hospital; shortness of breath and swollen legs. Severely limited, only able to walk 10 meters before stopping. He was treated for heart failure and queried transient bacteraemia.

1. Decompensated AF sec to critical AS.
2. New AF.
3. ? Transient bacteraemia post dental procedure, afebrile today
4. [redacted] 80% RCA stenosis

Blood cultures were intended to be taken, but no result in records.



CRP 70
Chest X-Ray; heart Failure
BNP 4130
ECG; atrial fibrillation

21 [Month12];

Coronary angiography; normal coronary arteries

22 [Month12];

Echocardiogram; Reduced left ventricular function, LVEF 35%, severe aortic stenosis with moderate aortic regurgitation, moderate pulmonary hypertension and pleural effusions.

23 [Month12];

Chest x-ray; Heart failure.

24 [Month12];

[Mr A's] case was presented at [Health New Zealand|Te Whatu Ora]'s Cardiology MDT meeting, and he was accepted for aortic valve replacement, after an abdominal ultrasound in preparation for surgery and a dental extraction procedure.

4 [Month13];

[Mr A] was transferred from Palmerston North Hospital to [the second public hospital] for surgery.

7 [Month13];

CT scan was completed to consider a transcatheter aortic valve implantation due to [Mr A] being considered high risk for surgical AVR. The CT scan showed features of endocarditis and based on this [Mr A's] surgery was cancelled.

8 [Month13];

Blood cultures were taken

Blood Culture

Time Performed	[redacted] 23:45	**Request Received**	[redacted]
Time Reported	[redacted] 18:39	**Order Number**	[redacted]
Status	Correction to results		

Results

Blood Culture Correction

BLOOD CULTURE

DATE RECEIVED: [redacted]

SPECIMEN SITE: LEFT ANTECUBITAL FOSSA

AEROBIC BOTTLE: Growth of Gram positive cocci resembling staphylococci

Growth of Gram positive cocci resembling streptococci

Isolated after 1 days incubation.

ANAEROBIC BOTTLE: Growth of Gram positive cocci resembling staphylococci

Growth of Gram positive cocci resembling streptococci

Isolated after 1 days incubation.

CULTURE
Organism 1: A growth of Streptococcus sanguinis
Organism 2: A growth of Staphylococcus epidermidis

11 [Month13];

Echocardiogram found aortic valve vegetation and paravalvular abscess.

AV: Trileaflet. Calcified valve and leaflets w restricted opening. Mobile masses noted. Moderate AR. Severe AS. MPG 43mmHg. AV max 4.2m/s. Paravalvular cavity, in the context likely abscess; adjacent to anterior mitral valve annulus (#3, 12).
MV: Thickened leaflets with restricted opening of PMVL. Mod MR. Impression of possible mass on AMVL in A4C.

…

[Mr A] passed away at [the public hospital].

Comment:

Specific advice required:

1. Please comment on the timeliness of [Mr A's] cardiology follow-up and preparation/scheduling for valve surgery following his echocardiogram on 7 [Month6]. Was there appropriate expediting of [Mr A's] valve replacement surgery taking into account his progressive symptoms and co-morbidity of recently diagnosed localised colorectal cancer?

Response: In a patient with aortic stenosis and no symptomatic limitation as was the situation in [Month6], observation and follow-up, rather than aortic valve replacement was appropriate. However, when a patient with severe aortic stenosis develops heart failure aortic valve replacement should be considered urgently. In my opinion he did have heart failure on the admission 29 [Month9] as he was short of breath, the chest x-ray from 30 [Month9] is very suggestive of early heart failure and the BNP was markedly elevated. Whilst [Dr B] reported that he considered [Mr A] to be in heart failure, the general medical team did not include heart failure in the discharge diagnosis. Furthermore, they did not acknowledge the abnormal chest X-ray and BNP, both of which indicated heart failure. If there were no other issues such as anaemia or the bowel malignancy it would have been appropriate to consider aortic valve replacement on the initial admission. However, the situation was complicated by the other issues, anaemia, rectal bleeding and the subsequent diagnosis of a bowel tumour.

It was in my opinion reasonable to initially investigate these other issues before planning aortic valve replacement.

However, the readmission with severe heart failure on the 22 [Month10] should have prompted more urgent assessment and treatment as an inpatient.

In my opinion the failure to not proceed more urgently to aortic valve replacement after 22 [Month10] was a moderate departure from the standard of care that would be viewed with some concern by my peers.

2. Was there any indication to investigate further the possibility of underlying subacute bacterial endocarditis (SBE) by way of blood cultures and urgent echocardiogram during the admission 29 [Month9]–1 [Month10]?

Response: In my opinion the combination of a history of fevers, chills and night sweats, and the findings of anaemia and markedly elevated CRP in a patient with known valvular heart disease is highly suggestive of subacute bacterial endocarditis (SBE). The absence of a fever does not exclude this diagnosis, especially when the infective organism is of low virulence as was the case with [Mr A]. Furthermore, this possibility had already been raised by the general practitioner. In my opinion it was probable that [Mr A] had SBE on this first admission to hospital. In my opinion he should have been investigated for this with blood cultures, the diagnostic modality for SBE. It would have been reasonable to also perform an echocardiogram, but it should be noted that evidence of

endocarditis may not always be apparent on a transthoracic echocardiogram in patients with endocarditis.

In my opinion the failure to consider and investigate for SBE on this and the subsequent admissions to Palmerston North Hospital is a severe departure from the standard of care that would be viewed with concern by my peers.

3. Was there any indication to suspect a diagnosis of SBE or to investigate further to exclude this diagnosis at any time after [Mr A's] discharge from PNH on … and prior to his transfer to [the second public hospital] on 4 [Month13]?

Response: As covered in response 2.

4. Are you able to comment on the standard and accuracy of reporting of the echocardiogram dated 22 [Month12], particularly in relation to the conclusion there was no evidence of signs of SBE at this time.

Response: Evidence of endocarditis may not always be apparent on a transthoracic echocardiogram in patients with endocarditis. This is because the effects of SBE, vegetations and abscess, may not be visible on a transthoracic echocardiogram, especially if there is a pre-existing valvular abnormality.

However, it should be noted that a transthoracic echocardiogram in [the second public hospital] on the 11th of [Month1] did show mobile echogenic structures suspicious of vegetations and a paravalvular abscess, both features of endocarditis. I would need to view the images from … to answer this question with certainty.

5. Do you believe the Health New Zealand|Te Whatu Ora Te Pae Hauora o Ruahine o Tararua MidCentral internal review is appropriate and reasonable in its conclusions?

Response: With regard to the responses dated 1 December 2020 and 18 May 2021. I do not agree with the responses indicating the clinical features were not suggestive of endocarditis (SBE) until … In my opinion the clinical features were suggestive of endocarditis from his first admission to hospital, and likely to have been present from before his first admission. SBE with low virulence organisms may not result in a fever, and the inflammatory response may be modified by intermittent courses of antibiotics, as he received. The apparent absence of features of endocarditis on the echocardiogram … does not exclude the diagnosis.

I do note that [a senior staff member] acknowledged that the general practitioner's concerns regarding possible endocarditis were not addressed in the emergency department or passed on to the medical admitting team.

6. Do you have any additional comments on [Mr A's] overall management by Health New Zealand|Te Whatu Ora Te Pae Hauora o Ruahine o Tararua MidCentral or on issues raised in the complaint?

Response: The diagnosis of SBE can be confounded by courses of antibiotics which he received prior to and during his first admission. Short course of antibiotics will not cure SBE but can transiently suppress some of the inflammatory responses such as fever and CRP. However even with this consideration, SBE should have been considered and investigated during his admissions to Palmerston North Hospital.

Ian Crozier
Cardiologist'

Addendum 18 March 2025

'I have studied the response from Health NZ.

1) Whether Health NZ's comments change any aspects of your initial advice?

   Response: No

2) Whether there are any other matters in this case that you consider warrant comment?

   Response: No

3) Any recommendations that you could think of for future improvements at Health NZ?

   Response: Health NZ acknowledges a number of issues that should be addressed to improve patient care. I recommend these issues be addressed;

   Resourcing for echocardiograms;

   Communication and documentation issues.'