Nelson Marlborough District Health Board

A Report by the
Health and Disability Commissioner

(Case 17HDC02364)

Health and Disability Commissioner
Te Toihau Hauora, Hauātanga

Contents

Executive summary

1. This report concerns the care provided to a man by Nelson Marlborough District Health Board (NMDHB) when he was admitted to hospital with acute pancreatitis in 2017. The man's condition deteriorated and he had a cardiac arrest, and was unable to be resuscitated.

2. The report considers the monitoring of the man's condition, and whether the response to his deterioration was adequate. It highlights the importance of effective communication between nursing and surgical staff and with the consumer's family, and of ensuring that senior doctors provide guidance and leadership to junior doctors, and that documentation is completed to a good standard to support care and decision-making.

Findings

3. The Commissioner found NMDHB in breach of Right 4(1) of the Code. Overnight, staff failed to recognise the man's deterioration adequately and escalate his care in a timely manner. As a result, there was a delay in transferring the man to ICU and, consequently, a missed opportunity for him to receive treatment for his deteriorating condition at an earlier time. The Commissioner was critical that NMDHB did not have systems in place that supported staff in their clinical decision-making, including escalation of concerns and communication between teams, and that staff did not communicate information to the family adequately about the risks associated with acute pancreatitis.

Recommendations

4. The Commissioner recommended that NMDHB update HDC on the changes made as a result of the Adverse Event Review; provide a copy of the updated pancreatitis and fluid management guidelines; provide details of the escalation pathway when a patient is reviewed more than once during a shift; provide HDC with the outcome of the review of the Early Warning Score (EWS) framework; report on the quality markers used to assess the efficacy of its EWS, and how the current system is working; use an anonymised version of this report as a case study to provide continuing education to staff on the use of the EWS and escalation of care; and provide a formal written apology to the man's wife.

Complaint and investigation

5. The Health and Disability Commissioner (HDC) received a complaint about the services provided to Mr A by Nelson Marlborough District Health Board. The following issue was identified for investigation:

- *The adequacy and appropriateness of the care provided to Mr A by Nelson Marlborough District Health Board in 2017.*

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6. The parties directly involved in the investigation were:

Mrs A	Complainant/Mr A's wife
NMDHB	DHB/provider

7. Further information was received from:

Dr B	Consultant general surgeon
Dr C	Senior registrar
Dr D	Registrar
Dr E	Consultant general surgeon
RN F	Registered nurse (RN)/clinical nurse specialist
Anaesthetist/acting intensivist	

8. Independent expert advice was obtained from a general surgeon, Dr Colin Wilson (Appendix A), and an intensivist, Dr Shawn Sturland (Appendix B).

Information gathered during investigation

Introduction

9. This report concerns the care provided to Mr A, aged in his late sixties at the time of the events, during his admission to NMDHB following a sudden onset of abdominal pain that was diagnosed as acute pancreatitis.

10. Over the next 48 hours, Mr A's physical condition deteriorated and he developed sepsis and suffered a cardiac arrest, and was unable to be resuscitated.

Background

11. Previously, Mr A had been well and had lived at home with his partner, Mrs A. His medical history included depression and an episode of pneumonia.

12. At 1.52pm on Day 1,[1] Mr A presented to the Emergency Department with nausea and vomiting and abdominal pain that had developed suddenly earlier that day.

EWS

13. The Early Warning Score (EWS) is a system for scoring a patient's vital signs for the purpose of identifying acute clinical deterioration while in hospital. The vital sign parameters measured are respiratory rate (RR),[2] oxygen saturation (SpO_2),[3] heart rate (HR),[4] blood pressure (BP),[5] temperature,[6] and level of consciousness.

[1] Relevant dates are referred to as Days 1–3 to protect privacy.
[2] Normal respiratory rate is 12–20 breaths per minute.
[3] Normal oxygen saturations are 95–100% on room air; 92% or less is considered low.
[4] Normal pulse rate is between 60–100bpm.

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14. When any of the above parameters deviate from normal, a score of zero to three is assigned depending on the level of deviation. The scores are then added together to give an EWS, which triggers an escalation pathway.

15. The escalation pathway specifies the actions to be taken according to the level of clinical risk. For an EWS of 1–5, the escalation pathway in place at NMDHB required nursing staff to: "Manage pain, fluid status or distress, and increase frequency of vital sign measurement 1 to 2 hourly or more frequently as per assessment."

16. An EWS of 6–7 required a "[h]ouse surgeon review within 20 minutes", or with "acute illness", to "[e]scalate to speciality registrar/consultant as needed".

Assessment in Emergency Department

17. On arrival in the Emergency Department, Mr A reported central abdominal pain of 9 out of 10, and he was noted to be pale. His blood pressure was elevated at 167/88mmHg, his heart rate was elevated at 55bpm, and his temperature was slightly low at 35.2°C. His EWS was calculated as 1–2, owing to his temperature. He was commenced on oxygen and given opiate pain relief, and later ketamine.[7]

18. Mr A was reviewed by the on-call Urology registrar, Dr D,[8] who assessed him as having mild to moderate acute pancreatitis, with a Ranson score of 2.[9]

19. Mr A was started on intravenous (IV) fluids and an indwelling catheter (IDC) was inserted. An ultrasound scan was planned for the following day to investigate the cause of the pancreatitis further.

20. Dr D discussed Mr A's case with the on-call General Surgery consultant, Dr B, and Mr A was admitted under the General Surgery team.

21. Dr B told HDC: "[Dr D] assessed [Mr A] as having mild pancreatitis and there were no concerns raised. Therefore I did not review [Mr A] that evening."

Consultant cover

22. NMDHB told HDC that during this period, one of its general surgeons was on leave, requiring its usual on-call roster to be adjusted. As a result, Dr B was rostered as the on-call general surgeon starting Day 1. Any patients admitted under the General Surgery team fall under the care of the on-call general surgeon, who routinely undertakes a consultant ward round each morning.

[5] Normal BP is generally considered to be between 90/60–140/90mmHg.
[6] Normal temperature is 37.5°C.
[7] Ketamine is a strong pain-relieving medication.
[8] Dr D was responsible for providing cover for the General Surgery team.
[9] The Ranson score is a scoring system used to assess the severity of pancreatitis. A score of 0–2 indicates mild pancreatitis.

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23. However, on Day 2, Dr B had pre-arranged travel and was unable to attend the morning post-acute ward round as usual. Dr B told HDC that because of his travel, he agreed for his senior registrar, Dr C, to take handover from Dr D on the morning of Day 2 and perform the ward round herself, and discuss any concerns with the on-call acute surgeon, Dr E, who was on site.

The ward

24. Mr A arrived on the ward at 9pm, and his EWS was assessed as 3. He was noted to have normal oxygen saturation on 2L of oxygen via nasal prongs, and his IDC was draining well. He had mild tachycardia[10] (97bpm), which was "asym[p]tomatic", and his blood sugar level (BSL) was 11.2mmol/L.[11]

Day 2 — morning

25. At 4.40am on Day 2, Mr A's EWS was assessed as 4. His oxygen saturations had dropped to 95% on 2L of oxygen via nasal prongs. He continued to report 9 out of 10 pain, and was given pain relief as prescribed. IV fluids continued at a rate of 100ml/hr, and his IDC was noted to be draining well. His BSL had increased to 15.3mmol/L and he continued to have mild tachycardia (108bpm).

26. At around 7am, Dr D handed over care to Dr C as planned. According to the Adverse Event Review (AER) report, Dr D also had a discussion with Dr B. However, Dr B does not recall the details of the conversation, and no details are recorded in the clinical records.

27. At 8.30am, Dr C reviewed Mr A during the morning post-acute ward round. The house officer documented the notes from this assessment in the clinical records, including that Mr A was feeling more unwell and had increased abdominal pain. Mr A was noted to have an oxygen saturation of 96% on 2L of oxygen via nasal prongs. The documented plan from the ward round was for an ultrasound to be performed, bloods to be taken, and fluids to continue.

28. At that time, Mr A's observation chart recorded vital signs of a normal blood pressure and temperature, but an elevated heart rate of 108bpm. IV fluids continued and he was recorded to be producing 40ml/hour of urine.

29. Dr C told HDC:

> "Although [Mr A's] pancreatitis was predicted as mild on admission, I was concerned that his new tachycardia was an indicator of worsening severity of pancreatitis. If his pancreatitis was worsening, then he was in the early stages of this and treatment at this time would be supportive only. There were other potential contributing factors to this tachycardia, namely dehydration and pain."

[10] A rapid heartbeat.
[11] Normal BSL is between 4.0 and 5.9mmol/L, or up to 7.8mmol/L two hours after eating.

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30. Dr C said that at that time she assessed Mr A as euvolaemic,[12] but noted that often there is "a degree of uncertainty around accuracy of clinical assessment of fluid status". She charted him a 500ml bolus[13] of fluid and requested hourly monitoring of his urine output.

31. In relation to Mr A's pain, Dr C said that he had not received as much pain relief medication as on the previous day, and she decided to trial regular slow-release tramadol[14] as well as Sevredol,[15] for better continuous pain relief, with further boluses of IV opioids as required.

32. Dr C said that during her assessment she also noted the decreased oxygen saturations recorded on the observation chart, and considered that this was likely to be related to Mr A's pain. She stated:

> "I was also concerned that he was at risk of respiratory compromise due to third spacing[16] if his pancreatitis worsened so wanted to be careful with ongoing fluid resuscitation hence my instructions to the house surgeon for goal-directed fluid therapy as well as optimising pain management."

33. The details of Dr C's instructions to the house surgeon are not recorded in the clinical records. Dr C told HDC:

> "I distinctly recall having a discussion with the house surgeon regarding my concerns about [Mr A's] potential for deterioration when outside his room immediately following my review at 0830h … I do not know why this was not documented in the notes …"

34. Following the ward round, Dr C discussed Mr A's condition with Dr E, who agreed with the plan for supportive management and an abdominal ultrasound. The details of this discussion are not documented.

35. Dr E told HDC: "I did not receive a formal hand over of the patient and was not asked to take over his care." She said that from memory and her review of the NMDHB AER report, she believes that Dr C "briefly" discussed Mr A with her. Dr E stated: "It was not a handover of care and I was not asked to see [Mr A] as the Registrar was under the impression that [Mr A] had a mild case of pancreatitis and was not worried." Dr E said that she had no further involvement in Mr A's care.

36. Dr B was not involved in the decision-making at that time, but told HDC:

> "Had I been aware of the change in his blood sugars and mild tachycardia, his management would not have changed from that of intravenous fluid support,

[12] Normal circulatory or blood fluid volumes.
[13] A single dose given at once.
[14] A strong pain relief medication used to treat moderate to severe pain.
[15] A morphine-based pain relief medication.
[16] Movement of fluid from blood vessels into another part of the body.

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oxygenation and appropriate analgesia, and regular monitoring of vital signs and fluid balance."

37. Further to this, Dr B stated:

> "While I do not believe that consultant review would have materially altered the management plan for [Mr A] on the morning of [Day 2], I regret that I did not formally arrange consultant review for him that morning, when I was unable to round on him myself."

Midday review of bloods

38. Dr C told HDC that she and the house surgeon reviewed Mr A's blood results at around midday. She stated:

> "His creatinine[17] was noted to be mildly increased and his haematocrit[18] was elevated. However, as his observations and urine output were satisfactory, he was continuing to receive intravenous fluids, and he had begun to take fluids orally so we did not increase his fluid rehydration at this time. His white cell count,[19] C-reactive protein[20] and glucose were also noted to be elevated in keeping with pancreatitis."

Review by pain nurse

39. At 1pm, Mr A was seen by a clinical pain nurse specialist, RN F.

40. RN F noted Mr A's medical history and current pain medications, and that he was experiencing "abdominal pain from pancreatitis". She also noted Mr A's recent blood results, including his BSL, which had increased from 17.7mmol/L at 12pm to 26mmol/L by 1pm. RN F recorded a plan to continue regular paracetamol and fentanyl patient-controlled analgesia (PCA), to encourage oral fluids, and stop tramadol and continue IV fluids. She also queried: "[T]arget urine output? Surgical team to decide."

41. RN F told HDC that in relation to her last point regarding the target urine output:

> "I can confirm that I spoke to the House Surgeon (HS) regarding this matter after writing my notes, as was my custom to do so. … My concerns were not matched by the HS."

42. RN F also stated:

> "As a nurse at [the public hospital], I experienced a culture of pain management to stay firmly focused in pain management and 'interference' with matters like urine output etc. was greatly discouraged."

[17] Creatinine levels are an indicator of kidney function.
[18] The ratio of red blood cells to total volume of blood.
[19] Number of white blood cells — an indicator of the body's response to infection.
[20] A protein made in the liver — an indicator of inflammation.

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Day 2 — afternoon

43. On the afternoon of Day 2, Mr A underwent an ultrasound scan of his upper abdomen. The results reported at 2.40pm noted that no gallstones could be seen, but that the gallbladder was difficult to visualise, and a repeat ultrasound was recommended "to confidently exclude gallstones".

44. At 2.10pm, Mr A's EWS was recorded as 3–4. His heart rate was 108–111bpm, and his oxygen saturation remained at 95–96% on 2L of oxygen via nasal prongs. Mr A continued to experience a high level of pain throughout the day (7–9 out of 10), with pain relief having "little effect". His IDC was recorded as draining "good–ok volumes clear".

45. At 4.10pm, Mr A was seen on the registrar ward round. The notes from this review, again documented by the house officer, record that Mr A was "feeling much better". The ultrasound scan results were noted, including "no [obvious] sign of Gallstones but a good view not obtained — may need to repeat". The plan recorded was for a low fat diet, further bloods the following morning, and another ultrasound "in future".

46. In relation to this review, Dr C told HDC:

> "It was not usual practice to perform an afternoon ward round routinely on surgical patients in the public hospital but, due to my concerns about risk for deterioration, I wanted to reassess [Mr A]."

47. Dr C said that at the time of her review, Mr A reported feeling "a lot better". She said that Mrs A, who was also in attendance, agreed. In response to the provisional opinion, Mrs A told HDC that she disputes that she told Dr C that Mr A was feeling better.

48. Mrs A told HDC that by the afternoon of Day 2 she had noted that Mr A's urine had changed colour "dramatically and his pain continued", and that no one seemed concerned about him. She stated: "[He] had a very high pain tolerance so I knew that for him to say how much he was hurting it would have been pretty serious. He was tired and listless."

49. Dr C said that at the time of her review she was unable to locate Mr A's observation chart, so she performed a "fluid review at the bedside including palpation of his pulse". However, she noted: "Unfortunately, this was not documented in the house surgeon notes but, in my personal notes, I have noted that his heart rate remained around 100 bpm." Dr C said that from her review, "overall, [Mr A's] condition seemed stable and improving at this time".

50. Dr C said that if Mr A had not been improving at the time of this review, she would have asked for the consultant to review him, as well as the on-call team later that evening. She stated:

> "However, I was reassured by [Mr A's] apparent clinical improvement at this time so I did not ask for any further routine evening review by the senior doctors … I also note I was not made aware of any concerns raised by [RN F] regarding blood tests."

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Overnight Day 2/Day 3

51. At 8pm on Day 2, Mr A's EWS was recorded as 3. His heart rate was 111bpm, and by 10pm it had increased to 123bpm. Between 7pm and 8pm his urine output dropped to 0ml/hr.

52. The on-call house officer reviewed Mr A at 10.45pm and considered that he was dehydrated, and planned an increase in his IV fluids. At that stage, Mr A's urine output was 70ml/hr.

53. By 11pm, Mr A's urine output had dropped to 28ml/hr, and his heart rate remained elevated throughout the rest of the night. At midnight, his EWS was 5, and at 1.40am it was 6.

54. At 2am, Mr A's urine output had dropped further to 7ml/hr, and he remained tachycardic (124bpm). The on-call house officer was called again and gave a verbal order to give a bolus of IV fluids and to increase the rate of the next infusion.

55. At 4am, and again at 5.30am, the house officer reviewed Mr A and documented the plan to continue "aggressive fluid replacement". At 7am, the nursing records note that Mr A's oxygen saturation was 92–94% on 3L of oxygen via nasal prongs, and that his urine output remained low. His EWS was 5.

56. At 7.25am, the EWS was 10, and a cardiac arrest "rapid response" was activated. At the time, Mr A was noted to be tachypneic,[21] with a respiration rate in the 20s, and his oxygen saturations were 90% on 3L of oxygen, and 94% when increased to 10L. He was noted to be "still clinically dry", and acute kidney infection was queried.

57. At 8am, Mr A was reviewed by the surgical registrar and ICU consultant, and was transferred to ICU for further management.

ICU care

58. A CT scan undertaken in ICU showed severe pancreatitis with extensive intra-abdominal and intra-thoracic fluid sequestration. Mr A was commenced on antibiotics.

59. At 11.30am, Mr A was reviewed by the surgical registrar, who planned to intubate Mr A and start inotropes.[22] Subsequently Mr A was intubated, but at 12.14pm he went into cardiac arrest and an emergency call was made.

60. CPR was commenced, but was stopped at 12.41pm and Mr A was declared dead.

61. In response to the provisional opinion, Mrs A told HDC that she was in a room in ICU and was informed by two staff members that Mr A had died. Mrs A stated:

> "All during the time of my husband's time in hospital the communication was abysmal. I saw one attendee on the morning of [Day 2]. It took an hour for anyone to pick up

[21] Experiencing fast, shallow breathing.
[22] Inotropes are drugs that increase the contractions of the heart.

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the phone after his cardiac arrest. Whilst I was with him in the ICU with my sister in-law there was no communication as to what was happening to him. There was no indication from any staff that he was dying. There was no preparation given by anyone that that could happen. As a result, when we were directed to the family room, I had no idea that I would never see him alive again. Then to be told by two strangers that he was dead came as a complete and utter shock. No one should have to go through that."

Additional information from NMDHB

Adverse Event Review

62. Following Mr A's death, NMDHB carried out an Adverse Event Review.

63. In summary, it identified concerns relating to:

1. Identification of each organ system failure early, and the need to address patient needs
   a. The review team noted that "pancreatitis is a complex multiorgan system disease with high mortality".
2. Fluid balance chart
   a. The fluid balance chart was incomplete, "leading to difficulty seeing cumulative fluid given".
3. Handover/clinical oversight
   a. The review team noted that Mr A's consultant, Dr B, was away, and "transfer of care went to the on call consultant, and this also meant that there was a further transfer of care to a different on-call consultant the next day".
   b. There was a lack of "continuity" of care and a lack of normal verbal handover at the patient's bedside.
   c. Multiple handovers resulted in a decreased "level of ownership & oversight".
4. Escalation of care
   a. The review team stated: "The review team felt that there was a general sense in that the junior clinicians were worried (multiple reviews), but did not have a supportive system of escalation, transfer to ICU etc; they did not articulate their concerns and [synthesise] them into an action plan."
   b. Staff were focused on the EWS to trigger their response, and the EWS parameters "are loose and rely on junior staff judgement".
5. Early Warning Score
   a. There was a lack of adherence to the recommended EWS escalation pathway.
   b. EWS calculations were inaccurate, with a tendency to round down rather than up.
   c. The EWS algorithm was not robust in terms of escalation.

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d. The EWS was used as a checklist rather than a way to quantify concerns and foster communication.

6. Intubation

The review team questioned whether intubation should have proceeded in the circumstances.

64. The review team made a number of recommendations, including:

1. The pancreatitis guideline should include risks, observations, and required responses, including criteria for physician involvement.
2. In relation to fluid management, guidelines should include a pathway for when the anticipated outcome is not achieved following fluid challenges.
3. Incorporation of the importance of cumulative fluid balance documentation in the patient education programme.
4. Pathway development for junior staff to notify a senior clinician when a patient is reviewed more than once during an out-of-hours shift.
5. Handover should be consultant to consultant.
6. All acute patients to be seen by a consultant within 36 hours.
7. Review of the EWS framework.
8. Staff education on pancreatitis.
9. Adverse Event Review Report findings/learning points to be shared with family and staff.

Further comment

65. In relation to Mr A's management in ICU and the cause of his death, the acting intensivist in ICU on the day of Mr A's death told HDC that her "strong clinical impression is that [Mr A] died from cardiogenic shock as part of his multi-organ failure and system inflammatory response syndrome (SIRS) secondary to acute severe pancreatitis". She said that she does not think Mr A died from hypoxic respiratory failure secondary to aspiration.

66. NMDHB stated: "Even despite appropriate care in the ICU, the late presentation to the intensive care service meant that the anticipated mortality was very high."

67. In relation to the level of documentation, NMDHB stated:

> "We recognise a deviation from acceptable standards of documentation. In response to this, [NMDHB is] actively working with our teams to ensure all documentation is clear and accurate."

Changes made by NMDHB

68. In April 2018, an additional general surgeon was employed. NMDHB told HDC that previously it had employed five general surgeons, who had participated in a 1:5 on-call

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roster (one weekday in five and one weekend in five). Since the appointment of an additional general surgeon, it now has a 1:6 on-call roster.

69. Following the appointment of an additional general surgeon, NMDHB introduced the role of "acute day time surgeon". NMDHB stated:

> "[NMDHB] recognises the importance of visible individualised and a holistic approach to patient care and that good team communication is a crucial part in effective and safe patient care."

70. NMDHB said that the introduction of an acute day-time surgeon "now ensures that the consultant surgeon on call has dedicated time to work with the surgical team and patients on the ward; This in turn ensures that individualised patient assessments and plans are regularly reviewed, and adjusted as necessary."

71. NMDHB stated that all patients are now seen in a consultant-led ward round every day.

NMDHB policies and guidelines

Acute Pancreatitis Management

72. The NMDHB "Acute Pancreatitis Management" clinical guideline outlines the investigations that should be carried out when acute pancreatitis is suspected, including an abdominal ultrasound. The guideline states that a CT of the pancreas "should be reserved for patients in whom the diagnosis is unclear, or patients who fail to improve within 48 hours after admission".

73. Under "initial assessment and risk stratification", the guideline states:

> "Risk stratification
>
> a. Many scoring systems are available to predict which patients will develop severe disease. The clinical findings that predict a severe course include the following:
>
> i. Age > 55 years
>
> ii. WCC > 16 000
>
> iii. AST > 250
>
> iv. LDH > 300
>
> v. BMI > 30
>
> b. Consider admission to ICU if 3 or more criteria are present."

74. Regarding management, the guideline states the following:

> "1. Daily **consultant** input is mandatory
>
> 2. Early **fluid resuscitation** within the first 24 hours is associated with decreased rates of organ failure

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3. Intravenous **antibiotic prophylaxis** is NOT recommended for the prevention of infectious complications

4. **Oral feeding** in predicted mild pancreatitis can be commenced once the abdominal pain decreased and inflammatory markers are improving. A low-fat solid diet appears as safe as a liquid diet.

5. **Enteral feeding** should be considered early in patients with predicted severe pancreatitis. Enteral nutrition has been shown to reduce infectious complications. Feeding can be administered via nasogastric or naso-jejunal tube. Parenteral nutrition should be avoided if possible …"

Handover of care — General Surgery

75. The NMDHB policy for "Handover of care — General Surgery NMDHB" states that the purpose of the policy is to ensure handover of information "about their most critically ill patients to covering colleagues". The policy notes that a consultant is unable to maintain 24-hour, 7 days a week control over patient decision-making, and that "[h]andover and team working allows continuity and forward planning that is ultimately in the best interests of patients".

Further comment from Dr C

76. Dr C told HDC:

> "If I have trust in the house surgeon's competence (as I did in this situation), I do not routinely review what they have written down … I was thus shocked when I reviewed [Mr A's] notes to write this response as I found that the documentation from ward round reviews at 0830h and 1610h was brief and lacking detail. As such, the notes do not accurately reflect the assessment made of [Mr A's] condition at these times nor do they provide comprehensive guidance for ongoing cares."

77. In relation to the lack of documentation of her conversation with Dr B, Dr C said that she fed back her conversation to the house officer, and usually it is the house officer's role to document such a discussion in the notes. Dr C acknowledged that in this case this did not happen, and noted that likely this was because the plan did not change.

78. In relation to whether the severity of Mr A's pancreatitis was underestimated, Dr C noted that the "prediction of severity of pancreatitis can often be difficult and is often inexact". Dr C said that in accordance with international guidelines, she used the systemic inflammatory response syndrome (SIRS) criteria to assess the severity of Mr A's pancreatitis. She stated:

> "Whilst I was aware of [Mr A's] raised blood glucose, I did not use this as a primary predictor of the severity of his pancreatitis. Pain is a subjective marker. Although it may be a sign of increased severity of pancreatitis, it cannot be relied on for accuracy so, whilst I took his pain into account, I did not rely on this as a measure of severity."

79. Dr C said that Mr A met the SIRS criteria, and thus was at risk of increased pancreatitis severity. She said that she was "suspicious" that Mr A was at risk of deterioration, but that

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"his condition was stable so we monitored him carefully over the course of the day and he clinically seemed to respond to the treatment put in place".

80. Dr C noted that the interpretation of the blood results is "again poor", and that it was not routine to document all blood test results in the clinical records, unless the results changed the management plan significantly. Dr C stated:

> "[Mr A's] results raised clinical concern but did not majorly change the plan that was already in place.
>
> …
>
> I regret that our interpretation of these blood results was not included in his afternoon ward round notes as this may have been a trigger for earlier escalation of his care."

81. Dr C also noted:

> "It is possible that the surgical team were falsely reassured regarding adequacy of fluid resuscitation if we had been under the impression that these blood tests had been taken prior to our ward round. This is because we charted a 500ml fluid bolus during that ward round — so we may have thought that we had already treated, to some degree, the haemoconcentration that was evident on these blood tests when, actually, he had already received this fluid bolus prior to the blood tests being taken."

82. However, Dr C noted that given the time that has passed since these events, "this is conjecture only".

83. Dr C stated:

> "Whilst [Mr A] needed close monitoring, during the daytime on [Day 2] his condition was not severe enough to warrant ICU level care and so he was cared for on the surgical ward.
>
> …
>
> In the hours that I cared for him, his clinical parameters did not breach the threshold for escalation of care based on these EWS criteria. Outside of this EWS system, the parameters for goal-directed fluid therapy and escalation of care were verbally discussed between the house surgeon and myself. I regret that these were not documented in the notes."

84. However, she also stated:

> "I do not believe that the on-site team needed these parameters as a trigger to call for help given the severity of his deterioration that was clearly occurring and which should have been able to be assessed by any junior doctor or experienced nurse."

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Changes made by Dr C

85. Dr C told HDC that since being made aware of this complaint, she now ensures that all patients are reviewed by a consultant within 24 hours of admission. She also has a lower threshold for requesting after-hours review by a senior doctor for patients of concern.

86. In relation to documentation, Dr C stated:

> "I will endeavour to ensure adequate and accurate documentation of all surgical assessments and plans by providing closer supervision of the junior doctors who make these notes as well as by writing notes myself for patients who are more severely unwell."

Comment from family

87. Mrs A was contacted by the hospital at 8.25am on Day 3 and advised that Mr A had been transferred to the ICU.

88. The family said that at no time were they made aware of the seriousness of Mr A's situation until after he had been admitted to ICU. They feel that they did not receive adequate communication from staff that would have allowed them to prepare for Mr A's sudden decline.

89. Mrs A told HDC:

> "I had a short discussion with the doctor during my morning visit where I commented on the colour of his [Mr A's] urine which in both of our opinions was not great. There was no other discussion going forward. If I [had] known that [Mr A] could die my children would have been on the next plane home. I would never have left his side."

Responses to provisional opinion

90. Mrs A and NMDHB were given the opportunity to respond to relevant sections of the provisional opinion. Where appropriate, their comments have been incorporated into the report.

91. Mrs A told HDC:

> "When patients are admitted into the hospital system, they put their lives in the hands of what they hope are competent medical staff. Because of the lack of knowledge regarding their illness they must be able to have faith that all procedures that are undertaken are done with accuracy and confidence."

92. Mrs A also stated:

> "I strongly believe that the hospital system let my husband down with their inexperienced staff, gross lack of communication not only between hospital staff but also me, his wife, and total indifference to his needs."

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93. NMDHB acknowledged that its care of Mr A did not meet acceptable standards. NMDHB noted the Commissioner's criticisms in the provisional opinion that the communication and handover practice within the team caring for Mr A was suboptimal, but disputed that this is evidence of widespread systemic failures.

Opinion: Nelson Marlborough District Health Board — breach

Introduction

94. NMDHB had a responsibility to ensure that Mr A was provided with services that complied with the Code of Health and Disability Services Consumers' Rights (the Code), and to have in place adequate systems to ensure that Mr A was provided with appropriate and timely care. In my view, the care provided to Mr A did not meet acceptable standards, and I consider that the failures arose from systemic issues within the General Surgery team at NMDHB.

Surgical leadership and communication between teams

95. In my view, for the reasons set out below, NMDHB did not have a system in place that supported good communication between teams and ensured adequate oversight of nursing and junior staff by appropriately senior clinicians.

96. First, there was a lack of clarity about who had overall responsibility for Mr A's care. My expert advisor, general surgeon Dr Colin Wilson, notes that overall responsibility for an acute surgical patient lies with the admitting consultant surgeon. At the time of Mr A's admission, Mr A's consultant was away on leave. Although Mr A's case was discussed with Dr B by telephone on the day of admission, and then with the on-call acute surgeon, Dr E, as noted by Dr Wilson:

> "There appears to be no effective communication between different teams caring for [Mr A]. … It is unclear who was taking responsibility at a senior level for his surgical care. There did not appear to be an overall plan."

97. Secondly, and partly as a result of the lack of clarity around overall responsibility, Mr A was not seen by a consultant until he was transferred to the ICU — 36 hours after his admission. As noted by Dr Wilson:

> "There is no evidence in the case notes to indicate that [Mr A] was seen by a consultant surgeon until he reached ICU more than 36hrs after admission. Two consultants were involved and there is no record of a handover occurring."

98. I note that both Dr B and the senior registrar, Dr C, told HDC that they do not consider that Mr A's management plan would have changed had there been earlier consultant input. However, Dr Wilson notes that there was "an absence of any ongoing appraisal of [Mr A's] condition by the surgical staff". He advised:

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> "Usually a surgical team would re-evaluate the severity classifications for acute pancreatitis on repeated occasions within the first 48 hrs and when correlated with the clinical state one is alerted when deterioration is setting in. Whilst this was being over-looked the EWS actually triggered the referral to ICU. I think that this assessment could have been made 12 hours earlier when the blood tests and his clinical state suggested a diagnosis of severe acute pancreatitis."

99. In my view, timely and appropriate consultant input and oversight may well have prompted earlier recognition of the severity of Mr A's condition and an earlier referral to ICU.

100. Thirdly, there was poor communication between nursing and medical staff. I note Dr Wilson's comments:

> "The nursing staff had documented the abnormal results and there is no indication that the surgical staff were aware of these results. At no stage was there any indication that the surgical registrar was factoring these changes into decision making …"

101. Further to this, Dr Wilson noted that Mr A's blood tests were available more than 12 hours before the EWS triggered concern, and that it "was the responsibility of the surgical team to be aware of this".

102. Lastly, the poor communication was compounded by poor documentation. Dr C told HDC that she reviewed Mr A's blood test results and had developed a management plan, but this was not documented accurately by the house officer. Dr C stated: "The notes do not accurately reflect the assessment made of [Mr A's] condition at these times nor do they provide comprehensive guidance for ongoing cares."

103. The DHB's AER report noted that as a result of the consultant cover on the day of Mr A's admission, there were multiple handovers of care, and "[t]his resulted in [a] lack of 'continuity' of care and [a] lack of normal verbal handover at [the] patient's bedside".

104. Overall, this lack of continuity of care and senior oversight, coupled with a failure to document the surgical team's assessment accurately, resulted in a lack of instruction to nursing and junior staff about what to do if Mr A deteriorated, including parameters that needed to be measured. As discussed further below, this contributed to a lack of critical thinking by nursing and junior staff, who continued to apply the EWS rigidly.

EWS and escalation of care

105. For the reasons set out below, I consider that NMDHB also failed to have in place a system that supported appropriate and timely clinical decision-making.

106. Early identification of deterioration is important in deciding when to transfer a patient for specialty care, as early intervention is a key factor in improving patient outcomes. Although NMDHB had an appropriate EWS in place, with regular vital signs monitoring and

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calculation of the EWS, there was a lack of critical thinking by junior staff in deciding when to escalate their concerns.

107. I note the advice of expert intensivist Dr Shawn Sturland regarding the early management of pancreatitis:

> "Early care is supportive and involves the observation of physiology and laboratory results. Care is often on a surgical ward, with 'Early Warning' systems in place to notify deterioration and allow transfer to an Intensive Care environment — as was the situation in this case."

108. Dr Wilson advised that there was "an absence of any ongoing appraisal of Mr A's condition by the surgical staff". He stated:

> "I would have expected a senior surgical registrar to have thoroughly reviewed [Mr A] and had he/she been aware of a blood glucose of 15.3mmol/l and a pain score of 9/10 at 0815 on [Day 2] this should have been of concern and at least have been discussed with the consultant."

109. Dr Wilson advised that a registrar is responsible for having a good understanding of a patient's condition, offering leadership to the team, and escalating concerns to the consultant. Dr Wilson considered that Dr C did not demonstrate the level of care expected by a senior registrar.

110. In response, Dr C submitted that she was very aware of Mr A's risk of deterioration, and she assessed Mr A's condition carefully throughout the day, including reviewing his blood results at midday, and she was satisfied that Mr A remained stable and that supportive management remained appropriate. She said that she was "suspicious" that Mr A was at risk of deterioration, but that "his condition was stable so we monitored him carefully over the course of the day and he clinically seemed to respond to the treatment put in place". However, she noted that her reviews and management plan had not been documented by the house officer accurately, and that had her interpretation of results been recorded correctly, "this may have been a trigger for earlier escalation of [Mr A's] care".

111. I acknowledge Dr C's submission, and I am satisfied that she had a good understanding of Mr A's condition. I note that Dr C gave instructions to a house surgeon to document her reviews and management plans, but this was not done adequately. Dr C also discussed her management plan with the consultant, Dr E, who agreed with the plan, but again this discussion was not documented. The AER report identifies a deviation from acceptable standards of documentation, and I agree. In this case, I consider that there were failures by multiple staff, compounded by systemic issues, but that the individual care provided by Dr C as a senior registrar was reasonable in that context.

112. Even if Mr A was being monitored carefully throughout the day on Day 2, it appears that staff did not know what to do if Mr A deteriorated, or the parameters for escalation of his care. This was compounded by the issues with communication and the lack of senior clinical oversight, as discussed above.

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113. By 8pm, Mr A had begun to deteriorate, and this continued throughout the night. The EWS was calculated to increase, but it remained within the parameter of escalation of care to the house officer. The house officer reviewed Mr A appropriately, but failed to recognise the deteriorating situation. I note Dr Wilson's advice:

> "The night house surgeon was carefully managing fluid replacement and at this stage 10 litres had been given since admission. With such a low urine output it was time to have a discussion with ICU about inotrope support."

114. I accept Dr Wilson's advice. At this point, it appears that despite clear concerns being expressed, staff rigidly applied the EWS, rather than using their own clinical judgement and making an overall assessment, which resulted in a delay in Mr A's care being escalated. However, I also acknowledge Dr Wilson's comment that the house surgeon was not receiving guidance from more senior members of the surgical team.

115. The AER team also noted that despite clinical concern by staff, there was no escalation of care. The AER report stated:

> "The review team felt that there was a general sense in that the junior clinicians were worried (multiple reviews), but did not have a supportive system of escalation, transfer to ICU etc; they did not articulate their concerns and synthesise them into an action plan. Staff were focused/relying on EWS to 'trigger' their response for more senior support."

116. The AER team found that the EWS relied on junior staff judgement, and that the "EWS algorithm was not robust in terms of escalation". The AER report also noted that the EWS was being used as a "checklist rather than a way of quantifying concerns and fostering communication i.e, sometimes relying on EWS score to escalate concerns rather than judgement".

117. As noted in the AER report, pancreatitis is a complex multi-organ disease with high mortality. It was therefore crucially important for there to be a system that supported sound clinical decision-making and encouraged escalation of care in the presence of clinical concern. Overall, it appears that staff placed an over-reliance on the EWS for triggering escalation, and, as a result, no one identified the overall picture of deterioration and signs of sepsis.

Communication with family

118. In her complaint, Mrs A said that she was never told the gravity of Mr A's situation until after he was admitted to ICU. Mrs A said that had she understood how unwell Mr A was, she would never have left his side, and it would have given his children an opportunity to say goodbye.

119. As noted above, there appears to have been a general under-appreciation of Mr A's deterioration until the morning of Day 3, at which time Mrs A was informed of the situation. I note that pancreatitis has a high mortality rate, and that Dr C said that she was "suspicious" that Mr A was at risk of deterioration.

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120. I am critical of the communication with Mrs A. There were opportunities to keep Mrs A better informed of Mr A's condition and the risks associated with acute pancreatitis. However, this information was not conveyed to Mrs A because staff failed to appreciate the significance of Mr A's deterioration. Notwithstanding this, staff should have informed Mrs A of the risks associated with acute pancreatitis.

ICU care

121. I am satisfied that the care provided to Mr A after he arrived in the ICU was reasonable in the circumstances.

122. Mr A was admitted to ICU on the morning of Day 3. At that time, his condition was already very poor. A number of procedures were performed in an attempt to stabilise him, which, according to Dr Sturland, "were all provided within an acceptable timeframe" and were "of an acceptable standard".

123. Dr Sturland advised:

> "The care delivered to [Mr A] in the intensive care unit was of an acceptable standard. Given the advanced state of physiological decompensation of [Mr A], therapy, imaging and procedures were provided simultaneously and in a timely fashion. In particular the rapid administration of antibiotics (to address sepsis) and the CT scan (to exclude a drainable source).
>
> The main issue in this case was the failure to rescue a deteriorating patient. Even despite appropriate care in the ICU, the late presentation to the intensive care service meant that the anticipated mortality was very high."

124. I accept Dr Sturland's advice. Unfortunately, owing to the delays in providing resuscitative interventions, ICU staff were unable to save Mr A's life.

Conclusion

125. Over the night of Day 2/Day 3, staff failed to recognise Mr A's deterioration adequately and escalate his care in a timely manner. As a result, there was a delay in transferring Mr A to ICU and, consequently, a missed opportunity for him to receive treatment for his deteriorating condition at an earlier time.

126. In my opinion, by failing to have in place systems that supported staff in their clinical decision-making, including escalation of concerns and communication between teams, NMDHB failed to provide services to Mr A with reasonable care and skill. Accordingly, I find that NMDHB breached Right 4(1) of the Code.[23]

127. I note that my conclusions are largely consistent with those of the AER team, and that as a result of the AER recommendations, NMDHB made a number of changes to help to prevent a similar situation occurring again. Both Dr Wilson and Dr Sturland consider the changes to be appropriate.

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

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Recommendations

128. I recommend that NMDHB:

a) Update HDC on the changes made as a result of the AER, including:

   i. Provide a copy of the updated pancreatitis and fluid management guidelines.

   ii. Provide details of the escalation pathway when a patient is reviewed more than once during a shift.

   iii. The outcome of the review of the EWS framework.

b) Report on the quality markers used to assess the efficacy of its EWS, and report on how the current system is working.

c) Use an anonymised version of this report as a case study to provide continuing education to staff on the use of the EWS and escalation of care.

The above information should be provided within three months of the date of this report.

d) Provide a written apology to Mrs A for its breach of the Code. The apology is to be sent to HDC within three weeks of the date of this report, for forwarding to Mrs A.

Follow-up actions

129. A copy of this report with details identifying the parties removed, except the experts who advised on this case and NMDHB, will be sent to the Health Quality & Safety Commission and the Royal Australasian College of Surgeons, and placed on the Health and Disability Commissioner website, www.hdc.org.nz, for educational purposes.

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Appendix A: Independent advice to the Commissioner

The following expert advice was obtained from a general surgeon, Dr Colin Wilson:

"Thank you for your letter of 14 Sept 2018 requesting expert advice to the Health and Disability Commissioner on the care provided by Nelson Marlborough District Health Board to [Mr A] between [Day 1] and [Day 3].

I have no personal or professional conflict in this case.

I have read the HDC Guidelines for Independent Advisors.

I have recently retired as a Consultant General Surgeon having practised at Mid Central Health since 1986.

I am in receipt of

1. Letter of complaint dated […]
2. The public hospital Medical Record Discharge Summary
3. Nelson Marlborough Health — Adverse Event Review Report
4. Clinical Records from Nelson Marlborough District Health Board [Day 1]–[Day 3].

Summary of events with comments.

[Mr A] presented to [the] Emergency Department at 1352hrs on [Day 1] with a three hour history of nausea, vomiting and abdominal pain. A serum amylase of 4570u/l diagnosed acute pancreatitis and the house surgeon, using the Ransom criteria identified this to be mild pancreatitis.

[Mr A] was commenced on iv fluid replacement, oxygen and pain relief.

A registered nurse (illegible signature) records at 2310hr on [Day 1] the first signs of deterioration. The blood glucose level is increasing from 8mmol/l to 11.2mmol/l.

At 0440hr on [Day 2] another registered nurse (illegible signature) records that the blood glucose has risen to 15.3mmol/l and that the pain score is 9/10.

The surgical registrar (not named) does a ward round on [Day 2] (time unspecified) and there is no indication that he/she is aware of the increase in blood glucose. This is a significant change and suggests the pancreas is significantly affected by the inflammatory process.

At 1300hrs on [Day 2] [RN F] CNS (? Pain nurse specialist) documents an increasing **creatinine, a falling eGFR, severe haemoconcentration, increasing wbc and a rising blood glucose of 17.7mmol/l**. The surgical team do not appear to be following up on this.

At 1610 on [Day 2] there is a surgical registrar (not named) ward round and there is no comment at all about these worrying blood tests. There is also no indication that a

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surgical consultant has seen [Mr A] who has now been admitted for more than 24hours.

It is now about 30hrs after the onset of acute pancreatitis and it would be common practice for a surgical registrar to make a new assessment of severity. Had this been done and the likely diagnosis of severe acute pancreatitis been made the registrar could have discussed this with the consultant, or given advice on further management. No advice has been proffered for the team who will care for [Mr A] overnight.

At 2245hrs on [Day 2] the night house surgeon is requested to review [Mr A's] rapid heart rate of 123 beats per minute and attention is appropriately focused on fluid replacement. The nurse review of [Mr A] at 2310hrs records an Early Warning Score (EWS) of 2–3 and by 0200hr on [Day 3] the EWS has increased to 5. The house surgeon saw [Mr A] at 0400 on [Day 3] and gave further advice on fluid replacement. There is no-one who is making an over-all assessment of [Mr A] who has a condition which is common in general surgery and well known to rapidly progress in severity.

[Mr A] continues to quietly deteriorate overnight and at 0730 an EWS of 10 triggers a Rapid Response Call and a decision is made to transfer [Mr A] to ICU.

The plan was to insert central venous and arterial lines, take blood cultures, commence antibiotics, replace Magnesium and calcium, monitor arterial blood gases, commence insulin infusion as necessary and give inotropes if he deteriorated further. It was thought he may require intubation and ventilation.

A CT scan was performed and this confirmed findings consistent with severe acute pancreatitis with ileus.

There is further consultation amongst the surgical team, the Hepato-biliary team in [a main centre], ICU staff and the family. [Mr A] is very unwell. By late morning a decision is made to intubate [Mr A] and then commence inotropes (drugs which help a failing heart to pump more efficiently).

An attempt was made to insert a nasogastric tube to decompress his stomach prior to intubation. [Mr A] was confused and combative and refused the insertion of the nasogastric tube and at the same time he pulled out his arterial line.

He was therefore given iv Propofol and rocuronium to facilitate intubation and whilst this procedure was being performed he had a large vomit of black fluid (pathognomonic of gastric ileus where the stomach is distended with gastric acid) which he aspirated into his lungs, despite attempts to suction the vomit as it came up. This precipitated a cardiac arrest and he did not recover.

I disagree with the opinion on the death certificate that [Mr A] died as the result of Multi Organ Failure (MOF).

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If ICU believed [Mr A] had MOF then why didn't they commence inotropes at 0730 when he was admitted to ICU? His cardiac arrest was precipitated by aspirating gastric fluid.

Had it been possible to insert the nasogastric tube this event may not have occurred.

Further comments.

The clinical records are important medico-legal documents and as such there is a requirement to document when a patient is seen and by whom and the role of that person with legible signatures. There were numerous deficiencies in [Mr A's] case notes.

It is also expected that the surgical team will take leadership in management and give a regular appraisal of the patient's condition.

There is an absence of any ongoing appraisal of [Mr A's] condition by the surgical staff.

One is looking to see comments as to how the patient feels they are doing, how the attendant regards the patient's status, an assessment of progress and a plan for further management.

The nursing staff had documented the abnormal results and there is no indication that the surgical staff were aware of these results. At no stage was there any indication that the surgical registrar was factoring these changes into decision making and in particular the registrar round on the afternoon of [Day 2] fails to acknowledge these abnormal results.

There appears to be no effective communication between different teams caring for [Mr A].

There is no evidence in the case notes that a consultant surgeon had input into [Mr A's] management and no evidence that [Mr A] was reviewed by a surgeon until he was referred to ICU.

It is unclear who was taking responsibility at a senior level for his surgical care. There did not appear to be an overall plan. Usually a surgical team would re-evaluate the severity classifications for acute pancreatitis on repeated occasions within the first 48 hrs and when correlated with the clinical state one is alerted when deterioration is setting in. Whilst this was being over-looked the EWS actually triggered the referral to ICU. I think that this assessment could have been made 12 hours earlier when the blood tests and his clinical state suggested a diagnosis of severe acute pancreatitis.

Not all patients with this diagnosis need be transferred to ICU immediately but an early discussion with ICU allows parameters to be set and acted upon.

The Nelson Marlborough Health — Adverse Event Review Report (AERR) with a Report Title of *'Death of inpatient following multiorgan failure secondary to severe acute*

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pancreatitis' would be more accurate if it deleted ***multiorgan failure secondary*** **to** for the reasons explained above.

I need to emphasize that the AERR under the heading of 'Sequence of event' gives information that was not recorded in the case notes. Was this obtained from verbal communication some weeks after the event?

In particular it reports that on the day of admission the senior surgical registrar, [Dr C] discussed [Mr A] with the on-call consultant [Dr B]. It also reports that the following day this registrar discussed management with on call consultant [Dr E]. This is not documented in the case notes.

That the registrar was not concerned clinically and therefore did not ask for a consultant review is a cause for concern. I would have expected a senior surgical registrar to have thoroughly reviewed [Mr A] and had he/she been aware of a blood glucose of 15.3mmol/l and a pain score of 9/10 at 0815 on [Day 2] this should have been of concern and at least have been discussed with the consultant for these changes go on to herald further unrecognized deterioration over the ensuing 24hrs.

The AERR report identifies that the pain team nurse specialist documented concerns that were not communicated to the surgical team. They highlight this area of poor communication.

It also suggests that the hospital relies too much on the EWS to trigger concern. I agree this to be an undue reliance on the EWS function. It is more of an alert system for the nursing teams and it is based on clinical parameters and not the overall picture. There is a warning on the ADULT VITAL SIGNS CHART stating **CALL THE RRT FOR ANY PATIENT YOU, THEY OR THEIR FAMILY ARE WORRIED ABOUT REGARDLESS OF VITAL SIGNS OR EARLY WARNING SCORE.**

The AERR report does not comment on the blood tests that were abnormal and were heralding further trouble and were available more than 12 hours before an EWS triggered concern. It was the responsibility of the surgical team to be aware of this.

The night house surgeon was carefully managing fluid replacement and at this stage 10 litres had been given since admission. With such a low urine output it was time to have a discussion with ICU about inotrope support. The house surgeon was not receiving guidance from more senior members of the surgical team.

This AERR report states that once in ICU there was a plan to commence inotropes. This conflicts with case notes which state that inotropes were to be used if deterioration occurred. I don't have access to the ICU files but my understanding is that inotropes were not started. This is a surprising omission to the treatment that was expected to occur and it is one of the reasons why a patient with a poor urine output is transferred to ICU.

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The overall responsibility of care for an acute surgical admission lies with the admitting surgical consultant. It is expected by the employer that a surgeon will visit a new admission within a set time frame (usually 24hr) and take leadership of management.

There is no evidence in the case notes to indicate that [Mr A] was seen by a consultant surgeon until he reached ICU more than 36hrs after admission. Two consultants were involved and there is no record of a handover occurring.

Mostly the minute by minute care is delegated down through the levels of experience from consultant to registrar to house surgeon and it is paramount that caregivers (nurses included) communicate their concerns to all members of the team. There is no point to documenting concerns only.

It is also the responsibility of the registrar to have a good grasp of a patient's condition and to be offering leadership to the team below and relate concerns up to the consultant. In [Mr A's] case the person who is being referred to as 'senior registrar' has not demonstrated the level of care expected from someone of this status.

The AERR focusses concern that 'the junior clinicians were worried but did not have a supportive system of escalation, transfer to ICU etc. and did not articulate their concerns and synthesize them into an action plan'.

I think this was the case because the senior registrar and consultant had failed to set parameters as there were no concerns whatsoever recorded from the senior clinicians (Registrar and Consultant).

Letter of Complaint.

[Mrs A] stated that she had a phone call at 0820 on [Day 3] to say that her husband was 'now in ICU and they were about to intubate — nothing about the fact that he had an hour prior been in cardiac arrest'.

My understanding is that [Mr A's] EWS of 10 triggered a Rapid Response Team assessment (equivalent to a cardiac arrest call). He was not intubated until late morning and he had his cardiac arrest during this procedure. He did not die from the severe acute pancreatitis as such but rather as a complication of a difficult intubation with aspiration leading to cardiac arrest.

It would be helpful if this was explained to [Mrs A].

Whilst she was with him in ICU no one had anticipated that he would have died during intubation. The expectation was that he would receive artificial respiration to help his oxygenation and take some load off his heart, inotropes to help his heart pump more efficiently and antibiotics to treat the possibility of infection.

One was hoping to see some improvement.

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And I think that she is correct in thinking that her husband may have done better had he been transferred to ICU sooner.

[Mrs A] mentioned a friend who had recovered well from being in ICU with severe acute pancreatitis and one can understand her anguish that her husband did not recover similarly.

Severe acute pancreatitis is a complex condition and outcomes are unpredictable.

Final comments

There were a number of areas where I had concern about the standard of care which [Mr A] received while under the care of the Nelson Marlborough Health Board and its caregivers — nursing, surgical and medical (ICU).

My opinion is related to the information recorded in the case notes.

My concerns in [Mr A's] case relate to

1. Lack of surgical leadership.
2. Poor communication between nursing and surgical staff.
3. Poor communication with [Mrs A].
4. Deficiencies with medico-legal aspects of the case notes.
5. Inaccuracy as to cause of death on the Death Certificate.
6. Delay in treatment once admitted to ICU.

I am well aware that in a busy public hospital it is difficult not to have gaps in management and one is well aware that up to 10% of all patients will suffer a care related significant complication. One aims to minimize this possibility and part of this process involves a review when things don't go well.

The AERR addresses many of these concerns.

The Recommended Action (SMART) by the AERR is comprehensive and if enacted it would help to prevent a similar occurrence in the future.

I would also recommend an independent review, by an ICU Specialist, of the standard of care that occurred when [Mr A] was transferred to ICU.

Yours sincerely

C J Wilson F.R.A.C.S."

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Appendix B: Independent advice to the Commissioner

The following expert advice was obtained from an intensivist, Dr Shawn Sturland:

"**Re: [Mr A], DOB […]**

Case ref No 17HDC02364

I have been asked to provide a clinical opinion regarding the case of [Mr A].

I have been provided with the following information and this forms the basis of my report.

1. Letter of complaint from [Mrs A]. Dated […].
2. Inpatient notes from Nelson Marlborough Health. Dated [Day 1]–[Day 3].
3. A copy of the response from Nelson Marlborough to [Mrs A]. Dated 23 February 2018.
4. A copy of the Adverse Events Review report from Nelson Marlborough. Dated [2017].

Clinical Summary

[Mr A] was admitted to [the public hospital] on [Day 1] with a diagnosis of severe pancreatitis. His past medical history was unremarkable and included depression and one episode of pneumonia.

Over the course of the next 48 hours, his physiological condition deteriorated markedly and he was transferred to the Intensive Care Unit on the morning of [Day 3] with multi-organ failure. Despite attempts to stabilize his condition, he suffered a cardiac arrest and was unable to be resuscitated.

Regarding the question '**The timeliness of [Mr A's] escalation to the intensive care unit'**

Severe pancreatitis overall is associated with a mortality rate of approximately 10%. In severe cases involving necrosis and infection, the mortality rate can approach 45%. The pattern of mortality is bimodal, with deaths in the first 48 hours resulting from multi-organ failure due to the intense inflammatory response associated with the condition. A later peak in mortality is seen days to weeks later from anatomical complications and infections.

Early care is supportive and involves the observation of physiology and laboratory results. Care is often on a surgical ward, with 'Early Warning' systems in place to notify deterioration and allow transfer to an Intensive Care environment — as was the situation in this case. However, for reasons identified in the Adverse Events Review by Nelson Marlborough DHB, [Mr A's] deterioration was not escalated and a 'failure to rescue' resulted in a late transfer to ICU.

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Key issues in the pre-ICU phase of care include —

1. The accuracy of charting — in particular the Early Warning Score, and fluid balance sheet.
2. The failure to escalate despite clear concerns from multiple staff members.
3. The continuity of care.

I note that all of these issues were identified and have been acted upon by the DHB following the review process.

In my opinion, earlier recognition and escalation of care (for example transfer to ICU or transfer to a tertiary hospital) should have occurred.

Regarding the question **'The timeliness of care provided in the intensive Care Unit'**

By the time [Mr A] was referred to the ICU, his condition was grave and he was at a high risk of death. Procedures to stabilize him, including a CT scan, the administration of antibiotics, the institution of advanced monitoring and physiological support, were all provided within an acceptable timeframe.

Regarding the question **'The standard of care provided in the intensive care unit'**

The care delivered to [Mr A] in the intensive care unit was of an acceptable standard. Given the advanced state of physiological decompensation of [Mr A], therapy, imaging and procedures were provided simultaneously and in a timely fashion. In particular the rapid administration of antibiotics (to address sepsis) and the CT scan (to exclude a drainable source).

The main issue in this case was the failure to rescue a deteriorating patient. Even despite appropriate care in the ICU, the late presentation to the intensive care service meant that the anticipated mortality was very high. The drivers for the delay in noticing [Mr A's] clinical condition have all been identified and acted upon by the Adverse Events process at Nelson Marlborough DHB.

Dr Shawn Sturland MBChB, FANZCA, FCICM
Intensivist, Wellington Public Hospital"

Names have been removed (except NMDHB and the experts who advised on this case) to protect privacy. Identifying letters are assigned in alphabetical order and bear no relationship to the person's actual name.