

**Registered Nurse, RN C**  
**Emergency Medicine Practitioner, Dr D**  
**District Health Board**

**A Report by the**  
**Health and Disability Commissioner**

**(Case 15HDC01504)**



Health and Disability Commissioner  
*Te Toihau Hauora, Hauātanga*



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## Executive summary

1. At 11.03am on Day 5<sup>1</sup> 2014, Mr A presented to the Emergency Department (ED) at a public hospital with an abnormal heart rate, temperature, and respiratory rate. Following his initial triage assessment, Mr A was monitored by registered nurse (RN) RN C. RN C recorded Mr A's blood pressure and oxygen saturation levels at 11.45am, 12.03pm, and 2.30pm, but did not document Mr A's pulse, respiratory rate, or temperature over this time. Mr A's oxygen saturations were low enough to be indicative of significant hypoxia, but no actions were documented in response to this issue.
2. At approximately 11.30am, Mr A was reviewed by Dr D, the senior doctor on duty in the ED. Dr D ordered a number of laboratory tests, the results of which included a lactate result consistent with cellular hypoxia. Dr D electronically acknowledged Mr A's laboratory results at 1.08pm. At 2.45pm, Dr D ordered the urgent administration of IV fluids. No observations were documented after that time.
3. Dr D diagnosed Mr A with bilateral basal pneumonia and discharged him at 3.28pm. Dr D told HDC that Mr A's oxygen saturation levels and blood pressure were not brought to his attention, but said he could not recall whether or not he was aware of the lactate level at the time he discharged Mr A.
4. Mr A was found dead in his bed the following day.

## Findings

5. RN C breached Right 4(1) of the Code<sup>2</sup> by failing to: record Mr A's pulse, respiratory rate, and temperature during the period she was monitoring him in the ED; inform Dr D of Mr A's low oxygen saturations; administer oxygen to treat Mr A's hypoxia; and take vital sign recordings to assess Mr A's response to further IV fluids administered at 2.45pm.
6. By failing to review Mr A's observations before making decisions about his discharge, Dr D breached Right 4(1) of the Code.
7. The DHB took all reasonably practicable steps to prevent RN C's and Dr D's breaches of Right 4(1). It is therefore not vicariously liable for those breaches.

## Recommendations

8. It is recommended that RN C:
  - a) Arrange for a peer to conduct an audit of her documentation in the ED in the last month, with a particular focus on the frequency of patient observations, and actions taken in response to abnormal observations.

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<sup>1</sup> Relevant days are referred to as Days 1-6 to protect privacy.

<sup>2</sup> Right 4(1) states: "Every consumer has the right to have services provided with reasonable care and skill."

- b) Undertake further training on the monitoring of patients with abnormal observations, or provide proof that further training in this area has been undertaken since Mr A's presentation to the ED.
- c) Provide a written apology to Mr A's family for her breach of the Code.
9. Dr D provided a written apology to Mr A's family for his breach of the Code, in response to a recommendation set out in the provisional report. It is recommended that Dr D provide HDC with evidence of further training undertaken on monitoring and managing patients in the ED.
10. It is noted that the Medical Council of New Zealand has resolved that Dr D is required to undergo a performance assessment.
11. It is recommended that the Nursing Council of New Zealand consider whether a review of RN C's competence is warranted.
12. It is recommended that the DHB undertake an early warning score audit to ensure appropriate use of the escalation protocol for all patients (or a sample of patients) who triggered an early warning score of 3 or more in the last month.
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## Complaint and investigation

13. The Commissioner received a complaint from Mrs B about the services provided to her brother, Mr A (deceased), by the DHB. An investigation was commenced and the following issues were identified for investigation:
- *Whether RN C provided Mr A with an appropriate standard of care in 2014.*
  - *Whether Dr D provided Mr A with an appropriate standard of care in 2014.*
  - *Whether the DHB provided Mr A with an appropriate standard of care in 2014.*
14. The parties directly involved in the investigation were:

Mr A	Consumer (deceased)
Mrs B	Complainant/consumer's sister
RN C	Nurse
Dr D	Provider/Emergency Department doctor
DHB	Provider

Also mentioned in this report:

Dr E	General practitioner
Dr F	House officer
RN G	Registered nurse
Dr I	Head of Emergency Medicine

15. Information was also reviewed from:

Medical centre  
Coroner

16. In-house nursing advice was obtained from registered nurse (RN) Dawn Carey (**Appendix A**).
17. Independent expert advice was obtained from an emergency medicine specialist, Dr Vanessa Thornton (**Appendix B**).

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## Information gathered during investigation

### Background

18. On Day 1, Mr A (aged 62 years) attended the medical centre with respiratory symptoms. Dr E, Mr A's general practitioner (GP), recorded the following symptoms and examination findings:

“Has had a cough, cold, runny nose and headaches [present significantly] worse when coughing.

Throat OK. Cough non productive.

[Temperature] 39.6<sup>3</sup>

Throat [nothing abnormal detected], chest clear.

[Heart sounds] dual nil added.”

19. Dr E prescribed paracetamol and ibuprofen for what he considered to be a viral upper respiratory tract infection or flu.
20. On Day 4, Mr A consulted with Dr E again. Dr E recorded:

“Is feeling much worse, Still hot and cold, Coughing [present significantly] but non productive [mucus], No blood. Pain [present significantly] in stomach and off his food has been taking reg ibuprofen and paracetamol No vomiting. No [bowel motion] a couple days. Normal before this.

[Short of breath] and hard to breathe at night. has to sit up.

[Temperature] 38.3, Chest [crepitations]<sup>4</sup> both bases worst right side. [Heart sounds] dual nil added. No ankle oedema.

Abdo tender [present significantly] epigastrium<sup>5</sup>

[Impression] — Chest infection ?? pneumonia.

[Nonsteroidal anti-inflammatory drug] induced gastritis.”

21. Dr E advised Mr A to stop taking ibuprofen but to continue with paracetamol for treatment of his fever and pain. Dr E prescribed omeprazole<sup>6</sup> and antibiotics

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<sup>3</sup> Normal body temperature is around 37°C.

<sup>4</sup> Crepitations are clicking, rattling or crackling noises that may be made by one or both lungs.

<sup>5</sup> The epigastrium is the upper middle part of the abdomen, above the naval and below the breast.

<sup>6</sup> Omeprazole is used to treat conditions caused by excess stomach acid.

(amoxicillin, clavulanic acid and roxithromycin), and ordered a blood test. Dr E recorded that he advised Mr A to go to the Emergency Department (ED) if he deteriorated. Dr E also recorded the recommendation that Mr A present to the hospital for a chest X-ray and possible admission if his blood results showed a very high white cell count.

22. The blood results were returned on the same day. Dr E recorded that the results showed an elevated serum C-reactive protein (CRP)<sup>7</sup> level and some liver derangement.<sup>8</sup> Mr A's white cell count was  $3.2 \times 10^9$ .<sup>9</sup> Dr E wrote that Mr A was not obviously septic from bacterial infection, and queried a severe viral reaction and a biliary problem.
23. Dr E left instructions for his practice nurse to discuss Mr A's blood results with the ED doctor at the public hospital. Dr E told HDC that he had asked the practice nurse to follow up because he was going on leave the next day.
24. On the morning of Day 5, the practice nurse contacted the public hospital's ED. She recorded:

“Phoned ED Dr — [Dr D], agreed viral picture  
Advised continue oral [antibiotics] though, if increasing [shortness of breath] etc for ED attendance. If not needing hospital admission.”
25. Following the telephone call, the practice nurse sent a referral note to ED. The referral note stated: “May present for review, have discussed with [Dr D],” and included a copy of Mr A's recent consultation notes.

### **Presentation to ED**

26. At 11.03am on Day 5, Mr A presented to the ED at the public hospital, accompanied by his cousin, who said that Mr A had telephoned her that morning and told her that he was really unwell.
27. The triage nurse assessed Mr A as category 3.<sup>10</sup> Mr A's baseline observations were:

Temperature: 38.3°C  
Blood pressure (BP): 110/80mmHg<sup>11</sup>  
Pulse: 120 beats per minute<sup>12</sup>  
Oxygen saturation: 93%<sup>13</sup>

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<sup>7</sup> C-reactive protein is a protein found in blood plasma, the level of which rises in response to inflammation.

<sup>8</sup> Liver derangement is the term used when various blood tests relating to the function of the liver return outside of the normal range, indicating impaired liver function.

<sup>9</sup> The normal range for white blood cell count is between  $4.0 \times 10^9/L$  and  $10.0 \times 10^9/L$ .

<sup>10</sup> On the Australasian Triage Scale, a category 3 represents a potentially life-threatening condition, the potential for an adverse outcome if treatment is not commenced within 30 minutes, or that a patient is in severe comfort or distress. The patient should be seen within 30 minutes.

<sup>11</sup> A normal range for adults aged 60–64 years is between 120/80mmHg and 140/90mmHg.

<sup>12</sup> Normal resting heart rates range from 40 beats per minute up to 100 beats per minute.

<sup>13</sup> An oxygen saturation level below 94% indicates hypoxia (deficiency in the amount of oxygen reaching the tissues).



Respiratory rate: 28 breaths per minute<sup>14</sup>

28. At approximately 11.30am, Mr A was reviewed by Dr D,<sup>15</sup> the senior doctor on duty in the ED. Dr D ordered blood tests, blood cultures, an electrocardiogram (ECG),<sup>16</sup> and a chest X-ray. Dr D recorded that Mr A was not acutely short of breath and had no respiratory distress or wheeze. Dr D also wrote that Mr A had not taken any medications that day.
29. RN C<sup>17</sup> recorded that, at 11.45am, Mr A's BP was 123/80mmHg,<sup>18</sup> and his oxygen saturation was 76%. At 12pm, Mr A was administered IV fluids, along with IV analgesia and IV antibiotics.<sup>19</sup> The nursing notes state that the ECG was reviewed by Dr D at around that time.
30. At 12.03pm, RN C recorded that Mr A's BP was 126/70mmHg<sup>20</sup> and his oxygen saturation was 86%. Mr A's temperature, heart rate, and respiration rate were not recorded at this time or at 11.45am; nor was any action documented in response to Mr A's BP and oxygen saturation levels. Dr D said that he was not alerted to Mr A's vital signs.
31. RN C told HDC that she cannot recall the details of Mr A's presentation, and regrets that her documentation of action taken appears incomplete. RN C said that, in these circumstances, her normal practice would be to commence administration of oxygen, increase monitoring of the patient, and report the actions and response to the medical officer.
32. The chest X-ray was done at 12.25pm, and showed opacification on the right mid lobe and left-sided lobe. The radiologist reported "patchy consolidation"<sup>21</sup> posteriorly at the left base in keeping with infective change".
33. The laboratory results were electronically acknowledged by Dr D at 1.07pm and 1.08pm. These results showed that Mr A's CRP level had improved (from 150 on Day 4 to 115). His white cell count had increased to  $3.8 \times 10^9/L$  (from  $3.2 \times 10^9/L$  on Day 4).<sup>22</sup> At 5mmol/L, Mr A's lactate level was indicative of cellular hypoxia.<sup>23</sup>

<sup>14</sup> A normal range for adults is 16–20 breaths per minute.

<sup>15</sup> Dr D is vocationally registered in urgent care.

<sup>16</sup> An electrocardiogram (ECG) monitors the electrical activity of the heart.

<sup>17</sup> RN C is employed by the DHB as an Emergency Department nurse.

<sup>18</sup> Based on HDC's reading of the observation chart.

<sup>19</sup> Although the nursing notes state that oral Augmentin (an antibiotic) was given, the medication chart shows that it was administered intravenously.

<sup>20</sup> Based on HDC's reading of the observation chart.

<sup>21</sup> Consolidation indicates solid or liquid occupying the normally gaseous areas in the lungs and may be due to accumulation of fluid, pus, blood, cells, gastric contents, protein or even fat in the lungs.

<sup>22</sup> When used for monitoring purposes, a series of WBC counts that continues to rise or fall to abnormal levels indicates that the condition or disease is getting worse. WBC counts that return to normal indicate improvement and/or successful treatment.

<sup>23</sup> Normal lactate levels are between 0.5 and 1.6mmol/L. Cellular hypoxia is a condition where the tissues are deprived of adequate oxygen.

34. Dr D diagnosed Mr A with bilateral basal pneumonia, and considered that Mr A's presenting symptoms were the result of him not having taken his oral antibiotic treatment since the previous evening.
35. In a statement to the Police on Day 6, Mr A's cousin said:
- “[Mr A] had some blood tests and was on a drip. The doctor said that he believed the antibiotics he'd given [Mr A] would be enough for him to recover from his chest infection.”
36. Mr A's cousin recalled that, at around 1.30pm, Dr D said that he believed Mr A could go home but left Mr A's cousin and Mr A to decide what they would prefer. Mr A's cousin said:
- “Both [Mr A] and I felt that he was not well enough to go home. We also believed [Mr A's] going home to recover would put strain on [Mr A's sister], as she was already having to take care of [an elderly relative] who lives at the address.”
37. Mr A's cousin said that she then left to do some work.
38. RN C's documentation shows that at 2.30pm Mr A's BP was 94/57mmHg<sup>24</sup> and he had 81% oxygen saturation. Dr D ordered the urgent administration of further IV fluids at 2.45pm, but no further review is documented.
39. The observation chart on which RN C recorded Mr A's oxygen levels between 11.45am and 2.30pm includes a row labelled “SaO2 without Oxygen” and a row labelled “SaO2 with Oxygen”. RN C's recordings of Mr A's oxygen levels were all recorded in the row “SaO2 without Oxygen”. There are no entries for the row “SaO2 with Oxygen”.

### **Discharge from ED**

40. At 3.28pm, Dr D discharged Mr A from the ED, with instructions to restart the antibiotics prescribed by his GP and to rest and drink plenty of fluids. Mr A's cousin said that when she returned to the hospital at 3.30–4pm, Mr A was sitting in the waiting room and did not appear happy.
41. Dr D told the Coroner that he had checked on Mr A three or four times between 11.30am and 3.28pm, and that Mr A had reported feeling better after receiving IV fluids, paracetamol, and antibiotics. Dr D said that he decided to discharge Mr A as Mr A was not in any distress and had improved while in the ED. Dr D also cited Mr A's CRP level, white cell count, and low CURB-65 Severity Score<sup>25</sup> (0–1) as factors supporting outpatient treatment and management. Dr D stated that he would not have discharged Mr A if he had had any concerns about his condition. Dr D said that Mr A's oxygen saturation levels and blood pressure were not brought to his attention

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<sup>24</sup> Based on HDC's reading of the observation chart.

<sup>25</sup> A CURB-65 Severity Score is used to estimate a person's risk with community-acquired pneumonia. A score of 1 is allocated to each of the following factors: confusion, blood urea nitrogen >19mg/dL (>7mmol/L), respiratory rate >30, systolic BP <90mmHg or diastolic BP < (or equal to) 60 mmHg, Age > (or equal to) 65 years.

before he discharged Mr A. Dr D stated that all observations outside of normal parameters are usually reported to the doctor and documented in the ED notes.

42. Dr D told the Coroner that Mr A's low oxygen recordings should have caused the in-built visible and auditory alarm on the monitor to activate, but he cannot recall it sounding regularly or giving off a flashing light. The DHB said that it is not possible to gather more details given the time that has elapsed, but the lack of a constant alarm could mean that Mr A was not electronically monitored continuously.
43. Dr D is unable to recall whether or not he was aware of the elevated lactate level at the time that he discharged Mr A, but accepts that he acknowledged the lactate result at 1.08pm.
44. The DHB's "Managing Laboratory and Radiology Results" policy states:

"Acknowledging a result is taking responsibility that measures have been put in place to ensure appropriate ongoing management of the patient."

45. Dr D said that it is his standard practice to make a note of significant test results, which he did with the CRP and white cell count. He further stated that, had he been aware of the lactate result, he would have had the test repeated to check the level again before discharging Mr A. Dr D stated:

"I am at a complete loss as to why I did not take this result into account prior to discharging [Mr A]. I do recall that this particular shift in the ED was busy with multiple complex admissions. It may have been the case that when I reviewed the test results I was interrupted and then overlooked this particular result."

46. Dr D also told HDC that there were a number of acutely unwell patients on the day, and constant interruptions, which meant that he "did not have the time to hunt down and review the written patient notes from staff regarding [Mr A] prior to discharging him".
47. However, Dr D accepted that he "should have re-checked [Mr A's] observations in view of his initial abnormal observations".

### **Mr A's death**

48. Mr A was found dead in his bed at 9am on Day 6, and his death was referred to the Coroner. The cause of death was subsequently reported as complications of influenza A H1N1 (swine flu). Widespread myocardial fibrosis<sup>26</sup> was noted as a contributing factor.
49. The Coroner adjourned his inquiry following Mrs B's complaint to HDC.

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<sup>26</sup> Myocardial fibrosis (heart muscle scarring) is characterised by a significant increase in the collagen volume fraction of the heart's muscle tissue.

### **Emergency Department staffing levels — Day 5**

50. Dr D was on duty from 8am to 3pm on Day 5. During that time, the ED was also staffed by a house officer, Dr F. Dr D said:
- “We have time only to initially assess, initiate treatment and follow up on test results, for example, before having to move on the next patient. It is not always possible to come back to review patients on whom we have done the initial assessment, and we are reliant on nursing staff to notify us if they have concerns.”
51. Dr D recalls that it was a particularly busy shift, with multiple complex presentations. He said that the staffing levels were insufficient for the workload, and that he stayed an additional 2.5 hours after the end of his rostered shift.
52. In support of this assertion, Dr D provided HDC with a statement from RN G, Quality Coordinator for the Emergency Department. RN G stated that she was present in the ED on Day 5 but in a non-clinical role, and recalls that she was asked on several occasions to assist with clinical patient management.
53. The DHB did not agree that the shift was exceptionally busy or that there were multiple complex presentations. It considered that the ED was staffed adequately for the number of patients and their acuity.
54. The DHB said that Dr D saw seven other patients during the period that Mr A was in the ED. The number of Dr D’s patients in each triage category was as follows:
- Triage category 1:<sup>27</sup> none  
Triage category 2:<sup>28</sup> one patient  
Triage category 3:<sup>29</sup> three patients  
Triage category 4:<sup>30</sup> two patients  
Triage category 5:<sup>31</sup> one patient
55. One of the category 3 patients was discharged at 11.24am, in the very early stages of Mr A’s presentation. The DHB said that none of the other patients would have required lengthy attendance at the bedside for any period, and noted that Dr D could have taken steps to obtain further assistance if required. It also stated that some of the patients in the department could have been handed over to the doctors coming on shift from 3pm.

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<sup>27</sup> On the Australasian Triage Scale, triage category 1 indicates an immediately life-threatening presentation. The patient should be triaged and treated immediately.

<sup>28</sup> On the Australasian Triage Scale, triage category 2 is an imminently life-threatening, or important time-critical presentation. The patient should be seen within 10 minutes.

<sup>29</sup> See footnote 9.

<sup>30</sup> On the Australasian Triage Scale, triage category 4 is a potentially serious presentation, or where potential adverse outcomes may arise from a delay of over 60 minutes, or where there is significant complexity or severity, or discomfort or distress. The patient should be seen within 60 minutes.

<sup>31</sup> On the Australasian Triage Scale, triage 5 category is a less urgent presentation, or dealing with administration issues only. The patient should be seen within 120 minutes.

56. Dr D told HDC that, having reviewed the records of the patients he treated that day and the printout of the ED presentations for Day 5, his recollection of the shift remains the same. He stated that the printout does not provide a complete or accurate picture of the shift, and there is no record of how often he reviewed each patient. Based on his usual practice, Dr D estimated that he would have seen each patient at least four times.
57. In addition, Dr D said that he oversaw Dr F's management of her three category 4 patients. He stated that his usual practice when overseeing house officers who are lead clinicians for patients in the ED is to:
- Have an understanding of the presenting problem himself, before sending the house officer in to see the patient;
  - Discuss the treatment and interventions with nursing staff before leaving it to the house officer and nursing staff to facilitate;
  - Discuss differential diagnoses when the house officer reports back with the presenting problem, along with their initial thoughts as to special investigation and treatment;
  - Discuss the results of blood tests and special investigations, as well as patient progress;
  - Guide the house officer to make informed decisions about patient management;
  - Review the patient as indicated; and
  - Discuss the case with the house officer before the patient is discharged.
58. The DHB noted that there was nothing on file to show that Dr D had reviewed any of Dr F's patients.

### **ED systems**

59. Dr D told the Coroner that the record-keeping system in the ED makes it difficult to keep track of the notes and review patient vitals, which leads to greater potential for omissions to occur and adds to the time taken to manage patients. He said that the ED has an electronic system for doctors to type in their notes, while nursing staff make their notes on a triage sheet, where vital signs are also recorded. Dr D stated that these notes can be kept in a number of different areas, such as the patient cubicle, on the nursing desk, in the patient cubby hole or in the drug room.
60. Dr I, who has been the Head of Emergency Medicine at the public hospital since 2015, agreed that the nursing notes can be difficult for doctors to access, which he considers is a significant flaw in nurse/doctor communication.
61. Dr I also identified the following issues in the public hospital's ED, which he said may have distracted Dr D in his management of Mr A:
- Lab reports have to be repetitively checked on and multiple computer screens manipulated. Doctors are logged off every few minutes and the computers are very slow to process.
  - There is no integrated electronic medical system.

- The doctor's time is taken up by small but significant tasks. For example, it is a 10-minute process to obtain a CT scan, as the doctor needs to fill out a form, walk it over to the radiology department, have it approved, walk it to the radiographer, discuss it again and return to the ED.
- Nursing policy prefers doctors to go to the waiting room, get the patients and the gowns, and start the ED processing, which takes up a lot of time.

62. Dr I stated:

“I do find a system riddled with issues that slow patient care, obstruct communication and in no way provide fail-safes for a moment's poor management. ... [Mr A's] case has hallmarks of a hurried decision, a discharge where the attending doctor lacked time to marshal all the data, think out the case and reflect on the entire picture.”

63. However, Dr I was of the view that the listed factors do not excuse a medical error. He noted that Mr A presented with clinical features of systemic inflammatory response syndrome<sup>32</sup> and “met admission criteria, even ICU admission criteria, in nearly every way”.

64. The DHB said that Dr I was a new clinician in New Zealand when he provided his comments, and that many of Dr I's concerns were due to his lack of familiarity with the New Zealand system. It sought an additional opinion from the Clinical Director of Surgical and Emergency Care and a senior ED doctor, who commented:

- Nursing notes are kept on paper and attached to a clipboard. They are normally returned to the cubby holes where they are usually kept.
- Unacknowledged laboratory results are available when logged into a computer with a single click. All the results are provided if a lab result in the patient record is selected.
- Computers log off after a certain period of time to protect patient privacy, but will not log off if a person is working continuously at one computer. The only difficulty is when one person attempts to log on to multiple computers in the ED.
- The process for obtaining a CT scan creates a dialogue with the radiologist regarding the best imaging modalities and the degree of urgency so as to optimise patient care.

65. The DHB acknowledged that the ED does not have an integrated electronic medical system, but said that it is a “utopic situation that all DHB s in the country are trying to achieve ... and it is simply unachievable for the DHB to try and achieve this in an isolated way”. It reported that, as part of a national move to an integrated electronic system, it is in the process of introducing a regional clinical workstation, although this will not include the ED module in the imminent future.

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<sup>32</sup> Systemic inflammatory response syndrome is an inflammatory state affecting the whole body, frequently a response of the immune system to infection.

66. Overall, the DHB accepted that improvements were needed in the ED, but said that it was “safe and the needs for improvement were irrelevant to what happened to [Mr A]”.

### **DHB policies and expectations**

#### *Sepsis management*

67. The DHB told HDC that a sepsis management guideline has been in place in the ED since October 2012. The sepsis management guideline provides that patients presenting with a temperature of below 36.0°C or above 38.0°C, a pulse that exceeds 90 beats per minute, respiratory rate of more than 20 breaths per minute, and white blood cell count of below  $4 \times 10^9/L$  or above  $12 \times 10^9/L$  should receive IV antibiotics within 60 minutes of arrival and be transferred to the ward within four hours.

#### *Early warning score*

68. The early warning scoring tool uses a patient’s vital signs to identify whether the patient is deteriorating or at risk, in order to escalate the level of clinical intervention at the earliest opportunity.
69. The DHB stated that the “[DHB] Early Warning Score” policy was developed in 2014 but had not been implemented in the ED by the time of Mr A’s presentation, as there was “considerable debate about its relevance to the ED environment”. The DHB told HDC that the ED now utilises the Early Warning Score.

#### *Communication of significant findings and management of discharge*

70. The DHB stated that it is standard practice for a nurse to communicate significant findings to a doctor, but as it is the doctor who is responsible for making decisions around patient discharge, the doctor should make active enquiries (such as questioning the nurse, looking at the patient’s records, or taking observations) to ensure that there are no concerns prior to discharging a patient.

#### *Frequency of recorded observations*

71. The DHB stated that it had been established prior to Mr A’s presentation that ED nurses were to take:
- 30-minute observations for the first two hours;
  - Hourly observations for the next two hours; and
  - Two-hourly observations after that.
72. These expectations were reiterated during an ED staff meeting in early 2014.

### **Further information**

#### *The DHB*

73. The DHB said that there was no internal review regarding Mr A’s care, as it was not aware of his death prior to contact from HDC. It expressed the view that there was no need for Mr A to be discharged from the ED at the time that he was, and regrets that it has not had the opportunity to speak with Mr A’s whānau about the events of Day 5.

The DHB said that it would welcome the opportunity to express its apologies in person.

74. The DHB also accepted that the nursing documentation did not reflect expected standards of nursing care. The DHB stated that the ED Charge Nurse Manager has had case review meetings with RN C and implemented documentation audits. In addition, it said that a formal training programme for ED nurses commenced in June 2016.

*RN C*

75. RN C stated that she has put significant effort into improving her documentation, including recording when she informs relevant personnel of irregular observations or concerns. She told HDC that she appreciates the importance of evaluating the effectiveness of any treatment given, along with taking regular observations.
76. RN C said that she has regular meetings with her nurse manager, who randomly audits the notes of her patients and provides feedback. In addition, she stated that she has asked two senior colleagues to mentor her and to provide feedback on any nursing care, nursing practice, and communication, and any other matters of relevance.

*Dr D*

77. Dr D unreservedly apologised for the upset and distress Mr A's family has suffered. He said he deeply regrets that he did not meet the standard of care he strives towards.
78. Dr D said that he is now more vigilant about checking patients' charts and notes regularly, particularly if they present with initial abnormal observations. In addition, he said that he has studied how to communicate more effectively, how to develop an ongoing quality assurance programme, and how to do a root analysis review of adverse events. He stated that he has also studied the human and systemic approaches to adverse outcomes in patient care, and how to assist in the incident reporting culture. He has also undertaken research in quality improvement, and interruptions in the ED and the effect on a physician's performance, as well as upskilling in monitoring and managing unwell patients.

**Responses to provisional opinion**

79. Mrs B was provided with an opportunity to comment on the "information gathered" section of my provisional opinion. She said that it is commendable that some practical strategies and safety measures have been put in place as a result of this investigation, but emphasised that Mr A's death has had a significant impact on his family.
80. RN C, Dr D, and the DHB were provided with an opportunity to respond to my provisional opinion.
81. Dr D accepted the recommendations set out in my provisional opinion, and wrote a letter of apology for HDC to forward to Mr A's family.
82. RN C stated that she is very remorseful for what happened to Mr A, and that she has made significant changes to her practice since this incident occurred.



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83. The DHB's comments have been incorporated into this report, where appropriate.
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### **Opinion: RN C — Breach**

84. RN C was the nurse responsible for monitoring Mr A in the ED. She recorded three sets of vital signs:

11.45am: 123/80mmHg, oxygen saturation 76%  
12.03pm: 126/70mmHg, oxygen saturation 86%  
2.30pm: 94/57mmHg, oxygen saturation 81%

These recordings are incomplete in that Mr A's pulse, respiratory rate, and temperature are absent.

85. My in-house nursing advisor, RN Dawn Carey, advised that the baseline observations taken at triage should have cued ongoing comprehensive monitoring, as Mr A's pulse (120 beats per minute), respiration rate (28 breaths per minute), and temperature (38.3°C) were elevated above the normal parameters.
86. RN Carey noted that the oxygen saturations recorded by RN C indicate significant hypoxia without appropriate treatment (commencement of oxygen and medical review). RN C has no recollection of Mr A's presentation to the ED, but she said that her usual practice would be to commence oxygen, increase monitoring, and report the actions and response to the medical officer. None of these actions are documented in Mr A's case. Dr D told HDC that he was not alerted to Mr A's vital signs. In addition, no further vital signs were taken to assess Mr A's clinical response to the administration of IV fluids at 2.45pm.
87. RN Carey considered that the standard of nursing assessment/monitoring was inadequate, and advised that if the nursing documentation reflects the extent of nursing actions, her view would be that RN C's practice significantly departed from accepted standards.
88. I accept RN Carey's advice that nursing action beyond what is documented was required, and I am critical that RN C did not monitor Mr A more comprehensively. Despite Mr A's elevated heart rate, respiration rate, and temperature at triage, no further recordings of these vital signs were taken. Further, the lack of any vital sign recordings after 2.30pm precluded an assessment of the efficacy of the treatment provided to Mr A.
89. RN Carey advised: "In my view, it is highly unlikely that [Mr A] would have received oxygen based on the ongoing low recordings. You would expect that if oxygen was administered, it would have been titrated to get saturation levels of at least 90%."
90. I also note that RN C recorded Mr A's oxygen saturations in the row "SaO2 without Oxygen". There are no entries in the row for "SaO2 with Oxygen".

91. Having considered the available evidence, I consider it more likely than not that RN C did not alert Dr D to Mr A's low oxygen levels or commence Mr A on oxygen. In my view, this inaction seriously compromised Mr A's care.
  92. Overall, I consider that RN C failed to provide services to Mr A with reasonable care and skill by failing to:
    - a) Record Mr A's pulse, respiratory rate, and temperature during the period she was monitoring him in the ED;
    - b) Inform Dr D of Mr A's low oxygen saturations;
    - c) Administer oxygen to treat Mr A's hypoxia; and
    - d) Take vital sign recordings to assess Mr A's response to further IV fluids at 2.45pm.
  93. Accordingly, I conclude that RN C breached Right 4(1) of the Code.
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### **Opinion: Dr D — Breach**

94. Dr D reviewed Mr A at approximately 11.30am. He was aware from the triage assessment that Mr A had various abnormal vital signs. In particular, Mr A was tachycardic,<sup>33</sup> and had a temperature of 38.3°C, along with a respiratory rate of 28 breaths per minute.
95. Following further investigations and the administration of IV treatment, Dr D diagnosed Mr A with bilateral basal pneumonia and discharged him at 3.28pm.
96. Dr D said that he was reassured by the improvement in Mr A's CRP level (from 150 the previous day to 115) and white cell count (from  $3.2 \times 10^9/L$  the previous day to  $3.8 \times 10^9/L$ ). Dr D also considered that Mr A had responded well to IV treatment, and cited Mr A's low CURB-65 Severity Score as another factor supporting outpatient management.
97. Dr D stated that he was not alerted to Mr A's declining oxygen saturations and blood pressure in the ED. However, Mr A's observations at 2.30pm appear to have been the impetus for Dr D ordering the urgent administration of fluids at 2.45pm. There is no record of any subsequent review.
98. Mr A had a lactate level of 5mmol/L, which was indicative of cellular hypoxia. Dr D cannot recall whether or not he was aware of the lactate result at the time of Mr A's discharge. Although the records show that Dr D electronically acknowledged the result at 1.08pm, Dr D said that normally he makes a note of significant test results (as was done with the CRP and white cell count) and that, had he known about the concerning lactate result, he would have asked for the test to be repeated prior to discharging Mr A. Dr D said that he may have been interrupted when reviewing the

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<sup>33</sup> Tachycardia is a resting heart rate that exceeds 100 beats per minute. Mr A's resting heart rate during his triage assessment was 120 beats per minute.

test results, and overlooked the elevated lactate level. Dr D recalls that the ED was particularly busy that day, and that he stayed an additional 2.5 hours beyond the end of his shift.

99. My expert advisor, emergency medicine specialist Dr Vanessa Thornton, said that Mr A's lactate level, deteriorating BP, and oxygen saturations indicated severe sepsis, for which hospital admission was required. Dr Thornton advised that, even if Dr D was not alerted to Mr A's physiological deterioration, he should have reviewed the observations, given that Mr A's initial vital signs were abnormal. She considered it to be a moderate departure from the appropriate standard of care that Dr D did not do so.
100. Dr D accepted that he should have re-checked Mr A's observations, but said that the error needs to be viewed in the context of a busy ED with inefficient systems. He mentioned the lack of an integrated electronic medical system and inconsistent placement of nursing notes as contributing factors. Dr I also told HDC that there were time-consuming processes required in order to achieve small tasks.
101. In view of these inefficiencies and the number and acuity of patients seen on Day 5, Dr Thornton advised that "the system did not assist [Dr D] to allow him to make good decisions and the decision to discharge [Mr A] was understandable in the situation". However, she also reiterated that it was not appropriate for Dr D to discharge Mr A.
102. Given that Mr A presented with various abnormal vital signs and required urgent IV fluids at 2.45pm, I am of the view that Dr D should have reviewed Mr A's observations before making decisions about his discharge. His failure to do so leads me to conclude that Dr D did not provide services to Mr A with reasonable care and skill. I therefore find that Dr D breached Right 4(1) of the Code.

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### **Opinion: DHB — No breach**

103. Dr D and RN C are employees of the DHB. As detailed above, I consider that Dr D and RN C failed to provide services to Mr A with reasonable care and skill. Accordingly, I have found that they both breached Right 4(1) of the Code.
104. Under section 72(2) of the Health and Disability Commissioner Act 1994 (the Act), an employing authority is vicariously liable for any actions or omissions of its employees. A defence is available to the employing authority under section 72(5) if it can prove that it took such steps as were reasonably practicable to prevent the acts or omissions.

#### **Dr D's breach of the Code**

105. Dr D was the sole senior doctor on the day shift on Day 5. He saw seven other patients in the time Mr A was in the ED, and supervised Dr F's management of her three category 4 patients. Dr D estimated that he saw each of his patients at least four times. He said that there were many complex presentations, and that, as a result of the challenging workload, he stayed for an additional 2.5 hours after the end of his rostered shift. He told HDC that the busy nature of the shift and insufficient staffing

meant that he did not have the time to look for and review Mr A's notes prior to discharging him. Dr D's recollection of the shift was supported by RN G, who said that she was asked several times to assist with patient management, despite working in a non-clinical role that day.

106. The DHB said it considered that the ED was staffed adequately, taking into account both the number of patients and their acuity. The DHB did not agree that the shift was exceptionally busy. It stated that none of Dr D's other patients would have required lengthy attendance and noted that Dr D could have taken steps to obtain further assistance if required.
107. I note Dr Thornton's advice that the number of patients seen by Dr D was within the range of what an ED physician can manage. Accordingly, I am not critical of the staffing levels in the ED on Day 5.
108. I am mindful of the systems issues raised by Dr D and Dr I, the head of the public hospital's ED. Of note, Dr I stated:
  - Nursing notes are difficult for doctors to access, as they are kept in different locations.
  - Lab reports have to be repetitively checked, and multiple screens need to be manipulated. Doctors are logged off every few minutes and the computers are very slow to process.
  - The ED does not have an integrated electronic medical system.
  - The doctor's time is taken up by a number of small but time-consuming tasks. It is a 10-minute process to obtain a CT scan, as the doctor needs to fill out a form, take it to the radiology department, obtain approval, bring the form to the radiographer, discuss it again, and return to the ED.
109. The DHB submitted that the above factors were not relevant to the care provided to Mr A, and that Dr I's concerns arose out of a lack of familiarity with the New Zealand system.
110. The DHB provided an additional opinion from the Clinical Director of Surgical and Emergency Care and a senior ED doctor, who stated that:
  - Nursing notes are kept on paper and attached to a clipboard. They are normally returned to the cubby holes where they are usually kept.
  - Unacknowledged laboratory results are available when logged into a computer with a single click. All the results are provided if a lab result in the patient record is selected.
  - Computers log off after a certain period of time to protect patient privacy, but will not log off if a person is working continuously at one computer. The only difficulty is when one person attempts to log on to multiple computers in the ED.
  - The process for obtaining a CT scan creates a dialogue with the radiologist regarding the best imaging modalities and the degree of urgency so as to optimise patient care.

111. I note the additional information provided and, overall, I am satisfied that the DHB took all reasonably practicable steps to prevent Dr D from inappropriately discharging a patient with signs of severe sepsis. Accordingly, I do not find the DHB vicariously liable for Dr D's breach of Right 4(1) of the Code.

### **RN C's breach of the Code**

112. RN C's care was substandard in a number of areas. In particular, she failed to:
- a) Record Mr A's complete vital signs when monitoring him in the ED;
  - b) Take vital sign recordings to assess Mr A's response to the urgent administration of IV fluids at 2.45pm;
  - c) Alert Dr D to Mr A's low oxygen saturations; and
  - d) Administer oxygen when Mr A's oxygen saturations indicated hypoxia.
113. Regarding the recording of vital signs, the DHB stated that it had been established prior to Mr A's presentation that ED nurses were to take 30-minute observations for the first two hours; hourly observations for the next two hours; and then two-hourly observations. I accept that this was the case. I note further that individual clinicians need to be competent in the clinical management of patients. In the circumstances, I consider that the DHB was entitled to rely on RN C to monitor Mr A appropriately. Accordingly, I do not consider there to have been any further steps reasonably practicable for the DHB to have taken in order to prevent RN C's failure to record complete vital signs when monitoring Mr A in the ED, or her failure to take vital sign recordings following the administration of urgent IV fluids at 2.45pm.
114. My expert advisor, RN Carey, was clear that RN C's actions fell short of the standard expected of a registered nurse. RN C has accepted that her usual practice would have been to administer oxygen in circumstances like these and report the actions and response to the medical officer. I note further that RN C has not raised any concerns about a lack of adequate support in the performance of her duties. As such, I do not consider there to have been any further steps reasonably practicable for the DHB to have taken in order to prevent RN C's failure to alert Dr D to Mr A's low oxygen saturations, or her failure to administer oxygen to Mr A.
115. Overall, therefore, I do not consider that the DHB is vicariously liable for RN C's breach of Right 4(1).

### **Other comment**

116. The risk of gaps in the communication of patient information is increased where a combination of paper and electronic notes is used for record-keeping. I note that the DHB is not alone in lacking an integrated electronic medical system, and that there is a nationwide move towards an electronic health record. I support the steps that are being taken in this area.
117. While I am not critical of the DHB in this regard, it warrants comment that, if two systems are being used, they need to be integrated operationally, and it is important to manage the risk of disconnect between the two.

## Recommendations

118. I recommend that RN C:
- a) Arrange for a peer to conduct an audit of her documentation in the ED in the last month, with a particular focus on the frequency of patient observations, and actions taken in response to abnormal observations. The results of that audit are to be provided to HDC within three months of the date of this report.
  - b) Undertake further training on the monitoring of patients with abnormal observations, or provide proof that further training in this area has been undertaken since Mr A's presentation to the ED. Evidence of further training should be provided to HDC within three months of the date of this report.
  - c) Provide a written apology to Mr A's family for her breach of the Code. The apology is to be sent to HDC within one month of the date of this report, for forwarding to Mr A's family.
119. I recommend that the Nursing Council of New Zealand consider whether a review of RN C's competence is warranted.
120. I recommend that Dr D provide HDC with evidence of further training undertaken on monitoring and managing patients in the ED, within one month of the date of this report.
121. Dr D has provided a written apology to Mr A's family for his breach of the Code.
122. I note that the Medical Council of New Zealand has resolved that Dr D is required to undergo a performance assessment.
123. I recommend that the DHB undertake an early warning score audit to ensure appropriate use of the escalation protocol for all patients (or a sample of patients) who triggered an early warning score of 3 or more in the last month. The results of that audit should be provided to HDC within four months of this report.
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## Follow-up actions

124. A copy of this report will be sent to the Coroner.
125. A copy of this report with details identifying the parties removed, except the experts who advised on this case, will be sent to the Nursing Council of New Zealand, and it will be advised of RN C's name.
126. A copy of this report with details identifying the parties removed, except the experts who advised on this case, will be sent to the Medical Council of New Zealand, and it will be advised of Dr D's name.
127. A copy of this report with details identifying the parties removed, except the experts who advised on this case, will be sent to the Health Quality and Safety Commission, and the Royal New Zealand College of Urgent Care, and be placed on the Health and Disability Commissioner website, [www.hdc.org.nz](http://www.hdc.org.nz), for educational purposes.

## Appendix A: In-house nursing advice to the Commissioner

The following expert advice was obtained from in-house clinical nursing advisor Dawn Carey:

- “1. Thank you for the request that I provide clinical advice in relation to the complaint from [Mrs B] about the care provided to her late brother, [Mr A] when he presented to the [public hospital’s] Emergency Department on [Day 5]. In preparing the advice on this case to the best of my knowledge I have no personal or professional conflict of interest. I have read and agree to follow the Commissioner’s Guidelines for Independent Advisors. My advice is limited to the nursing care provided to [Mr A].
  
2. I have reviewed the following documents available on file: complaint from Mrs B; response from [the DHB’s] Clinical Care Manager dated 17 January 2016; copy of [Mr A’s] clinical emergency department notes for [Day 5]; documents from [the laboratory] dated 7 March 2016; correspondence from the office of [the Coroner] including post mortem report and response from emergency department consultant [Dr D]; Email to HDC from [Dr D] dated 3 February 2016; response and notes from [the medical centre].
  
3. Background  
[Mr A], aged 62 years, attended [the public hospital’s] Emergency Department after being referred by his general practitioner due to ongoing respiratory symptoms and an elevated serum C-reactive protein level. After undergoing investigations and treatments he was discharged home the same day at 3.30pm. [Mr A] was found dead in his home the next morning at 9am. A post mortem examination determined that [Mr A’s] primary cause of death was complications of influenza A (H1N1).
  
4. Provider responses — focussing on scope of this advice  
A response from the emergency department registered nurse involved in the care of [Mr A] has not been provided. The response from [the DHB] offers sincere condolences to [Mr A’s] family. The response reports that given the amount of time that has passed the nurse has advised that she can no longer recall the details from [Mr A’s] presentation or the specific actions that she took at the time. She regrets that her documentation appears to be incomplete.

The response from [Dr D] reports that the decision to discharge [Mr A] was based on the fact that he was not in distress and had improved on IV fluids, paracetamol and antibiotics initiated while in the emergency department. [Dr D] reports that at no time was he made aware of [Mr A’s] low oxygen saturation levels or blood pressure reading. He reports the expectation that any abnormal readings recorded by nursing staff would have been brought to his attention prior to [Mr A’s] discharge from emergency department.



5. Review of clinical records relating to emergency department presentation [Day 5]

- i. [Mr A] was triaged — ATS category 3, assessment and treatment start within 30 minutes — at approximately 11.05am. Triage notes report *3/52 history SOB [shortness of breath], cough, abdo pain, headache, non productive cough, fevers, ↓ eating, drinking ok. Baseline obs: Temp 38.3, BP 110/80, Pulse 120, O<sub>2</sub> Sats [oxygen saturations] 93%, resps 28.*

**Comment:** [Mr A's] heart rate, respiration rate and temperature were elevated above normal expected parameters. In my opinion [Mr A's] recorded vital signs should have cued ongoing comprehensive monitoring in the emergency department.

- ii. Nursing notes suggest that [Mr A] was seen by [Dr D] before 11.30am when an intravenous (IV) cannula was inserted and blood tests taken. Typed notes by [Dr D] at 11.30am note [Mr A's] vital signs at triage and detail his clinical assessment findings.

- iii. At 11.45am, [Mr A's] vital signs are recorded as *GCS 15, BP 123/80, SaO<sub>2</sub> [oxygen saturations] without Oxygen 76%*. At 12.00pm [Mr A's] vital signs are recorded as *BP 126/70, SaO<sub>2</sub> without Oxygen 86%*. Medication and IV fluid prescription/administration records show that [Mr A] was administered IV paracetamol, amoxicillin/clavulanic acid and commenced on one litre Normal Saline fluid (over one hour) also at this time. Nursing notes also report *...Given call bell + drink of water. ECG r/v by [Dr D]. Pt to Xray ...*

**Comment:** The recorded oxygen saturations indicate significant hypoxia without appropriate treatment — commencement of oxygen and medical review — and I am critical of this. I am *also* critical that [Mr A's] heart rate and respiration rate are not recorded and consider the standard of nursing assessment/monitoring to be inadequate.

- iv. Next vital signs are recorded at *14.30hrs BP 94/57 SaO<sub>2</sub> without Oxygen 81%*.

IV fluid prescription/administration record shows further fluid administration which is consistent with nursing documentation reporting *...1L N/Saline stat.*

**Comment:** I remain critical of the standard of vital sign monitoring and consider that [Mr A] should have been assessed to determine his clinical response following the administration of intravenous fluids.

- v. Emergency department discharge summary reports [Mr A] being discharged at 3.28pm with diagnosis of bilateral basal pneumonia. *Plan: Discussed with patient. Restart the Augmentin and Roxithromycin from GP. Rest and push oral fluids.*

6. Clinical advice

I have significant concerns about the standard of nursing care provided to [Mr A] from 11.45am. If the Commissioner determines that the

contemporaneous nursing documentation reflects the extent of the nursing actions, I would hold the opinion that the practice of this registered nurse significantly departed from accepted standards.<sup>1</sup> I would recommend that a response is sought from the registered nurse in question and from [the DHB].”

RN Carey provided the following additional advice:

“Thank you for the request that I provide additional clinical advice in relation to the complaint from [Mrs B] about the care provided to her late brother, [Mr A] when he presented to [the public hospital’s] Emergency Department (ED) on [Day 5]. This advice should be read in conjunction with my previous advice dated 7 March 2016. I have reviewed the following additional information — response from [the DHB] dated 18 March 2016, response from the representative of registered nurse [RN C] dated 16 March 2016. In preparing the advice on this case to the best of my knowledge I have no personal or professional conflict of interest. I have read and agree to follow the Commissioner’s Guidelines for Independent Advisors.

The response from [the DHB] is consistent with [Mr A’s] contemporaneous notes except that it refers to three litres of intravenous fluid being prescribed over three hours. My review has only found two litres being prescribed and administered — see 5(iii), 5(iv) of previous clinical advice. The response also reports that the emergency department Charge Nurse Manager has had case review meetings with [RN C] and has implemented documentation audits. A formal training programme for emergency department nurses is also due to commence in June 2016.

The response from the representative of registered nurse [RN C] confirms that she is unable to provide any specific information concerning the care provided as she does not recall [Mr A’s] attendance on [Day 5].

### **Clinical advice**

Following a review of the further responses, I continue to hold the opinion that [Mr A’s] vital signs were inadequately monitored and am critical that his temperature, heart rate and respiration rate were not monitored post the triage assessment. I am also critical that [RN C] would record oxygen saturations that indicate significant hypoxia without also initiating care to manage this. In my opinion, [Mr A] required further comprehensive vital sign assessment to determine his response to the administered intravenous fluid at 2.45pm and I am critical that this was not done. If the Commissioner determines that the contemporaneous nursing documentation reflects the extent of the care provided by [RN C], I would hold the opinion that it significantly departed from accepted nursing standards.<sup>2</sup>”

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<sup>1</sup> Nursing Council of New Zealand (NCNZ), *Code of conduct for nurses* (Wellington: NCNZ, 2012).

<sup>2</sup> Nursing Council of New Zealand (NCNZ), *Code of conduct for nurses* (Wellington: NCNZ, 2012).

RN Carey subsequently provided the following further additional advice:

- “1. The oxygen saturation rates change from 76% (11.45am), 86% (12.03pm) and 81% (2.30pm). From these rates, is it possible to identify whether or not [Mr A] was commenced on oxygen?”

The increase from 76% to 86% could be attributed to other factors such as repositioning, relaxing, deep breathing (all of which could assist in getting more oxygen throughout the body).

In my view, it is highly unlikely that [Mr A] would have received oxygen based on the ongoing low recordings. You would expect that if oxygen was administered, it would have been titrated to get saturation levels of at least 90%.

2. Does oxygen in the ED need to be prescribed by a doctor before it can be administered?

Initial oxygen can be administered by a nurse in the ED without a prescription based on their clinical assessment. Typically oxygen would be prescribed for a patient who was being admitted to a ward and DHBs have policies that indicate when a RN would need to seek a medical review.

3. Where would a nurse normally record in the records that a patient has been commenced on oxygen?

You may see this recorded in the progress notes or on the observation charts. Oxygen saturations that are taken when a patient is not receiving oxygen may be differentiated by ‘OA’ for ‘on air’ or ‘RA’ for ‘room air’. If oxygen saturations were low and then the patient commenced on oxygen, typically observation chart will often have two sets of saturations side by side with one having ‘O<sub>2</sub>’ or ‘xL’ or ‘x%’ indicating that the patient was commenced on oxygen and the rate of this. Also many observation charts have a box to indicate whether oxygen is in progress or not.”

## **Appendix B: Emergency medicine advice to the Commissioner**

The following expert advice was obtained from Dr Vanessa Thornton, an emergency medicine specialist:

“I have been asked to provide an opinion to the commissioner on case number C15HDC01504, and I have read and agree to follow the commissioner’s Guidelines for Independent advisors.

I am the Head of Department of Middlemore Hospital Emergency Department New Zealand the largest Emergency Department in Australasia. I have been the HOD since 2008. My qualifications are FACEM (Fellow of the Australasian College of Emergency Medicine) and MBChB at Auckland University. I have been a fellow of the college for 16 years and graduated as a Doctor in 1992. I am drawing on my experience as an Emergency Physician and the literature available on pneumonia.

I have reviewed the following documentation:

Letter of complaint from [Mrs B]  
Response from [Dr D]  
[DHB] clinical notes  
Response and clinical notes from [the medical centre]  
Post Mortem report

I have been advised to provide advice on the following:

Please comment on whether you believe pneumonia was a reasonable clinical diagnosis given.

Please comment on the systems in place for managing abnormal readings. In particular was it acceptable for [Dr D] to rely on the nurse to alert him of [Mr A’s] abnormal readings.

In light of the clinical information available, do you believe it was appropriate to discharge [Mr A] on [Day 5].

Any additional comments you may wish to make about the care provided to [Mr A].

### **Summary of presentation**

[Mr A] arrived at [the] Emergency Department on [Day 5] at 1105. He had been referred by his GP to ED. He was seen by the triage nurse and had a presenting complaint of unwellness. His triage category was triage 3. His initial nursing assessment reports a history of 3 weeks of feeling unwell with SOB, cough, abdo pain, headache and non productive cough, fevers and reduced eating but drinking OK. [Mr A] also reported feeling bloated with no bowel motions for the last 3 days. The past medical history confirmed asthma and medication currently used was ventolin.

[Mr A's] observations on arrival were temp 38.2 BP 110/80 HR 120 saturation 93% and respiratory rate (RR) 28. At 1130 an IV line was inserted and blood cultures and blood tests were requested.

A referral note from the GP stated that [Mr A] was referred after review on the [Day 4] in the general practice. [Mr A] was first seen on [Day 1] with cough, cold, running nose and headaches worse with coughing. On exam Temp 39.6 with a clear chest and dual heart sounds. He was treated as a viral illness and flu. He was advised to use fluids and analgesia.

On the [Day 4] he re-presented with feeling much worse, hot and cold, coughing but not productive of sputum. [Mr A] had associated abdominal pain and was 'off his food'. He had been taking brufen and paracetamol. No vomiting was associated. [Mr A] had noted shortness of breath (SOB) with difficulty breathing at night and waking in the night SOB. His examination showed a temp 38.3 with crepitations at both bases and associated tenderness of the abdomen.

The impression by [Dr E] was of pneumonia and gastritis from the NSAIDs. Bloods were ordered and advised to attend ED if there was any deterioration in symptoms. If the WCC very high the plan was to be reviewed in ED with a CXR and ? admission.

A further note by [Dr E] reports the referral to [Dr D] in ED after the review of the blood tests. The concern was a severe viral infection with very high CRP. Kylie, the nurse, was asked to discuss the results with the ED physician.

[Mr A's] referral included information about the past medical history and the meds include Roxithromycin, omeprazole, brufen, and amoxicillin.

The ED clinical notes state that [Mr A] was seen by [Dr D] around 1105. The clinical notes report the patient had been unwell for the last 3 weeks with SOB, cough, abdomen pain and headaches. [Mr A] had fever on and off and decreased food intake. The notes report the patient had been seen by GP and given antibiotics that had stopped today. [Mr A] presented for review in ED with increased CRP and ongoing symptoms.

The examination reports no accessory muscle use. [Mr A] had dual heart sounds. His abdomen was tender in the epigastrium.

Bloods noted to CRP 150 to 115, lactate was 5.0 and Cr 111 (prior to illness in 2013 83) and CXR was reported as opacification of the mid zone.

[Mr A's] observations were subsequently noted by the nurse at 1145, 1200 and 1430. His RR and HR were not recorded. His sats were 76%, 86% and 81%. His blood pressure recordings were 120/70, 120/60, 90/50.

[Mr A] was treated with IV Augmentin and paracetamol and discharged home after a 2 litres of IV fluid at 1528.

He subsequently died that evening.

Response to specific questions.

**Please comment on whether you believe pneumonia was a reasonable clinical diagnosis given.**

On review of the presentation with SOB, fever and cough associated with increased respiratory rate it would be reasonable and appropriate to make a diagnosis of pneumonia.

**Please comment on the systems in place for managing abnormal readings. In particular was it acceptable for [Dr D] to rely on the nurse to alert him of [Mr A's] abnormal readings.**

[Mr A's] observations were abnormal on arrival with a RR of 28 and a HR of 120/min and a temperature. These observations are consistent with Systemic Inflammatory response (SIRS). These observations needed ongoing review and recording as was done in this case.

The ED is a team environment and thus it is very reasonable for a team member to alert the Dr that the saturations of a patient are low. In this case the saturations were very low 76% and the BP dropped to a systolic of 90 and thus the nurse would usually institute oxygen and then alert the Dr looking after the patient to review the patient. A BP of < 100, sats of <92% and a blood lactate of >4 are consistent with severe sepsis.<sup>1,2</sup> It would not be usual to send a patient home from the ED with saturations of this level and a BP of 90 unless it was due to a chronic condition. A deterioration in physiology would necessitate admission.

With this in mind if a nurse did not alert you to the physiological deterioration then [Dr D] should have reviewed the observations knowing that his initial observations were abnormal with respect to [Mr A's] RR and HR. It would be standard of care to ensure that there was some resolution and certainly no deterioration of physiology prior to discharge.

This would be a moderate deviation in standard of care not to recheck the abnormal physiology seen on arrival in ED.

**In light of the clinical information available, do you believe it was appropriate to discharge [Mr A] on [Day 5].**

In light of my review of the symptoms and particularly the deterioration in physiology with saturations and BP dropping over time, [Mr A] should have been an admission with ongoing support and review. [Mr A] had signs of severe sepsis and would require an admission.<sup>1,2</sup>

This would be a severe deviation in the standard of care for a patient with these findings.

**Any additional comments you may wish to make about the care provided to [Mr A].**

[Mr A] had a severe complication of Influenza which resulted in death. In this case even admission, intubation and ventilation may not have saved [Mr A] due to the severity of illness. On arrival at [the public hospital] he had physiology

consistent with SIRS, and then subsequently was tending to respiratory failure and septic shock. Unfortunately these were not acted upon in the ED. Recognising severe illness in an ED in a busy environment with a stoic patient can be very difficult.

Introduction of a programme of recognising the unstable patient and educating and encouraging nurses to act on this abnormal physiology may assist to prevent patients being discharged in the future.”

Dr Thornton provided the following additional advice:

“I have been asked to provide a further opinion to the commissioner on case number C15HDC01504, and I have read and agree to follow the commissioner’s Guidelines for Independent advisors.

I am the Head of Department of Middlemore Hospital Emergency Department New Zealand the largest Emergency Department in Australasia. I have been the HOD since 2008. My qualifications are FACEM (Fellow of the Australasian College of Emergency Medicine) and MBChB at Auckland University. I have been a fellow of the college for 16 years and graduated as a Doctor in 1992. I am drawing on my experience as an Emergency Physician.

I have reviewed the following documentation:

[The DHB’s] responses dated 13 and 21st of December, 27th October and 21st November 2016

[Dr D’s] responses dated 19th August and 5th October 2016 including attachments  
Email from [Dr D] dated 3 Feb 2016

[Mr A’s cousin’s] statement to police

Audit trail of laboratory results and laboratory request form received 7 March 2016

In addition I have reviewed the documents I have previously reviewed

Letter of complaint from [Mrs B]

[Dr D’s] response to coroner dated 1 October 2014

[DHB’s] response dated 17th January 2016 and clinical notes

Response and clinical notes from [the medical centre] November 2015

Post mortem report

I have been asked to comment on the following questions

The appropriateness of staffing ratio in [the] Emergency Department during [Dr D’s] shift and what if any impact this has on my advice about the care provided by [Dr D].

It would be helpful to outline the reasons why you feel that you can comment on staffing ratios at a small hospital such as [this].

If unable to comment on staffing ratio please provide the following advice

Was the care appropriate based on [Dr D's] account of the busy demanding nature of the ED that Shift

Whether the care was appropriate based on [the DHB's] account that the ED was not particularly busy that shift

Any other matter in this case you consider warrant comment.

Firstly I would like to comment on my experience with medical staffing ratios in ED. Whilst I work at one of the largest EDs in NZ I have been involved on frequent occasion with workforce conversations and issues associated with ability of staff to see, assess and treat patients in EDs across NZ. The number of patients as a raw number doesn't reflect the acuity and individual requirements of each patient in a shift. The issues in a small ED are similar to a large ED. These issues are not a simple calculation of the number of patients to the number of staff in ED but it is a complex matrix of staff skill, patient acuity and complexity, operational processes and systems in the ED such as electronic systems, radiology request. Finally and very importantly communication between staff is paramount to ensure patient safety. These issues transcend all EDs and are not size dependent.

This complexity of this matrix requires conversation on a day to day basis to understand how the last 24 hours has been in an ED. Based on the data sent through from [the DHB] saw [between 15,000 and 18,000] patients in 2014. On [Day 5] 48 patients presented in a 24 hours period. In [this month] the range of patients is from 34 to 66. Based on this data the average number of patients for [this month] is approx. 50 per day. The Australasian College for Emergency Medicine recommendation for staffing for a mixed ED of up to 15000 patients is 2 decision making Dr on the day shift.<sup>1</sup> Whilst the College recommendations can be generous and difficult to achieve it is a recommendation made by the College.

[Dr D] reports he was responsible for 15 patients from 0800hrs through to 1530. Two complex patients were handed to him and 3 patients were reviewed by the house officer and then by him and 9 patients that he was responsible for throughout the shift. Noted in the information obtained there is a report from a Senior Nurse on the shift [RN G] who confirms that the [Day 5] was a busy shift with her being 'called to the floor' from her non clinical duties furthermore RN G comments about 'skill mix concerns'. [Dr D] also reports that he stayed after work for 2.5 hours to complete his clinical duties which is confirmed by [the DHB].

The Australasian College of Emergency Medicine has the recommendation of 1 stretcher patient per hour and 1 ambulant per Y2 hour. This equates in a 7 hour shift can vary 7 to 14 at best. In my experience and observation of data is the numbers of patients seen by registrars and SMOs in a 10 hrs shift for the last 8 years and we note the range from 4 to 15 depending on the patient complexity. The expectation of a house officer is different as all patients must be reviewed by an SMO but on average we would expect 6-8 patients a shift.<sup>2</sup>

Again I would stress that this patient seen by efficiency comes from a team approach in combination with good systems to assist with the safety of care in the



ED. A letter is written by the HOD [Dr I] that a number of factors in the ED system in [the public hospital] make it difficult to be efficient with patient care. This includes nursing notes away from the doctor's notes, a lack of an integrated EMS, a radiology request system that requires a 10 minute process and poor culture with specialty teams. Noted in the letter [Dr I] makes a comment that these systems issues don't excuse a medical error but inefficient systems can contribute to this error.

With this information available I have been asked to comment

**Was the care appropriate based on [Dr D's] account of the busy demanding nature of the ED that Shift**

In response to this question it is clear that the discharge of [Mr A] as stated by [Dr D] would not have occurred if he had been aware of [Mr A's] 'deteriorating physiology'. The statements written by the current HOD, [Dr D] and [RN G] report a busy shift with complex patient. The acuity of patients attending on [Day 5] in association with inefficient systems described by [Dr I] would have contributed to the discharge of [Mr A]. Whilst it was not appropriate to discharge [Mr A] the system did not assist [Dr D] to allow him to make good decisions and the decision to discharge was understandable in the situation.

Importantly I note that an Early Warning System has subsequently been instituted and its use is being reviewed and audited in the ED. [Dr D] has been involved in quality improvement and review of adverse outcomes in the ED. Any improvement in the operative support systems in the ED such as electronic medical records and physiological recordings assist with ensuring efficiency in the workplace. Ongoing work with respect to communication across the hospital to ensure handover is smooth and culture amongst specialist will assist in patient safety and care within the ED."

Dr Thornton subsequently provided the following further additional advice:

"I have been asked to provide a further opinion to the commissioner on case number C16HDC00504, and I have read and agree to follow the commissioner's Guidelines for Independent advisors.

I am the Head of Department of Middlemore Hospital Emergency Department New Zealand the largest Emergency Department in Australasia. I have been the HOD since 2008. My qualifications are FACEM (Fellow of the Australasian College of Emergency Medicine) and MBChB at Auckland University. I have been a fellow of the college for 16 years and graduated as a Doctor in 1992. I am drawing on my experience as an Emergency Physician.

I have reviewed additional information from [the DHB] in relation to [Dr D's] shift (as provided in my email of 18 April 2017).

I have been asked to comment further on the following:

**Do you consider [the DHB's] systems were of an acceptable standard?**

As I have reiterated [Mr A] should not have been discharged from the ED and would not have been discharged if the observation chart and the SIRs had been seen by [Dr D]. This was a deviation in the standard of care of a consultant.

The data that was reviewed in the second statement commented on reflected inefficiencies in EDs that are inherent across many EDs. The lack of an integrated early warning score (EWS), nursing notes away from the doctor's notes, a radiology request system that requires a 10 minute process and poor culture with specialty teams. As stated in my previous statement January 2017 these inefficiencies can contribute to poor outcomes for patients. To be explicit the subsequent implementation in 2014 of an early warning score may have prevented the discharge of [Mr A] as the nurse would be obligated to communicate the score directly to the Doctor. This system change will provide a safeguard against future similar events.

[Dr D] reports he was responsible for 9 patients from 0800hrs through to 1530. Your subsequent letter reports limited involvement in some of these patients. This number is within the range of what an ED physician could manage as stated 'in my experience and observation of data is the numbers of patients seen by registrars and SMOs in a 10 hrs shift for the last 8 years and we note the range from 4 to 15 depending on the patient complexity'.

The question currently being posed is whether the ED is an acceptable standard. Many EDs would have similar system factor inefficiencies contributing to error in combination with the human factors which have occurred in this case so the swiss cheese as James Reason would say was aligned.<sup>1</sup> All EDs would require system level review and this improvement would contribute to improved care for all patients who present to the ED. I have not been to [this] ED and thus have not reviewed the exact process of care or credentialed the ED. In order to understand the system then this would need to be reviewed.

In summary many ED have system inefficiencies which could be improved. Already the introduction of an EWS has been implemented in the ED which will assist the care of patients.

In this case as has been previously acknowledged [Mr A] would not have been discharged if [Dr D] had reviewed the observation chart.

1. James Reason. To Err is Human. Cambridge University Press, 26/10/1990"