

Waikato District Health Board

A Report by the Health and Disability Commissioner

(Case 18HDC01563)



Health and Disability Commissioner
Te Toihau Hauora, Hauātanga

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Executive summary

1. This report concerns the care provided to a man who died in an Emergency Department (ED) while he was waiting to be seen by the Cardiology service. Systemic issues at Waikato District Health Board (Waikato DHB) contributed to the long delay in the man being seen by medical staff. This case highlights the importance of district health boards having robust processes in place to support their staff when workloads are particularly high.

Findings

2. The Commissioner found that Waikato DHB failed to provide services with reasonable care and skill, and breached Right 4(1) of the Code for the following reasons: The man was not seen by any medical staff for over six hours, which was well outside the recommended triage time; there was insufficient Cardiology registrar presence in the ED at the time of these events; Waikato DHB's system surprisingly allowed Cardiology Senior Medical Officers to decline to attend and assist in the ED in circumstances where the Cardiology registrar was experiencing an overwhelming workload; missed communication of the man's raised troponin T contributed to the delay in Cardiology review; and nursing documentation was not completed in line with the Waikato DHB guidelines.

Recommendations

3. The Commissioner recommended that Waikato DHB provide feedback on the efficacy of changes made to its Cardiology service, consider implementing a formalised process where an ED clinician reviews the patient's clinical picture if there is to be a significant delay in the inpatient service review of the patient, and provide a written apology to the man's partner.

Complaint and investigation

4. The Health and Disability Commissioner (HDC) received a complaint from Ms A about the services provided to her late partner, Mr B, by Waikato District Health Board (Waikato DHB). The following issue was identified for investigation:

- *Whether Waikato District Health Board provided Mr B with an appropriate standard of care during his admissions from Day 2¹ to Day 7 2018.*

5. The parties directly involved in the investigation were:

Ms A	Consumer's partner/complainant
Waikato DHB	Provider

6. Further information was received from the Coroner and the ambulance service.

¹ Relevant dates are referred to as Days 1–8 to protect privacy.

7. The following parties are referred to in the report:

Dr C	Cardiology registrar
Dr D	Cardiology registrar
Ms E	Cardiovascular service manager
Dr F	Emergency Medicine Senior Medical Officer
Dr G	Cardiology Senior Medical Officer
Dr H	Associate Clinical Director
Dr I	Emergency Department MOSS

8. Independent expert advice was obtained from a cardiologist, Dr Paul Bridgman (Appendix A), and a nurse practitioner, Craig Jenkin (Appendix B).
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Information gathered during investigation

Background

9. On the evening of Day 1, Mr B (aged in his seventies) began choking while at home. He fell over, hit his head, and lost consciousness for approximately 30 seconds. Ms A, Mr B's partner, called an ambulance. After initially downgrading the seriousness of the incident because Mr B regained consciousness, the ambulance service re-triaged Mr B's condition to "red" (immediate threat to life) as he was experiencing chest pain, and sent an ambulance to his address.
10. Mr B's existing medical conditions included hypertension,² chronic obstructive pulmonary disease,³ atrial fibrillation (for which he took warfarin),⁴ alcoholic liver disease, congestive heart failure, tricuspid insufficiency,⁵ and dysphagia.⁶

First hospital admission Day 1

11. Mr B was taken by ambulance to Hospital 1 at 9.35pm. He was transferred to Hospital 2 the following day, where he was treated on the Cardiology Ward for atrial fibrillation and mild heart failure. He was discharged on Day 5 in a stable condition. During that admission, another patient on the Cardiology Ward was suffering from influenza.

² High blood pressure.

³ Pulmonary disease (as emphysema or chronic bronchitis) that is characterised by chronic typically irreversible airway obstruction resulting in a slowed rate of exhalation.

⁴ Very rapid uncoordinated contractions of the atria of the heart resulting in a lack of synchronism between heartbeat and pulse beat.

⁵ A disorder in which the tricuspid valve of the heart does not close tightly enough, causing blood to flow backward into the right atrium when the right ventricle contracts.

⁶ Swallowing difficulties.

Second hospital admission Day 6

12. On the evening of Day 6, Mr B became unwell again. Ms A said that he was “hot and talking nonsense”, so she called for an ambulance again. Mr B was readmitted to Hospital 1 at 8pm.
13. Mr B had worsening abdominal pain and a fever, and was feeling generally unwell. He was treated with IV antibiotics, with a working diagnosis of sepsis of unknown cause. A swab for influenza was taken. At 5am on Day 7, Mr B deteriorated with further upper abdominal (epigastric) pain. A troponin T (AQT) test⁷ showed an elevated result of 0.2µg/L.⁸ Mr B was reviewed by an Emergency Department (ED) doctor, who considered that the pain was muscular, but that angina⁹ could not be ruled out. A further troponin T (AQT) test taken at 9.21am showed a further elevated result of 0.35µg/L.
14. Waikato DHB said that because of Mr B’s ongoing pain and the fact that the troponin level was continuing to climb, he was transferred to Hospital 2 for further management. Dr C was the accepting Cardiology registrar working on the Cardiology Ward at Hospital 2 that day. Dr C told HDC that he took the telephone call from the Senior Medical Officer (SMO) in Hospital 1 mid-morning, and was advised that Mr B had been discharged from the Cardiology service recently after an admission with heart failure. Dr C stated:
- “I was advised that his vital signs were normal and that they were not concerned about his clinical state and stability at that time. I was provided with his point-of-care troponin test results in support of this being an acute coronary syndrome, and told his white cell count was up but they had no focus for a possible infection. They told me they had treated for both an acute coronary syndrome and infection.”
15. At 2.35pm, Mr B was admitted to the Hospital 2 ED with a triage code of 3.¹⁰ His presenting complaint was documented as “? Febrile illness”, and his vital signs were recorded. Blood tests, including a troponin T test, were ordered by the triage nurse. No sepsis screening tool was completed.
16. At 2.55pm, the Cardiology registrar working in ED, Dr D, was notified of Mr B’s arrival by the triage nurse. Dr D said that she was told that Mr B had “febrile illness unclear cause”, he had been given antibiotics at Hospital 1 and his fevers had settled, and he was haemodynamically stable¹¹ and asymptomatic. Dr D said that she assumed that Mr B was

⁷ Measuring troponin T can help to identify heart damage. Normally, troponin T is present in small or undetectable quantities, but when there is damage to heart muscle cells, troponin is released into the blood. Troponin T (AQT) refers to the result being measured on an AQT, which is a model of a laboratory device.

⁸ The normal range is 0–0.017µg/L.

⁹ A type of chest pain caused by reduced blood flow to the heart.

¹⁰ New Zealand EDs use the Australasian triage scale, which has five triage categories; triage category one patients are very urgent, while triage category five patients are less urgent. For each triage category there is a specified maximum clinically appropriate time within which medical assessment and treatment should commence. Triage category three patients should have medical assessment and treatment commenced within 30 minutes. The performance benchmark for meeting this timeframe is 75%.

¹¹ With stable blood circulation.

transferred under the Cardiology service, as he had been discharged from the service recently, and noted that he was triaged to be a lower risk case. Dr D told HDC that she was unaware of the blood tests that had been ordered by the triage nurse.

17. Dr D noted that the discharge summary that arrived with Mr B from Hospital 1 was in draft form, and did not mention Mr B having chest pain or a rise in troponin. A copy of this discharge summary was provided to HDC. It had been printed at 12.59am on Day 7. The discharge summary was later updated to include reference to the rise in troponin T and chest pain, but Dr D confirmed that she did not have the updated discharge summary at the time of these events.
18. At 3pm, a nurse documented that Mr B had experienced left-sided chest pain and shortness of breath earlier in the day.
19. At 3.30pm, the blood test results were reported and showed acute kidney injury, an elevated white cell count, and an elevated troponin T. The troponin T (high sensitivity) was reported as 469ng/L.¹² At Hospital 2, troponin T levels are measured using a high sensitivity test, whereas at Hospital 1 a different type of test¹³ is used to measure troponin T levels. As a result, the units of measurement and reference ranges are different across the two hospitals. Waikato DHB told HDC that while the nursing team in ED take blood tests as requested, the medical team review these and interpret the results.
20. Dr D told HDC that at 4pm, Dr C provided a patient handover before leaving for the day, and after that time it was her responsibility to take all referrals and admit patients in ED, as well as to review ward patients and other specialty referrals. Dr D said that over the course of the day she had 15 patients to be seen in ED, and at around 3pm to 4pm she had seven to nine patients waiting to be seen, as they were all referred to her at the same time. She noted that Dr C had been very busy on the ward so was not able to assist with these admissions. Dr D said that around 6 to 7pm she also had to review a critically unwell patient and order urgent investigations and treatment. Dr D stated: “[W]ith the ongoing referrals from ED and constant phone calls from GP and peripheral hospitals as well as the ward calls, I was not able to keep up with the demand.”
21. Dr C told HDC that the information he relayed to Dr D was “to expect [Mr B] coming in from [Hospital 1], who had recently been discharged after an admission with heart failure, and had represented to [Hospital 1] with chest pain and a raised troponin with their impression being an acute coronary syndrome”. However, Dr D told HDC that Dr C relayed to her that Mr B had “vague nonspecific febrile illness”, and she was not informed of the rise in troponin. Dr D said that based on the information she was given (from the triage nurse and Dr C):

“I believed [Mr B] was haemodynamically stable, had already been commenced on appropriate treatment of broad spectrum antibiotic therapy and was no longer febrile.

¹² The normal range for troponin T (high sensitivity) is 0–14ng/L.

¹³ Using an AQT laboratory device.

Thus, I ended up prioritising other patients who seemed to have more urgent presenting complaints first.”

22. Ms E was the Service Manager for the Cardiovascular service. She attended the ED at around 4.10pm to follow up on the high number of patients waiting to be seen by Cardiology. She noted that at that time there were five to six patients waiting in ED to be seen, and two in the observation unit, and that three patients had been there for longer than six hours. Ms E said that she spoke to Dr D and asked whether she would like her to speak to the Cardiology SMO on call, Dr G, and Dr D reported that she was “ok”, but had seen only one patient. Ms E said that she returned to her office and telephoned Dr G, who was offsite, at 4.25pm. She updated him on the number of patients waiting, and that some had been waiting for over six hours, but Dr G declined to attend the ED.
23. At the time of these events, the practice agreed by the Cardiology service¹⁴ was that the Cardiology SMO should not decline to attend ED for clinical safety, but could decline if the registrar was simply too busy.
24. Dr G told HDC: “I declined to attend the ED as the departmental policy at the time was for [SMO] staff to attend for patient acuity and not workload.” He said that Ms E did not request that he attend ED for patient acuity. Dr G sent a text to the on-call Cardiology telephone (held by Dr D) at 4.41pm. He stated: “[T]his is my preferred method of contact as it does not interrupt the Registrar from their busy workload, but does indicate a willingness to discuss any concerns that they have.”
25. Dr D told HDC:
- “I did not ask [Dr G] to attend the ED because in my view at that time, all patients were clinically stable and I was reviewing them in the order of priority assigned by ED and what the floor nurses were reporting to me.”
26. At around 7.30pm, Ms A left the ED, stating that she felt that Mr B had become more agitated at that time. In response to the provisional opinion, Ms A told HDC that Mr B was agitated because she was staying with him at the hospital, and he was concerned about her driving home in the fog.
27. At 8.20pm, Mr B complained of increasing pain in his lower back area. A nurse discussed Mr B’s pain with Dr D, who arranged for pain relief to be charted, and at 8.45pm Mr B was prescribed and given paracetamol and OxyNorm.¹⁵ Dr D said that she had confirmed with the nurse that there was no chest pain or any other concerns. She stated:
- “I advised [the nurse] that I understood [Mr B] had been waiting for some time so if she had any concerns to please report them to me as soon as possible and that I will see him next.”

¹⁴ This practice was documented in the minutes of the monthly cardiologist meeting from August 2016.

¹⁵ An opioid analgesic containing oxycodone hydrochloride.

28. Shortly before 8.50pm, Mr B became incontinent. A nurse went to get help, and on her return Mr B was found to be unresponsive. A cardiac arrest call was made at 8.50pm and CPR was commenced. This was the first time Mr B was attended by any medical staff during this admission.
29. At 9.20pm, CPR was stopped and Mr B was confirmed deceased.

Vital signs

30. During this admission, Mr B's vital signs were recorded at 3pm, 4.10pm, 5.45pm, and 8.30pm. They were generally stable.¹⁶

Further information

31. On Day 8, the result of the nasal swab for influenza A (which was taken on Day 6) was reported as positive.
32. The post mortem found that the cause of Mr B's death was myocardial ischaemia.¹⁷
33. Waikato DHB said that when the cardiologists reflected on Mr B's death at their regular Mortality and Morbidity meeting, they were of the view that, given the subsequent finding of influenza, no specific cardiological intervention would have been helpful. The meeting concluded that Mr B's second admission was most likely related to influenza sepsis and multi-organ failure, and it was likely that the rise in troponin was related to a myocardial infarction brought on by sepsis.
34. Waikato DHB stated that during Mr B's prior inpatient stay at Hospital 2 there were identified cases of influenza on his ward. Waikato DHB stated:

"Through this period, reporting, management and prevention procedures were adhered to and followed. We refer to the Lippincott Procedures for the management and prevention of infectious communicable diseases."

35. Dr F was the Emergency Medicine SMO on the evening of Day 7. He stated:

"I recall [Mr B] being in the Emergency Department on the evening of [Day 7]. I was aware that he was awaiting Cardiology [review], that he was not requiring pain relief, that his observations were in an acceptable range and that treatment had been provided by a Senior Medical Officer in [Hospital 1]. There were no features that would indicate that [Mr B] was not suitable to await review by the Cardiology service ...

It is not expected of the Emergency Medicine team to formally review all patients awaiting another service. The specialty service of Emergency Medicine does not have the resources to assess all patients referred to another service. In a caretaker role,

¹⁶ With the exception of Mr B's pulse, which increased from around 90 beats per minute in the preceding recordings, to 135 beats per minute at 8.30pm.

¹⁷ Where blood flow to the heart muscle is obstructed by partial or complete blockage of a coronary artery.

when the Emergency Medicine patient workload allows, we will review the chart, look at the observations and ask the nursing staff looking after the patient if there are any emergent problems.”

36. Dr H is the Associate Clinical Director of the Hospital 2 ED. He told HDC that on Day 7, there were 281 patients seen in the ED, with at least 15 of them ultimately referred to Cardiology, and “the day was thus a very busy one”. Dr H also commented on the units used to measure troponin T. He stated that “the units used to report troponin levels in [Hospital 1] are different to that used in [Hospital 2] where a troponin T level of 0.35 would be negligible”.
37. Dr D told HDC that if she had been given the information that Mr B had positive (increased) troponins and was generally unwell, “[she] would have made it a priority to see him much sooner in [her] shift”.

Guideline for nursing documentation

38. Waikato DHB’s guideline for Nursing Documentation — Emergency Department (issued 2016) states under section 3.3 “Patient assessment and history” that a sepsis screening tool should be completed. Under section 3.6 “Vital Signs” it states that appropriate clinical observations should be undertaken and recorded to the patient’s triage code. Triage code three requires vital signs to be taken at 30-minute intervals.

Changes made since this event

39. Waikato DHB told HDC that since this event, the following changes have been made to its Cardiology presence in ED:
- a) It is in the process of appointing a registrar allocated specifically for Cardiology in the ED from 12pm to 8pm, when the department is most likely to be busy.
 - b) The on-call Cardiology SMO for the day is expected to attend ED from 4pm to 6pm to have a diagnosis and plan for all patients referred to Cardiology.
 - c) The on-call Cardiology SMO has been advised to attend ED should they be called for emergencies, and also when Cardiology registrars are overwhelmed with the volume of Cardiology referrals. To accommodate this, Cardiology SMOs are not scheduled on ward rounds or to operate in the cardiac catheterisation laboratory on the morning after being on call overnight.
 - d) It is now an expectation that if the Cardiology SMO is notified of excess workload, they will attend the ED in person to ensure that the patients waiting are clinically stable.¹⁸
 - e) The Cardiology Department has allocated cardiologists specifically to help with patients in wards and the ED.
40. Waikato DHB said that the reorganisation of its Cardiology service is designed to improve the response time taken to review patients in the ED, “which on the evening of [Mr B’s]

¹⁸ This is documented in the minutes of the 2018 cardiologist meeting.

death was unacceptably long, even if in hindsight the clinician view is that this did not contribute to his death”.

41. Waikato DHB told HDC that currently the ED is working on pathways and service-level agreements with all specialties, so that where applicable, patients who are transferred to Hospital 2 can be admitted directly to the ward rather than via the ED. This should help to prevent confusion over whose care the patient is under ultimately.
42. Dr D told HDC that she sincerely apologises for the delay in reviewing Mr B. She said that she has taken away multiple critical learning points from this case, and has implemented the following changes to her practice:
 - a) Not solely relying on second-hand information.
 - b) Seeing patients referred from GPs and peripheral hospitals first.
 - c) Regularly reviewing the blood tests and other investigations of patients who have been referred to her, even if she is not yet ready to review the patient in person, and looking out for results even if she has not requested them herself.
 - d) Asking for SMO help sooner.

Responses to provisional opinion

43. Waikato DHB and Ms A were given an opportunity to comment on relevant sections of the provisional opinion. Where appropriate, changes have been incorporated into the report.
44. Ms A commented that she considers that Waikato DHB should have had in place proper procedures and safeguards before this event occurred.
45. Waikato DHB told HDC that it had no comments to make on the provisional opinion, and it accepted the proposed recommendations.
46. Regarding the reporting of troponin T results, Waikato DHB stated:

“The reporting units ng/L for Troponin is standardised. The Cobas analyser used in the main laboratory reports a high sensitivity troponin T result but the AQT 90 that is used in the rural setting reports a contemporary Troponin T result. The comment reported with the AQT result has been updated to reflect the Troponin assay¹⁹ difference.”

¹⁹ Examination and determination as to characteristics.

Opinion: Waikato District Health Board — breach

Introduction

47. District health boards are responsible for the operation of the clinical services they provide. In addition, they have a responsibility for the actions of their staff, and an organisational duty to facilitate continuity of care. This includes ensuring that appropriate resources are available, and that staff are provided with adequate support, even in circumstances where workloads are high.
48. My expert advisor, cardiologist Dr Paul Bridgman, commented that during Mr B's first admission to Hospital 2 he received excellent quality care, and I accept this advice. Accordingly, this opinion is limited to the standard of care provided to Mr B at the Hospital 2 ED on Day 7.
49. It is not possible to say whether earlier medical assessment would have altered the outcome for Mr B. However, the failure to provide Mr B with timely medical assessment during his admission to the Hospital 2 ED on Day 7 fell well outside of the standard of care that should have been met. Systemic issues at Waikato DHB contributed to the long delay in Mr B being seen by medical staff.

Delay in medical assessment

50. Mr B arrived at the Hospital 2 ED from Hospital 1 at 2.35pm. He was not seen by any medical staff until the arrest call was made at 8.50pm — over six hours later. On admission, he was assigned a triage category three, which meant that ideally he should have had medical assessment and treatment commenced within 30 minutes. Mr B was admitted under the Cardiology service, so was awaiting review by the Cardiology registrar in ED.
51. Dr F told HDC that although it is not expected of the Emergency Medicine team to formally review all patients awaiting another service, when the Emergency Medicine workload allows, the team will review the patient chart and observations and ask the nursing staff looking after the patient if there are any emergent problems.
52. My ED nurse practitioner expert advisor, Mr Craig Jenkin, stated that Mr B was assigned a category three triage score appropriately, as he had been referred from Hospital 1 ED to a service with a working diagnosis, and no ongoing concerns were raised by nursing staff while waiting for Cardiology. However, Mr Jenkin acknowledged that Mr B waited for more than six hours to be seen by any treating clinician, and this was outside the triage category three timeframe. Mr Jenkin noted how busy the ED was that day, and stated: "This degree of presentations would likely strain any resource and severely inhibit ED to perform a review without clear indication." He also stated:

"[A]cknowledging the workload that the ED had to face on [Day 7] it would have been extremely difficult to review [Mr B] without prompting from nursing staff."

53. Mr Jenkin concluded that the delay in review would be a moderate departure from accepted practice.
54. Dr Bridgman stated:
- “On [Day 7] [Mr B] waited for over 6 hours in the Hospital 2 [ED] and died from influenza A without being seen by a doctor. Medical intervention may not have altered that outcome. Certainly cardiology review would not have provided any specific cardiology intervention that would have altered the outcome. However that waiting time for review is a significant departure from the expected standard of care.”
55. Dr D said that over the course of the day she had 15 patients to be seen in ED, and at around 3pm to 4pm she had seven to nine patients waiting to be seen when they were all referred to her at the same time. Dr Bridgman acknowledged Dr D’s high workload that day, and noted that she was responding appropriately to this. He stated: “The key systems issue for [Mr B] was the lack of availability of the cardiology registrar to advance his care.”
56. At the time of these events, the practice agreed by the Cardiology service was that the Cardiology SMO should not decline to attend ED for clinical safety reasons, but that there could be a reason to decline if the registrar was simply too busy.
57. Dr G was the on-call Cardiology SMO on Day 7. He was contacted by the Cardiovascular Service Manager to update him on the number of patients waiting to be seen by the Cardiology registrar, and Dr G declined to attend the ED, in line with the agreed practice.
58. Dr Bridgman advised that Dr G’s approach was “fully consistent with the department standard of the time”, but endorsed the subsequent change in procedure, which means that the SMO should attend ED if they are called because the Cardiology registrars are overwhelmed with the volume of Cardiology referrals.
59. I accept that Dr G was following the agreed process at Waikato DHB at the time of these events, and I am not critical that he did not attend the ED in response to Dr D’s workload. However, I am concerned that Waikato DHB’s system allowed SMOs to decline to attend and assist in the ED in circumstances where there were clearly multiple patients falling well outside of the expected medical review times and the registrar was overwhelmed. In my view, this process put patients at risk.
60. I consider that Dr D was left in an unenviable position of having to decide how to prioritise multiple patients who were awaiting Cardiology review and exceeding recommended triage times, without having a system in place to be able to call for assistance from the SMO because of overwhelming workload. Waikato DHB is responsible for the allocation of its resources, and I am not satisfied that there was sufficient Cardiology registrar presence in the ED at the time of these events.
61. I accept the advice of Dr Bridgman and Mr Jenkin that the failure to review Mr B medically in a timelier manner was a departure from accepted standards, and I am highly critical that

he was not seen by any medical staff for over six hours, which was well outside the recommended triage time. Dr D and Dr G were working in line with the usual policies in place at Waikato DHB. The key issue is that the system in which they were working at Waikato DHB at that time did not allow for the Cardiology patients to be seen any faster that day. The staffing level was such that Mr B was not seen for over six hours, when ideally he should have been reviewed medically within 30 minutes.

Communication failures

62. From the morning of Day 7, Mr B had elevated troponin T levels and he had experienced chest pain. While he was treated in Hospital 1 for an infection, it was decided to transfer him to Hospital 2 in light of the climbing troponin T levels.
63. This information was not known to the Cardiology registrar, Dr D, who was on duty in the ED when Mr B was transferred to Hospital 2. It is clear that a number of failures in communication meant that Dr D was unaware of the raised troponin T level. I accept that Dr D understood that Mr B had a febrile illness and was being admitted only under the Cardiology service because he had been discharged from the service only two days earlier.
64. The discharge summary that arrived with Mr B from Hospital 1 had been printed at 12.59am on Day 7, so did not include reference to the raised troponin T levels that he experienced later that morning. It also did not reference that he had experienced chest pain. While the discharge summary was later updated to include this information, I accept that the updated version was not provided to Dr D or the nursing staff at Hospital 2, and they did not have this information to hand during Mr B's admission. In my view, this was the first failure in communication that occurred, and contributed to Mr B being assigned a lower priority than other patients awaiting Cardiology review.
65. Mr Jenkin stated that "during the triage process the patient centred assessment would have painted a picture of an unwell adult with a febrile illness". However, the triage nurse also ordered blood tests for Mr B, which included a troponin T test. The result of this was reported at 3.30pm, and showed that his troponin T was raised. Waikato DHB said that while the nursing team in ED take blood tests, the medical team review these and interpret the results. However, Dr D was not aware of this result. In my view, this was a missed opportunity for Mr B's cardiac status to be identified. I note Mr Jenkin's comment:
- "Further bloods were taken by ED nursing staff while waiting for cardiology review to assist in medical diagnosis. This is standard practice. It is not routinely nursing staff responsibility to interpret or take action on the blood results. These results identified [Mr B] was progressively becoming more unwell. These blood results did not appear to be communicated to any treating team or a clinician. Whose responsibility this falls to remains unclear. Actioning this earlier would unlikely have changed [Mr B's] outcome."
66. Dr C was the Cardiology registrar who accepted Mr B's care from Hospital 1. Dr C finished his shift at 4pm on Day 7 and handed over Cardiology patients to Dr D. While Dr C says

that he informed Dr D that Mr B had raised troponin and chest pain, and the impression at Hospital 1 was of acute coronary syndrome, Dr D said that Dr C relayed to her that Mr B had “vague nonspecific febrile illness”, and she was not informed of the rise in troponin. In the absence of any documentation of the handover, I am unable to reach a conclusion regarding the content of Dr C and Dr D’s conversation. What is clear is that Dr D decided to prioritise other Cardiology patients first because of her understanding of Mr B’s condition. She stated that had she been given the information that Mr B had positive troponins and was generally unwell: “I would have made it a priority to see him much sooner in my shift than when I regrettably did.”

67. Mr Jenkin commented that there was evidence of missed communication at points of transfer between services and locations, and that the missed communication of a raised troponin contributed to the delay in Cardiology review. I agree, and I am concerned that Mr B’s raised troponin T level was not communicated clearly between those involved in his care.

Nursing documentation

68. Waikato DHB’s guideline for Nursing Documentation — Emergency Department states that a sepsis screening tool should be completed, and that appropriate clinical observations should be undertaken and recorded to the patient’s triage code. Triage code three requires vital signs to be taken at 30-minute intervals.
69. Mr B did not have a sepsis screening tool completed, and his vital signs were not taken at 30-minute intervals on Day 7 while he was awaiting medical review. Accordingly, the Waikato DHB guideline was not complied with.
70. Mr Jenkin commented:
- “If further vital signs and nursing assessment had been completed it may have identified the need for escalation earlier. This may not have been completed due to workload in ED on the day of presentation.”
71. Mr Jenkin acknowledged that as Mr B had already received 24 hours of care and treatment at Hospital 1, nursing staff may have deemed him less acute and adapted their documentation accordingly, and thus Mr Jenkin considered that the lack of observations was a minor departure from accepted practice. He stated that it “remains unclear if earlier assessment may have ultimately changed [Mr B’s] outcome”.
72. With regard to the vital sign recordings that were taken, Dr Bridgman commented:
- “There was no warning sign in them that he was going to arrest. There was no progressive deterioration. It seems that from the objective measures, he fairly precipitously deteriorated after the [8.30pm] vital signs recordings.”
73. While I accept that the vital sign recordings that were taken did not show that Mr B was deteriorating, and that it is unclear whether additional recordings would have had any

bearing on the outcome, I have some concerns that the nursing documentation was not completed in line with the Waikato DHB guidelines. In making this comment, I acknowledge that it was particularly busy in the ED that day, and that this would have affected the ability of nursing staff to attend Mr B to record observations half hourly.

Conclusion

74. Right 4 of the Code of Health and Disability Services Consumers' Rights (the Code) states that consumers have the right to services of an appropriate standard, and Right 4(1) states that every consumer has the right to have services provided with reasonable care and skill. I find that Waikato DHB failed to provide Mr B services with reasonable care and skill for the following reasons:
- a) He was not seen by any medical staff for over six hours, which was well outside the recommended triage time of 30 minutes for a patient triaged as code three.
 - b) There was insufficient Cardiology registrar presence in the ED at the time of these events, given the demand for patients to be reviewed by the Cardiology registrar.
 - c) Waikato DHB's system surprisingly allowed Cardiology SMOs to decline to attend and assist in the ED in circumstances where the Cardiology registrar was experiencing an overwhelming workload.
 - d) Missed communication of Mr B's raised troponin T contributed to the delay in Cardiology review.
 - e) Nursing documentation was not completed in line with the Waikato DHB guidelines.
75. Accordingly, I find that Waikato DHB breached Right 4(1) of the Code.

Changes to Cardiology service — other comment

76. Waikato DHB reported that it has made a number of changes to increase its Cardiology service presence in the ED. Dr Bridgman commented: "Waikato DHB has significantly improved the level of the support Cardiology provides to the Emergency Department."
77. I am pleased that Waikato DHB has recognised the need to review its Cardiology service rostering, and I consider the changes it has made to its service to be both necessary and appropriate.

Recommendations

78. I recommend that Waikato DHB:
- a) Provide a written apology to Ms A. This should be sent to HDC within three weeks of the date of this opinion, for forwarding to Ms A.
 - b) Provide a report with feedback on the efficacy of the changes to its Cardiology service rostering. This should include objective evidence of the success or otherwise of these changes (eg, an audit of medical review times against triage times for patients transferred under Cardiology).
 - c) In light of the comment in Mr Jenkin's expert advice, consider implementing a formalised process where an ED clinician reviews the patient's clinical picture if there is to be a significant delay in the inpatient service review of the patient.
79. Feedback on recommendations b) and c) should be provided to HDC within three months of the date of this opinion.
-

Follow-up actions

80. A copy of this report will be sent to the Coroner.
81. A copy of this report with details identifying the parties removed, except the experts who advised on this case and Waikato DHB, will be sent to the Health Quality & Safety Commission, the Ministry of Health, the Cardiac Society of Australia and New Zealand, and the Australasian College for Emergency Medicine, and placed on the Health and Disability Commissioner website, www.hdc.org.nz, for educational purposes.

Appendix A: Independent advice to the Commissioner

The following expert advice was obtained from Dr Paul Bridgman:

“Preamble and executive summary

I have been asked to comment and provide expert advice on the management of [Mr B] by Waikato DHB between [Day 1] and his tragic death on [Day 7]. My condolences go out to his partner, [Ms A]. This expert opinion is offered as a cardiologist with 21 years of consultant experience. I work in a tertiary centre and have a large secondary care cardiology component to my everyday work role.

My key findings are that during his admission to [Hospital 2] from [Day 1] to [Day 5] [Mr B] received the expected excellent quality of care. On [Day 7] he waited for over 6 hours in the [Hospital 2] Emergency Department (ED) and died from influenza A without being seen by a doctor. Medical intervention may not have altered that outcome. Certainly cardiology review would not have provided any specific cardiology intervention that would have altered the outcome. However that waiting time for review is a significant departure from the expected standard of care. I understand that Waikato DHB have acknowledged this and are reviewing their processes in order to ensure that this does not happen again.

The case

[Mr B] was brought to the Emergency Department at [Hospital 1] on [Day 1], having had a choking or coughing episode, complicated by syncope. He had fallen and sustained a head injury. He was transferred on that day from [Hospital 1] to [Hospital 2]. Documentation with that admission shows that he received standard, high quality care. Given that he was on long term anticoagulation for his atrial fibrillation, investigations included a CT head, and that showed no intracranial lesions. His cardiac investigations and management was absolutely standard and fully acceptable. I note that [Ms A] reports that there was a ‘flu patient’ in a six bedded room that he was in for his last night in [Hospital 2]. It is very likely that his influenza A infection was acquired during his time as an inpatient. He was discharged on [Day 5].

At 8 o’clock in the evening of [Day 6] [Mr B] was re-admitted to [Hospital 1]. He was febrile and had abdominal pain. On the subsequent day he was transferred to [Hospital 2]. It appears that the Cardiology Service had been telephoned and accepted him for transfer under their care. [Mr B] arrived in Emergency Department at 14:35 and was assessed by Emergency Department nursing staff.

His triage code was 3. The system in place at Waikato DHB is that patients who have been accepted by an inpatient service and are triage category 3 would not routinely be seen by a doctor from the Emergency Department. Primary responsibility for care rests with the accepting team. I am told that similar systems operate in my centre.

The cardiology registrar was notified of [Mr B's] presence at 14:55, but was not made aware of his elevated troponin. There was an elevation to 0.35. Emergency Department nursing staff documented that [Mr B] had some chest pain. His pains had not been consistent with ischaemic chest pain, and he was felt likely to not be ischaemic. By 16:10 [Mr B] had not been seen by the cardiology registrar. The service manager for Cardiology attended the Emergency Department to follow up on a high number of cardiology patients waiting to be seen by the cardiology registrar. Documentation is that the service manager spoke to on-call registrar and was informed that she had seen one patient and was working through others. The service manager then contacted the on-call consultant and advised him of the situation. The consultant was offsite and was informed of the high workload. At 19:40 [Mr B's] partner left, stating that she felt he was becoming more agitated. At 20:20 nursing notes document that [Mr B] indicated increasing pain and was becoming more agitated. The cardiology registrar was again rung. 20:30 nursing vital sign recordings show an increased heart rate consistent with the agitation but do not in any way herald the subsequent cardiac arrest. The decline from 20:20 was precipitous. [Mr B's] earlier vital signs recordings during his stay in the ED are in fact notably stable.

At 20:45 [Mr B] was prescribed and given paracetamol and oxynorm. At 20:50 he became incontinent and the nurse went to get some help. He lost cardiac output and an arrest call was then made. Resuscitation efforts were discontinued at 21:20.

A nasal swab has subsequently come back as positive for influenza A.

Opinion

Having reviewed the documentation provided, I believe that the most likely cause of death was influenza A. The background illnesses of previous hypertension, atrial fibrillation, tricuspid regurgitation, pulmonary hypertension, previous alcoholic cardiomyopathy and COPD may have been contributing factors. In addition, [Mr B] had an acute kidney injury from his influenza A illness.

The troponin rise almost certainly represents a type 2 myocardial infarction (MI) brought on by the influenza A infection, rather than a type 1 MI. There are, of course, a raft of other reasons why a troponin may become elevated, but the overall picture here is that the troponin elevation represents a marker of how unwell [Mr B] was, rather than a specific unstable coronary artery lesion, or type 1 MI. [Mr B's] death was tragic, but I do not believe that if the cardiology registrar had seen him before he died, that it would, necessarily, have made any difference to the natural history of his influenza A illness.

There is no clinical need or contractual obligation for the on-call cardiologists to be in hospital continuously during any 24 hour on-call period. Having had a phone call from the manager, as the acute cardiologist on-call, it might have been reasonable for that cardiologist to telephone the acute registrar, to check that there were no pressing clinical concerns and that additional help was not urgently required. I cannot however

say that with certainty as I do not exactly know the details of that phone call. I would just note that it is possible that if the cardiologist did not follow-up with the registrar then that could represent a mild departure from the expected optimal care.

The wait of over 6 hours for [Mr B] to see the cardiology registrar was clearly outside of what would be a usual standard of care. I note the documentation of the high work load for the acute cardiology registrar for that time. It is appropriate that the Waikato DHB is reviewing their processes to provide better cardiology registrar availability to the emergency department.

Recommendation

That Waikato DHB reviews their systems in order to improve cardiology registrar availability to the emergency department. The HDC could consider asking the DHB for a report on that review detailing the changes that they have made.

Emergency Department care

As a part of preparing this opinion I thought that it might be helpful for me to consider whether an ED doctor should have seen [Mr B] during his 6 hours in the department. As he was physically in their department there would be some duty of care on their part. As a cardiologist, and not an ED physician, I am not the best expert to comment but I took the liberty of discussing this case with an Emergency Department Consultant and a Senior Charge Nurse from the ED here in Christchurch. We reviewed the Waikato Emergency Department vital signs recording sheet showing that the nurse recorded and documented the patient's vital signs at 15:00, 16:10, 17:45, and 20:30. Their advice was that for a patient such as [Mr B], this would be fairly standard frequency of recordings and that it was similar to what he would have received in the Christchurch Hospital ED. Expected standard of nursing care was met.

Looking at the recordings, there was no warning sign in them that he was going to arrest. There was no progressive deterioration. It seems that from the objective measures, he fairly precipitously deteriorated after the 20:30 vital signs recordings. In terms of medical review in the emergency department the advice in Christchurch was that as a triage 3 after a wait of 2 hours he might have had an ED physician cast an eye over him or he might not. This from the emergency department perspective [Mr B's] care was in the broad range of expected standard. I would note that even had it occurred that an ED physician reviewed him mid-afternoon it would probably not have altered the outcome as the patient's recordings were all stable in the normal range at that point. Likely the ED staff would have continued to wait on cardiology knowing that the service manager was involved. The key systems issue for [Mr B] was the lack of availability of the cardiology registrar to advance his care."

The following further advice was received from Dr Bridgman:

“Preamble and Executive Summary:

I have been forwarded 22 further documents regarding the case of [Mr B]. The HDC asks if this additional information provided by the DHB would cause me to alter my initial advice. Once again, my condolences go to the partner of [Mr B], [Ms A].

My key findings from my initial report are unchanged. Between [Days 1 and 5] [Mr B] received the expected excellent quality of care at [Hospital 2]. However, on [Day 7] he waited for over 6 hours in the [Hospital 2] Emergency Department, without being seen by a doctor. That is a significant departure from the expected standard of care. My recommendation was for the DHB to review their systems, in order to improve Cardiology Registrar availability to the Emergency Department.

My initial report also included a statement that we did not receive full documentation of events around the Service Manager’s involvement in the ED that day, and in particular, subsequent communication between the Cardiologist on call and the Acute Cardiology Registrar. I noted that it was possible, that if the Cardiologist did not follow up with the registrar, then that could represent a mild departure from the expected optimal care. Much of the additional documentation I have now been provided centres on that possibility. Outward call and SMS traces from the Consultant’s cell phone document that they did contact the Cardiology Registrar. I can therefore now say that care in that aspect was in the expected range.

Additional Documentation Provided:

ACC Report:

This report to the ACC written by [a] Cardiologist is concordant with the expert opinion I provided [earlier]. [The cardiologist] writes that he believes the cause of death was Influenza A.

Additional Information from DHB:

This is a covering letter from the DHB to the HDC that lists the additional documentation the DHB have provided.

Appendix 1 — Cardiology Response:

This appendix, provided by the DHB, details the significant changes that they have made to Cardiology Registrar rostering and allocation, to avoid further incidents, such as the case of [Mr B]. This is an appropriate robust response by the DHB to the recommendation contained in my initial report.

HDC [Mr B] further response [Dr G]

This letter from [Dr G] is to be read with the outgoing SMS and call logs that he has provided from his cell phone. [Dr G] SMS messaged the Registrar at 16:41, and then

telephoned the Registrar at 20:04. [Dr G] agrees with [Ms E's] statement that he indicated that he would text the Registrar. The records show he did indeed follow through on that and text the registrar.

HDC Response [Dr D]:

This letter documents the heavy workload that [Dr D] was faced with and that she was responding appropriately.

HDC Response — Statement [Ms E]:

[Ms E] was the Cardiology Service Manager. She became involved owing to the large number of patients awaiting Cardiology review in ED. The letter documents that she went to the Emergency Department and spoke with the Cardiology Registrar. She then returned to her office and telephoned the Acute Consultant, [Dr G].

HDC Response — [Dr G]

This is a letter to the HDC from [Dr G]. It documents that his actions of 2018 were consistent with the expected response as per the [Hospital 2] Cardiology meeting minutes from [2018]. [Dr G] documents that in [2018], following the case of [Mr B], there was further discussion, and that expectations of Cardiology SMOs were changed. In [Mr B's] case [Dr G's] approach was fully consistent with the department standard of the time.

HDC Response — [Mr B] SMO responsibilities and limitations of delegations to RMOs:

This document specifies the DHB's policy on SMO and RMO responsibilities in delegation. In the case of [Mr B] the expectations in this document were met.

HDC Response — Call log outgoing calls registrar mobile:

This call log is brief and does not show any phone calls from the registrar to [Dr G].

HDC Response — Statement from [Dr H]:

[Dr H] is the Associate Clinical Director of the Department of Emergency Medicine at [Hospital 2]. [Dr H's] opinion is that [Mr B] should have been reviewed in the Emergency Department earlier by the on-call Cardiology Registrar. He documents that the standard of care was not what would be wished for. He states that, given the inability of the Cardiology Registrar to review [Mr B], a doctor from the emergency medicine (EM) Team should have reviewed him. In regards to the review by an Emergency Department doctor, his opinion is discordant with the opinion I obtained from senior staff in my own Emergency Department as detailed in my initial response. It is also at variance with the opinion of [Dr F].

HDC Response — [Mr B] inter-hospital patient transfers:

This is the protocol for inter-hospital patient transfers in the Waikato District Health Board. It appears [Mr B] was managed in line with the protocol.

HDC Response — [Mr B] Nursing Documentation:

[Mr B's] care appears to have been in line with this nursing guideline document.

HDC Response — [Mr B] Nursing Documentation — Emergency Department:

This is a guideline on Nursing Documentation. The Nursing Documentation I reviewed last year appeared to be acceptable.

HDC Response — [Mr B] Ref 18HDC01563:

This is a letter from [Hospital 2] to the HDC. It documents that the Waikato DHB has significantly improved the level of the support Cardiology provides to the Emergency Department.

HDC Response — Minutes [2018]:

These minutes from a [2018] department meeting document that following the case of [Mr B] [Dr G] formally raised changing the department guidelines on service provision to the ED. As a result his Department unanimously agreed to a guideline change that would increase their presence in the ED.

HDC Response — HDC Ref C18HDC01563 Mortality and Morbidity Report:

This is the report of the Mortality and Morbidity Review of [Mr B's] case. The review was undertaken [in 2018]. It provides full documentation of the meeting. It shows the Mortality and Morbidity Review to be of an acceptable standard.

HDC Response — Minutes [2016]:

These department meeting minutes from 2016 document the expectation of the service that Cardiology SMOs will provide to the Emergency Department. In the case of [Mr B] [Dr G] met the expectation.

HDC Response — Statement [Dr I]:

[Dr I] is an Emergency Department MOSS, who responded to the cardiac arrest situation on [Day 7]. He was not able to comment on events prior to that and as such does not contribute to the primary matter at hand.

HDC Response — Statement [Dr D]:

[Dr D] documents her recollections of [Day 7] in a letter. She documents that the patients in ED were clinically stable and that she did [not] ask [Dr G] to attend the ED.

[Dr C] — HDC Response 2019:

[Dr C] was the Registrar who took the telephone call from the [Hospital 1] SMO on the morning of [Day 7]. Accepted standards of care were met, the contents of this letter are not directly relevant to the matter in this report.

Outward Call Trace for [cellphone number]:

This is the call log for [Dr G's] cell phone. It documents the call to the registrar.

Outward SMS traced to the same number:

This is the text trace for [Dr G's] cell phone. It documents the SMS message to the registrar.

Statement to HDC — [Mr B]:

This is the letter from [Dr F] to the HDC. [Dr F] is Senior Fellow of the Australasian College of Emergency Medicine. His expert advice is that it is not expected for the Emergency Medicine Team to formally review all patients awaiting another service. His opinion is that the ED Service at [Hospital 2] met accepted standards of care. This is in agreement with the emergency department opinion that I obtained in Christchurch and with my own personal opinion. It differs from the opinion of [Dr H].

Summary

My initial report noted that it was possible that if the Cardiologist on call did not follow up with the Registrar, then that could have been a mild departure from expected optimal care. The documentation listed above shows that the Cardiologist did follow up with the registrar. Therefore, there was no departure from the expected care by the Cardiologist. Documentation now provided by the DHB details what the expected standard of care was and shows that standard was met.

The significant departure from the expected standard of care was the lack of Cardiology Registrar availability. Documentation has been provided that the DHB has now made major changes in its rostering and provision of Cardiology Registrar services to the Emergency Department. I also note the change in Cardiology Department policy, instigated by [Dr G], that means there is now increased Cardiologist presence in the Emergency Department."

Appendix B: Independent advice to the Commissioner

The following expert advice was received from Mr Craig Jenkin:

I, Craig Jenkin, have been asked to provide an opinion to the Commissioner on case number C18HDC01563. I have read and agree to follow the Commissioner's Guidelines for Independent Advisors.

I currently hold the position of Nurse Practitioner with the Department of Emergency Medicine at Wellington Regional Hospital. I have 15 years of Emergency Nursing experience. I have a Masters (clinical) qualification. I having a Teaching assistant role at the Post Graduate School of Nursing and Midwifery of Victoria University of Wellington.

Background of case based on the 'Chronology of events' from Waikato DHB and assessment of documentation provided:

a) [Day 5]

[Mr B] was discharged from the [Hospital 2] having been admitted with heart failure and treated accordingly.

b) [Day 6]

20:00 — admitted to [Hospital 1] with abdominal pain, fever and feeling generally unwell. Respiratory Rate (RR) of 18 (reference range 12–20)/Oxygen saturations (O2 sats) 89% (reference range \geq to 96%) on room air/Heart Rate 132 (reference range 60–95 beats per minute)/Blood pressure 132/69 (reference range $>110/X$), /Temp 38degrees C (reference range 36–37.5). He was categorised as a triage 3.

22:35 — worsening abdominal/epigastric discomfort and was on morphine, codeine and metoclopramide. An ECG was performed but no significant changes noted. Bloods show raised white cell count with neutrophilia; renal function unremarkable. Liver function GGT raised at 206 (ref range 0–60) (will comment on this below). All other liver function tests unremarkable.

01:00 — Settle and transferred to the ward, with an early warning score (EWS) of five RR 24/O2 sats 95% on RA/HR 103/BP108/62 /T 37. No troponin taken as the working diagnosis was sepsis ? cause. Started on IV antibiotics (Augmentin) and an influenza swab was taken.

c) [Day 7]

04:30 — [Mr B] deteriorates on the ward. A troponin T (AQT) and ECG were taken. The Troponin was 0.200 (reference range, 0–0.017ng/L) and the ECG showed changes in the context of atrial fibrillation. His EWS of 13 now RR 40/O2 sats 98% RA/ HR 126–131 AF/BP 149/83/ T37.7. He develops an oxygen requirement being placed on to 2L of

oxygen. He was reviewed by an ED Doctor who felt as if his chest pain appeared muscular but angina could not be ruled out.

09:21 — Repeat troponin 0.35 (0–0.017ng/L).

10:00 — Reviewed on morning rounds and appeared settled but with the context of the raised troponin it was decided to transfer to [Hospital 2] for Cardiology review.

14:35 — Arrives at [Hospital 2]. Triage as a ? febrile illness, he was categorised as a triage 3. RR 20/02 sats 98%/HR ?/BP 164/73 /T?

14:55 — Cardiology notified of presentation, not made aware of the raised troponin.

15:30 — Bloods taken showing acute kidney injury Creatinine 187 (reference range, 60–105 $\mu\text{mol/L}$); Troponin T 469 (reference range, 0–14ng/L); elevated White Cell Count 12.88 (reference range, 4–11 $\times 10^9/\text{L}$).

16:10 — Waikato service manager escalation process due to the number of Cardiology patients waiting in the ED.

19:40 — [Mr B's] partner left alerting staff that he had become more agitated.

20:20 — Increasing pain and increasingly agitated. Pain described as back pain. The Cardiology Reg informed. Retrospective note highlighted their impression for the reason for admission was a febrile illness with back pain, indicating no cardiac chest pain.

20:45 — Prescribed and administered paracetamol and oxynorm.

20:50 — Became incontinent. The nurse went to get help and on return [Mr B] was found unresponsive. CPR commenced. He did not have a return to spontaneous circulation.

21:20 — CPR stopped.

d) [Day 8]

Influenza swab returned positive for Influenza A.

e) Documents provided:

A bound copy of:

- Letter of Complaint dated ...
- Waikato DHB's response dated [2018]
- Clinical records from the Waikato DHB for the period of [Days 1–7]

Requested/not included:

Coroner's response/report

Expert advice requested:

The appropriateness of the standard of observation and assessment

[Mr B's] representation to [Hospital 1] on [Day 6] with symptoms of an infection; having an increased oxygen requirement (O₂ Sats of 89%)/a fast heart rate (> 110BPM)/febrile (>38 degrees). He was triaged as a code three. This clinical picture indicates *sepsis* and should have been a code ATS 2. This is a moderate departure away from standard practice and would be viewed similarly by my peers.

This however did not affect the ongoing management of his presenting condition. He was assessed appropriately and treated with IV antibiotics with a source for the infection being unknown or not immediately identifiable. This is accepted practice and would be viewed as appropriate by my peers.

On [Day 7] in the early hours [Mr B] deteriorated and his cardiac enzyme tests indicated he was having an Acute Coronary Syndrome (ACS). With another troponin rise later in the morning. With *this picture* he was referred appropriately to [Hospital 2]. He was referred to the Cardiology service whom he had recently been discharged from. This would be an accepted practice. However with the *combined* picture of infection and ACS a more appropriate referral to a medical service should have been accepted practice. This can be supported by his CURB-65 score on arrival to [Hospital 1] that would have been a 3 (1 point for having a raised urea/1 point for having a raised RR/1 point for being over 65 years old). CURB-65 estimates the mortality of community acquired pneumonia to help inpatient vs outpatient treatment. A score of three placed [Mr B] in the severe risk category and should have been considered for appropriate inpatient treatment. This would not have been a cardiology inpatient service however.

The presentation to [Hospital 2] was triaged as ? febrile illness and as indicated in the [Hospital 2] Mortality and Morbidity Report under the conclusion, *There is no documentation to suggest that the patient was flagged to cardiology registrar as particularly unwell at the time of the transfer and his otherwise unremarkable observations appear to bear this out.* In my expert opinion the cardiology service were not given a clear clinical picture of [Mr B's] condition or who would have been the best service to treat [Mr B]. This is a moderate departure from accepted practice.

Whether [Mr B] should have been escalated for review sooner

[Mr B] waited greater than six hours to be seen by ANY treating clinician in the [Hospital 2] Emergency Department. This is outside the ATS category 3, 30 minute time frame that was allocated to his presentation. Please see below.

The Australasian Triage Scale

Triage Category	Description	Maximum Clinically Appropriate Triage Time	Performance Benchmark
1	Immediately life-threatening,	Immediate simultaneous triage and treatment	100%
2	Imminently life-threatening, or important time-critical	10 minutes	80%
3	Potentially life-threatening, potential adverse outcomes from delay > 30 min, or severe discomfort or distress	30 minutes	75%
4	Potentially serious, or potential adverse outcomes from delay > 60 min, or significant complexity or severity, or discomfort or distress	60 minutes	70%
5	Less urgent, or dealing with administrative issues only	120 minutes	70%

<https://www.health.govt.nz/our-work/hospitals-and-specialist-care/emergency-departments/emergency-department-triage>

Although referred to Cardiology, while in the ED an Emergency clinician should have reviewed [Mr B] and considered the best disposition for him.

A nursing note at 15:00 noted *Had some chest pain at 10am (while in [Hospital 1]) L sided, with associated SOB. A — patent, B — full sentences, tachypnoea, C — clammy, D — Alert and orientated.* Observations from the same time stamp RR 26/ 02 sats 96% 1L/HR 90/BP 110/60 /T35.3. A raised resp rate and clammy appearance are two clear nursing assessments that the patient is unwell. The EWS would not necessarily have been raised to a point to trigger a review. EWS are not uniformly used in Emergency Departments. There was no documented medical assessment following this documentation. [Mr B] would have still been inside the Triage three 30min wait period also.

The specialty doctor blood requests completed at 15:30 showed:

- A raised WCC 12.88 (reference range, 4–11 x10E9/L) with a neutrophilia of 11.67 (reference range, 1.9–7.5 x10E9/L) that can indicate an infection;
- A raised Creatinine 187 (reference range, 60–105 µmol/L) and an increasing urea 14 (reference range, 3.2–7.7mmol/L) indicating an acute kidney injury;
- A raised Troponin T 469 (reference range, 0–14ng/L) indicating an ongoing ACS.

A combination of the nursing assessment and the reported bloods tests should have led to escalation to a senior ED clinician, likely by nursing staff, prior to the move to the WZ at 1700. Although it is not a nursing expectation to action blood tests results an RN should have been able to identify abnormalities that should have been

escalated. This is dependent on nursing staff having access to laboratory reporting, as they do in my work place. In my expert opinion this should be an accepted practice.

There is no documentation that these results were acknowledged, actioned upon or reviewed for the duration of [Mr B's] stay in ED. This is a severe departure from the standard of care while the patient is under ED care. I believe this would be viewed similarly by my colleagues and peers.

[Mr B] was prescribed Paracetamol and Oxynorm (unsure of time as not completed on ED medication chart) by a clinician, possibly a [senior house officer], as transcribed from the chart. There is no documentation of an assessment that went along with this prescription. This is the only record of a medical practitioner's involvement with [Mr B's] care while in [Hospital 2] ED until found unresponsive and CPR commenced. This is a severe departure from the standard of care.

I recommend if there is going to be significant delay with inpatient services reviewing patients that an ED clinician review the clinical picture including requested tests prior to being moved. This will allow any red flags identified whilst waiting for specialty services and with review and appropriate treatment commenced. This could be completed by a duty Emergency Medicine Specialist or Senior Emergency Registrar.

The appropriateness of the management of [Mr B's] condition on [Day 7]

[Mr B] had a complex medical history (from Waikato DHB Cardiology — General Discharge Summary dated [Day 5]):

- Hypertension
- COPD
- AF on Warfarin
- Alcoholic Liver disease ? alcoholic cardiomyopathy, previous ETOH dependence (the likely cause of the raised GGT in the above mentioned note)
- CHF — echo 2017 — severe TR and pulm HTN, EF 50–55%
- Tricuspid insufficiency
- Dysphagia for around a year.

These factors would have made [Mr B's] management complex. He had chronic lung, heart and liver disease prior to [Day 7]. His management of his worsening clinical signs and symptoms leading to what was described by the Waikato DHB Mortality and Morbidity report, of which I and my peers would agree with, *death likely related to influenza sepsis and multi-organ failure as evidenced by the very rapid deterioration in renal function and metabolic acidosis.*

The management of the infection ? cause with IV antibiotics and the referral to the cardiology service for ACS management were appropriate. Not identifying or

considering that it was likely sepsis causing the ACS was a departure from standard of care. This could have been rectified by one of the services, whether this was [Hospital 1] ED/[Hospital 2] ED/the Cardiology service; Doctors or Nurses alike. In my expert consideration this was a severe departure from standard of care and likely had some level of contribution to [Mr B's] death. If the end organ failure may have been addressed earlier it may have improved his condition. But due to his co-morbidities, may not have ultimately changed his outcome. I believe my peers would view the patient's co-morbidities would have been a significant contributing factor on [Mr B's] death.

A coroner's report would add detail and relevant information to this conclusion and verify its accuracy.

Any other matters arising that you may consider amount to a departure from accepted standards of care.

Nothing further to add.

Craig Jenkin

NP | MN (Clin) | PG Cert Trauma and Emergency | BN
Nurse Practitioner
Department Emergency Medicine
Capital and Coast District Health Board."

The following further advice was received from Mr Jenkin:

"I, Craig Jenkin, have been asked to review documents provided to the Office of the Health and Disability Commissioner (HDC) from Waikato DHB regarding case number C18HDC01563. The purpose of the request is to review the documents and advise if any of the information provided by the DHB causes me to change my initial advice from a report provided to the Office of the HDC.

I have read and agree to follow the Commissioner's Guidelines for Independent Advisors.

I currently hold the position of Nurse Practitioner with the Department of Emergency Medicine at Wellington Regional Hospital. I have 15 years of Emergency Nursing experience.

A brief background of case:

[Day 5] — [Mr B] was discharged from [Hospital 2] having been admitted with heart failure and treated accordingly.

[Day 6] — represented and admitted to [Hospital 1] with abdominal pain, fever and feeling generally unwell. Bloods show raised white cell count with neutrophilia = working diagnosis was sepsis ? cause. Started on IV antibiotics.

[Day 7] — [Mr B] deteriorates on the ward. A troponin T (AQT) and ECG were taken. The Troponin was 0.200 (reference range, 0–0.017ng/L) and the ECG showed changes in the context of atrial fibrillation. His EWS of 13. Medical review chest pain muscular vs cardiac. Repeat troponin 0.35 (0–0.017ng/L) = decide to transfer to [Hospital 2] for Cardiology review.

14:35 — Arrives at [Hospital 2]. Triage as a febrile illness, he was categorised as a triage 3. RR 20/02 sats 98%/HR 73/BP 164/73 /T? Cardiology notified of presentation, not made aware of the raised troponin. Bloods taken showing acute kidney injury Creatinine 187 (reference range, 60–105 µmol/L); Troponin T 469 (reference range, 0–14ng/L); elevated White Cell Count 12.88 (reference range, 4–11 x10E9/L).

20:20 — Increasing pain and increasingly agitated. Pain described as back pain. The Cardiology Reg informed (not yet reviewed by them yet).

20:45 — Prescribed and administered pain relief.

20:50 — Became incontinent. The nurse went to get help and on return [Mr B] was found unresponsive. CPR commenced. He did not have a return to spontaneous circulation.

[Day 8] — Influenza swab returned positive.

Documents provided:

An electronic copy of:

- Waikato DHB's response including
 - Appendix One — Cardiology response
 - ACC Report
 - Mortality and Morbidity Report
 - Minutes [2016]
 - Minutes [2018]
 - Policy — SMO Responsibilities and Limits of Delegation to RMOs
 - Protocol — Inter-hospital Patient Transfers — Competencies and Standards
 - Guideline — Nursing Document — Emergency Department
 - Statement from [Ms E]
 - Statement from [Dr D]
 - Statement from [Dr G]
- Waikato DHB's further response
 - Call logs

- Statement from [Dr C]
- Statement from ED SMO [Dr I]
- Statement from ED SMO [Dr H]
- Further Statement from [Dr D]
- Statement from [Dr F]
- Further Statement from [Dr G]

Report:

Following reviewing my initial report and further information supplied by the Office of the HDC I will comment on my initial advice.

Communication/hand over

There was evidence of missed communication at points of transfer between services and locations.

[Mr B's] condition was handed over from [Hospital 1] ED to Cardiology service at [Hospital 2] as 'a recent discharge from the cardiology service after an admission for heart failure and a brief breakdown of his cardiac history [that included AF]'. The cardiology reg was provided with a clinical picture of a patient with chest pain and feeling generally unwell. His blood tests supported possible diagnosis of Acute Coronary Syndrome (ACS) and a possible infection but without a clear foci. He had been treated for both.

[Mr B] had been started on broad spectrum antibiotics at [Hospital 1] however there is no evidence that he had been started on antiplatelet treatment for his ACS. Treating this earlier would unlikely have changed [Mr B's] outcome.

The day time reg stipulated that 'all patients were relayed to [the afternoon cardiology reg]'. This did not appear to be accurate according to statement provided by the afternoon reg [Dr D]:

'I was initially unaware of [Mr B's] transfer to [Hospital 2] and received a call from the triage nurse who advised me that the patient has arrived from [Hospital 1] with a "febrile illness unclear cause", he was given IV antibiotic already at [Hospital 1] and fevers have settled and he was hemodynamically stable and asymptomatic without any concerns. The reason for which the patient was transferred under cardiology was unclear and at the time assumed to be due to the patient having been recently discharged from the service. Thus the patient was triaged to be a lower risk case and the ED board also reflects this showing "febrile illness" as the presenting issue.'

The missed communication of a raised troponin delayed the cardiology review. It is unlikely earlier assessment by Cardiology service may have changed [Mr B's] outcome.

This is supported by [a] Cardiologist at Waikato DHB in their response to ACC ‘There is no specific treatment that might have been available to have influenced the outcome regardless of the timeframe it might have been administered.’

From the Mortality and Morbidity report provided the triage nursing notes state ‘D/C ... from cardiology. Coughing all night, pain in chest throughout night on iv Abs’ Triage as a code three with stable observations; HR 94, BP 164/73, SaO2 98% and 2/10 pain. This is a completely appropriate triage.

During the triage process the patient centred assessment would have painted a picture of an unwell adult with a febrile illness. The initial raised troponins may not have been communicated to or known about by the triage nurse as the draft discharge form did not stipulate there had been a raised troponin as per [Dr D’s] response.

Further bloods were taken by ED nursing staff while waiting for cardiology review to assist in medical diagnosis. This is standard practice. It is not routinely nursing staff responsibility to interpret or take action on the blood results. These results identified [Mr B] was progressively becoming more unwell. These blood results did not appear to be communicated to any treating team or a clinician. Whose responsibility this falls to remains unclear. Actioning this earlier would unlikely have changed [Mr B’s] outcome.

According to Manser and Foster (2011), patient handover is critical to patient safety by ensuring appropriate coordination among health-care providers and continuity of care. A lack of formal training and formal systems for patient handover can hinder best practice to maintain high clinical standards. Nationally and internationally clinical handover improvement initiatives have been the focus of health safety organisations. The Australian Commission on Safety and Quality in Health Care (2010) developed the OSSIE Guide. ‘OSSIE’ stands for the following five phases:

O = Organisational leadership

S = Simple solution development

S = Stakeholder engagement

I = Implementation

E = Evaluation and maintenance

Within the New Zealand context the Health Quality and Safety Commission New Zealand ran a Quality and Safety challenge 2012, where Clinical handover improvement was achieved in Northland DHB using the OSSIE guide.

In my expert opinion consideration of multidisciplinary clinical handover review could reduce the risk of a similar event occurring again. Waikato DHB’s systems may already be robust enough already. There was no evidence of this provided.

Escalation

Six hours following arriving in ED [Mr B] developed increasing pain and became increasingly agitated. He was prescribed and administered pain relief by the cardiology registrar and was to be reviewed shortly after this. Following the administration of medication and prior to review he was found unresponsive. CPR commenced. He did not have a return to spontaneous circulation.

In my initial report I recommended if there was going to be significant delay with inpatient services reviewing their patients that an ED clinician should review the clinical picture including requested tests. This would allow any red flags to be identified whilst waiting for specialty services and appropriate treatment commenced. This could be completed by a duty Emergency Medicine Specialist or Senior Emergency Registrar.

In the response from [Dr H], ED Associate Clinical Director, on [Day 7] [Hospital 2] ED had 281 presentations, 'The day was thus a very busy one.' This degree of presentations would likely strain any resource and severely inhibit ED to perform a review without clear indication.

From triage [Mr B] was appropriately assigned a category three triage score, he had been referred from [Hospital 1] ED to a service with a working diagnosis, so was not an undifferentiated patient. There was no ongoing concerns raised by nursing staff while waiting for cardiology.

[Dr H] also comments 'There is unfortunately little nursing documentation from the time of his arrival into ED's main department until he is recorded at 2020 hours as complaining of increasing pain and becoming more agitated.' This too could be indicative of severe strain on the ED resources on the day.

According to Waikato DHB guideline for Nursing Documentation — Emergency Department, issue date 2016, the guideline stipulates under 3.3 *Patient assessment and history* to include: (not a complete list)

- a) A secondary assessment relevant to the presenting complaint
- b) A complete set of observations if not already completed as indicated by presenting complaint
- c) A record of the specialty Doctor notified
- d) Sepsis screening tool completed.

Under section 3.6 *Vital Signs*

1. Appropriate clinical observations should be undertaken and recorded to the patient's triage code.

- a. Triage 3 — 30 minute intervals.

Reviewing my previous report and the new documents provided this requirement was not met. If further vital signs and nursing assessment had been completed it may have identified the need for escalation earlier. This may not have been completed due to workload in ED on the day of presentation.

Alternatively due to [Mr B] being transferred from a hospital facility where he had already received 24hrs of care and treatment the nursing staff may have deemed him less acute and adapted documentation accordingly. However a further assessment of at least a repeat set of observations should have been completed. This is a minor departure from accepted practice and I believe would be seen so by my peers. It still remains unclear if earlier assessment may have ultimately changed [Mr B's] outcome.

[Dr H] also notes 'whether earlier review by the EM team would have resulted in review by a cardiology registrar ... or in admission to the cardiac care unit ... prior to his cardiac arrest cannot be known.' [Dr H] concludes that a busy department and workload pressures was unfortunately the cause for the delay in [Mr B] being reviewed.

In my initial report I noted severe departures from accepted practice around the review and escalation from the ED service at [Hospital 2]. In light of acknowledging the workload that the ED had to face on [Day 7] it would have been extremely difficult to have reviewed [Mr B] without prompting from nursing staff. This would be a moderate departure from accepted practice and would be viewed so by my peers.

The appropriateness of management

In my initial report I noted [Mr B] had a complex medical history (from Waikato DHB Cardiology — General Discharge Summary dated [Day 5]):

- Hypertension
- COPD
- AF on Warfarin
- Alcoholic Liver disease ? alcoholic cardiomyopathy, previous ETOH dependence (the likely cause of the raised GGT in the above mentioned note)
- CHF — echo 2017 — severe TR and pulm HTN, EF 50–55%
- Tricuspid insufficiency
- Dysphagia for around a year.

I noted a severe departure from standard practice by not identifying or considering sepsis causing ACS. [Mr B] did not show overt signs of sepsis. This makes consideration of this difficult. The missed communication of possible ACS further complicated this statement.

I would therefore adjust the severity to be a minor departure from accepted practice and would be viewed so by my peers.

From the Waikato DHB Mortality and Morbidity report *death likely related to influenza sepsis and multi-organ failure as evidenced by the very rapid deterioration in renal function and metabolic acidosis*. Due to his co-morbidities any acute treatment sepsis or ACS may not have ultimately changed his outcome. I believe my peers would view the patient's co-morbidities would have had a significant contributing factor on [Mr B's] death.

References

Australian Commission on Safety and Quality in Health Care (2010). The OSSIE Guide to Clinical Handover Improvement. Sydney, ACSQHC. Retrieved from https://www.safetyandquality.gov.au/sites/default/files/2019-12/ossie_guide_to_clinical_handover_improvement.pdf

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Regards

Craig Jenkin."