Southern District Health Board

A Report by the
Health and Disability Commissioner

(Case 20HDC00739)

Health and Disability Commissioner
Te Toihau Hauora, Hauātanga

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Executive summary

1. This report concerns the care provided to a woman in her sixties when she presented to Southern District Health Board (SDHB) with a pulmonary embolism. The report highlights the importance of recognising critically unwell patients, adhering to policies and procedures, and escalating care to senior medical staff.

2. The woman was referred to the emergency department (ED) for a possible pulmonary embolism, which was quickly confirmed by a CT scan at 4.56pm.

3. Despite the embolism being described as "massive" with "significant haemodynamic [cardiovascular function] effect", the team at the ED adopted a "wait and see" approach, with consideration of thrombolysis (a treatment used to dissolve blood clots) if the woman's systolic BP dropped to less than 90mmHg for more than 15 minutes.

4. Despite the woman being critically unwell (with an Early Warning Score of 9 on three occasions and a systolic BP that dropped below 90mmHg on multiple occasions), junior staff did not escalate her care to a senior medical officer (SMO), and she was not provided with any treatment other than fluids.

5. Sadly, the woman died 17 hours after she was admitted to hospital.

Findings

6. The Commissioner found a number of failures by numerous SDHB staff across the ED and the respiratory teams, including the failure to exercise sound clinical judgement and assess the woman's condition critically, escalate the woman's care to the responsible SMO, initiate thrombolysis when it was clinically indicated, and communicate effectively with one another. The Commissioner considered that these failures indicated a pattern of poor care across the woman's patient journey, as well as a culture of non-compliance with SDHB's policies and procedures. Accordingly, the Commissioner found SDHB in breach of Right 4(1) of the Code.

7. Adverse comment was made about a medical registrar and a house officer for the care they provided to the woman.

Recommendations

8. The Commissioner made a number of recommendations to SDHB, including that the DHB:

- Consider whether its guideline for thrombolysis in patients with acute pulmonary embolism could be strengthened further to include specific reference to indicators of shock;
- Use this investigation as an anonymous case study;
- Review the medical staffing levels at the public hospital overnight to ensure that there is an adequate mix of skills and capacity to meet acuity of demand;

- Consider the Australasian College for Emergency Medicine's Statement on "Responsibility for Care in Emergency Departments" and use this to create its own guideline with regard to patients in ED awaiting inpatient beds;
- Consider developing a policy and process to allow for increased supervision of resident medical officers during their first few weeks of a rotation; and
- Promote awareness or develop a process or pathway for nurses to contact senior doctors directly in appropriate circumstances.

9. In addition, the Commissioner referred SDHB to the Director of Proceedings.

10. The registrar has provided a written apology to the woman's family, and the house officer provided HDC with a written apology for the woman's family in response to the provisional opinion.

Complaint and investigation

11. The Health and Disability Commissioner (HDC) received a complaint from Mrs B about the services provided to her mother, Mrs A, by Southern District Health Board (SDHB). The following issues were identified for investigation:

- *Whether Southern District Health Board provided Mrs A with an appropriate standard of care in 2019.*
- *Whether Dr C provided Mrs A with an appropriate standard of care in 2019.*

12. The parties directly involved in the investigation were:

Mrs B	Complainant/consumer's daughter
Dr C	Provider/medical registrar
SDHB	Provider

13. Independent expert advice was obtained from respiratory medicine specialist Dr Nicola Smith (Appendix A) and emergency medicine specialist Dr David Prisk (Appendix B).

14. Further information was obtained from:

Dr D	Medical registrar
Dr E	Respiratory consultant
Dr F	House officer
RN G	Registered nurse

15. Dr I, an ED registrar, is also mentioned in this report.

Information gathered during investigation

Background

16. Mrs A (in her sixties at the time of events) had a medical history that included high cholesterol and acid reflux. She was described as being usually fit and well, and it was noted that she would walk 10km weekly and go swimming twice weekly.

17. At 10.00am on Day 1,[1] Mrs A presented to the medical centre with a five-day history of shortness of breath (SOB). A chest X-ray and blood tests were arranged, and while the X-ray showed no evidence of heart failure, Mrs A's blood work showed significant heart strain, and her blood pressure (BP) was noted to be high, at 161/102mmHg.[2]

18. A pulmonary embolism (PE) (a blockage in one or more of the arteries in the lungs) was considered a possible cause, and the plan was to refer Mrs A to the Emergency Department (ED) at the public hospital for further investigation. Mrs A was administered a 70mg dose of Clexane (a blood-thinning medication) before being transferred to the public hospital by ambulance.

19. This report considers SDHB's management of Mrs A's PE at the public hospital — in particular, the escalation of Mrs A's care when she was not improving as anticipated, as well as the decision to withhold thrombolytic therapy (a treatment used to dissolve blood clots). Sadly, Mrs A died during her hospital admission on Day 2. I take this opportunity to extend my condolences to her family.

Care provided by SDHB

Emergency Department

20. Mrs A arrived at the ED by ambulance at 2.23pm, and was triaged as category two.[3] At approximately 2.48pm, she was seen by ED registrar Dr I, who noted Mrs A's short history of SOB, some mild swelling[4] in her ankles, and her blood work showing significant heart strain, and documented that she looked "pale, sallow [an unhealthy, often yellow, skin colour] and unwell". Dr I's impression was "?PE/NSTEMI" (a type of heart attack), and the plan was for Mrs A to undergo a CT scan of the pulmonary arteries before further review.

21. While in the ED, Mrs A had a brief episode of light-headedness and feeling faint when going to the toilet, and her oxygen saturation dropped to 71%.[5] This was documented on the ED clinical sheet, which also noted that her oxygen saturation improved with high flow oxygen. The time of the episode was not documented, but Mrs A's daughter recalled that it happened at about 5pm, while they were waiting for the CT scan results.

[1] Relevant dates are referred to as Days 1–2 to protect privacy.
[2] A blood pressure of around 120/80mmHg is considered to be within the normal range.
[3] Triage category two on the Australasian triage scale is described as being "imminently life-threatening, or important time-critical", with the aim to be seen in the ED in under 10 minutes.
[4] Pitting oedema — swelling in the body caused by excess fluid, which can indicate a systemic problem with the heart, kidneys, or liver function.
[5] The normal range of oxygen saturation for adults is 94–99%.

22. The CT scan was reported at 4.56pm, and confirmed a large PE with evidence of right-sided heart strain. The results were documented to have been discussed with the doctor at 5.54pm.

Handover

23. At 6.00pm, Mrs A was reviewed by the admitting medical registrar, Dr C, for handover to the respiratory team. Dr C completed an assessment plan, which documented Mrs A's main problem as a "massive PE [with] significant haemodynamic [cardiovascular function] effect". He noted that she had a PE Severity Index (PESI) of class IV and documented that this indicated an "intermediate–high risk" of mortality. Dr C also noted Mrs A's brief episode of light-headedness and feeling faint.

24. Dr C told HDC:

> "I discussed her case with the respiratory consultant on call [Dr E], and we both agreed that at that point, the risk of systemic thrombolysis outweighed any benefit and that thrombolysis was not indicated as she was a high intermediate risk."

25. Dr E stated that with the above information provided by Dr C, they planned admission to the Coronary Care Unit (CCU) for observation, a further dose of blood-thinning medication, and consideration of thrombolysis if Mrs A's blood pressure dropped or she went into shock. Dr E said that of note:

> "[Dr C and I] talked about thrombolysis and the definite indication that if her systolic BP dropped to less than 90mmHg for more than 15 minutes, we should discuss urgent thrombolysis."

26. Dr C stated that this decision was explained and discussed with Mrs A and her family.

27. Dr E said that he cannot recall Dr C specifically addressing the severity of the PE (documented as "massive") or Mrs A's brief episode of light-headedness and faintness in the ED.

28. In response to the provisional opinion, Dr C stated that contrary to this, he believes that his assessment of Mrs A and the plan proposed was succinct and communicated clearly to Dr E. Dr C stated:

> "I certainly would have shared vital information such as the fact that [Mrs A] had been feeling faint as well as my impression as to the severity of the pulmonary embolism ('PE') during my phone call with the SMO[6]."

29. However, Dr C acknowledged that it is possible to miss some information when talking over the phone to the SMO at home. Dr C stated that if he had had any concerns after the admission phone call with the SMO, he would not have hesitated to contact him again or ask him to come in physically.

[6] Senior Medical Officer.

30. Mrs A was handed over to the respiratory team under the care of Dr E. SDHB told HDC that the ED was "extremely busy" on the day Mrs A presented, and there was a significant "access block" through the hospital. This meant that there were not enough inpatient beds for transfer of patients after treatment in the ED. Accordingly, Mrs A remained in the ED despite being handed over to the respiratory team, while waiting for a bed in the CCU.

Continued care in ED

31. While in ED, Mrs A was monitored using (among other things) an Early Warning Score (EWS). An EWS is calculated from routine vital sign measurements, and increases as vital signs become increasingly abnormal. The EWS triggers an escalating clinical response so that clinicians with the appropriate skills can intervene and manage the patient's deterioration. Between 7.30pm and 7.50pm, Mrs A's EWS in the ED was 9 on three occasions, and her systolic BP dropped to 90mmHg.

32. The ED nursing notes document that Mrs A was reviewed by a medical registrar at 7.30pm and given 1 litre of saline, and that the decision was made for BP observations every five minutes.

33. Neither the medical registrar's review nor the name of the registrar are documented. SDHB initially told HDC that it is usual procedure for ED nursing staff to contact the medical registrar who had seen the patient, and as Dr C was the admitting registrar that day, it was likely that he was the registrar who reviewed Mrs A at this time. Dr C cannot recall the exact details of the case, but he does recall being in the ED for most of the evening.

34. In response to the provisional opinion, Dr C said that he considers it more likely than not that he was not the medical registrar who reviewed Mrs A at 7.30pm. He stated that in terms of his normal practice, it would be highly unusual for him to review a patient without writing a note, no matter how busy it was in the ED. In addition, he noted that while often it would be the admitting registrar whom the nurses would contact, often they would also find the nearest medical registrar available in the ED. After further review and in response to the provisional opinion, SDHB told HDC that they support Dr C's comments on this matter.

35. As per SDHB's "Adult Vital Sign and Early Warning Score Observation Recording and Escalation" policy,[7] at this time Mrs A's condition should have been discussed with the responsible SMO, Dr E, but this did not occur.

36. At 8.00pm, it was documented in Mrs A's progress notes that her BP was fluctuating, and on discussion with the Acting Charge Nurse Manager (ACNM), Mrs A was moved to the resuscitation bay "to allow closer monitoring + management if deteriorates further". At this time, Mrs A was still awaiting a bed in the CCU, and it was noted that there was a one-hour wait. At 9.00pm, Mrs A's systolic BP dropped from 110mmHg to 88mmHg, and a second bag of saline was commenced in an attempt to raise this. Her systolic BP was then measured

[7] SDHB's "Adult Vital Sign and Early Warning Score Observation Recording and Escalation" policy documents that patients in the "Red Zone" (patients who have an EWS of 8–9) must "have their case discussed with the responsible SMO". The policy states that for all patients with an EWS of 6–7, a documented assessment must occur, which includes the plan, intervention, escalation, and review time-frame.

again, and noted to have risen to 100mmHg. It is not clear from the notes whether a registrar was contacted at 9pm, but a nursing note at 9.20pm — "[illegible] sent as per respiratory registrar" — indicates that the respiratory registrar was involved in Mrs A's care at this time.

37. As Dr C was one of three medical registrars rostered between 7.30pm and 9.20pm, SDHB cannot verify the exact registrar involved in the decision-making during this time. The other two medical registrars rostered on during this time cannot recall these events, or having had contact with Mrs A.

38. In response to the provisional opinion, Dr C noted that Mrs A had been moved to the resuscitation bay by this time, and he was not aware of this. He stated that if he had reviewed Mrs A in the resuscitation bay, he would recall this.

39. At 10.21pm, Mrs A had another period of hypotension where her systolic BP dropped to 86mmHg. The respiratory registrar was contacted by a nurse via telephone and recommended checking her BP again in 15 minutes. The notes document that Mrs A was placed in the semi-Trendelenburg position[8] in an attempt to raise her systolic BP, which was documented to have increased to 99mmHg at 10.35pm. The nursing notes document that the respiratory registrar was informed of this result, and Mrs A was transferred from the ED to the CCU at 11.12pm.

40. SDHB's "Thrombolysis in Pulmonary Embolism" policy identifies that a "systolic BP <90mmHG with no other cause apparent" is an indication for thrombolysis. As per this policy, thrombolysis should have been considered at 9.00pm and at 10.21pm.

41. SDHB told HDC that it cannot determine specifically which registrar was contacted at 10.21pm and 10.35pm, and stated that whilst the notes may indicate that the respiratory registrar was contacted, it could have been any of the three registrars who were rostered to the evening or night shift. SDHB noted that Dr C's shift finished at 10pm that evening.

42. Dr C's signature on the medication chart shows that he is the clinician who charted the IV fluids that were administered by the nurses at both 7.30pm and 9pm. In response to the provisional opinion, Dr C told HDC that he charted the fluids at the time of admitting Mrs A, around 6–7pm. Dr C stated that the fluids were charted not to be used as an attempt to correct Mrs A's systolic BP, but to avoid dehydration.

43. In response to the provisional opinion, Mrs A's daughter, Mrs B, told HDC that she was with her mother from the moment she got off the ambulance in the ED, until 2am, when she was in CCU. Mrs B stated that the doctor who reviewed Mrs A in the ED within the hour or so before she went to CCU was the same registrar who admitted Mrs A, Dr C.

Care provided to Mrs A in CCU

44. There is little documentation in Mrs A's clinical progress notes regarding her time in CCU.

[8] Lying flat on the back on a 15–30 degree angle.

45. At 3.30am on Day 2, RN G documented Mrs A's vital signs[9] and noted that she had had "1x vomit" when she was being moved into her bed from the ED. He recorded her plan of care as: "Monitor. May need thrombolysis if BP [lower than] 90mmhg. Hourly [observations]."

46. Mrs A's vital signs chart records that a house officer reviewed Mrs A at 4am. However, her clinical records contain no further mention of the review, and Dr F, the house officer on duty, cannot recall any information about the review. Dr F told SDHB that he remembers the night in question being a busy one, and from his point of view there were a number of patients more unwell and potentially of more concern than Mrs A.

47. Mrs A was administered another dose of Clexane at 4.44am. This is documented in the electronic administration chart, but not in Mrs A's clinical notes, and it is not apparent who administered the medication.

48. At 6.00am, RN G documented that he had asked Dr F to review Mrs A because of her increased SOB and anxiety, and that medical registrar Dr D was also telephoned. However, no changes to the plan were made at that stage, as Mrs A's vital signs were "holding". At this time, her vital signs were a systolic BP of 92mmHg, heart rate of 110bpm, and respiratory rate of 22 breaths per minute. Dr F recalls reviewing Mrs A again at RN G's request, but the review is not documented.

49. At this time, Mrs B was contacted to ask whether she could come in to sit with her mother because of her increased anxiety.

50. Dr D reviewed Mrs A at 6.30am, but the review was not documented. In an apology letter to the family, Dr D recalled:

> "I came up to see her and reviewed her vital signs which demonstrated that her BP had been around 90–100mmHg most of the night. Acknowledging that she was unwell, but that the instructions to me had been to administer thrombolysis if the blood pressure drops below 90mmHg and that at that time I felt that the trend of her blood pressure and other vitals had not been deteriorating but rather staying much the same (albeit with no improvement) meant that I made the decision to continue the current care and speak to the consultant in the morning.
>
> On reflection, I regret that I had not seen [Mrs A] more than once that evening so that I could have at least subjectively determined if I felt there was a change in condition … Most of all, I regret not speaking to the consultant at an earlier time."

51. In a retrospective note made shortly after these events (at 7.35am), RN G documented that Mrs A was reviewed multiple times during the night, with her vital signs remaining stable, but that her work of breathing had increased and she was not settling. RN G also documented that he discussed Mrs A's condition with the Clinical Team Coordinator as well

[9] Heart rate 100–110bpm, systolic BP 91–103mmHg, oxygen saturation 96%, and respiratory rate 16–24 breaths per minute.

as Dr F and Dr D, during the early morning of Day 2, but that Mrs A was "not for thrombolysis during this time".

52. While in the CCU, Mrs A's EWS scores were documented on her vital signs chart as follows: 6 at 3.00am, 5 at 4.00am and 5.00am, 7 at 6.00am, and 6 at 6.30am. Mrs A's systolic BP was documented as being 90mmHg at 4.00am, and it was still 90mmHg when it was checked again at 5.00am. As per SDHB's "Adult Vital Sign and Early Warning Score Observation Recording and Escalation" policy, there should have been a documented assessment (which included the plan, intervention, escalation, and review time frame) at 3.00am, 6.00am, and 6.30am. There is no evidence that an assessment occurred at 3.00am, and although assessments were undertaken at 6am and 6.30am, these were not documented.

53. At 7.10am, Mrs A's daughter pressed the emergency bell in response to an episode of lost consciousness. Attempts at resuscitation (which included the administration of thrombolysis) were unsuccessful, and Mrs A suffered a cardiac arrest (due to the large PE). Sadly, Mrs A died at 7.50am.

Further information

Mrs A's family

54. Mrs B met with SDHB to discuss the care provided to her mother. Mrs B's comments were included on the DHB's "Clinical Incident Report" (discussed further below), and Mrs B provided input into the DHB's review of the guidelines on PE and thrombolysis.

55. In her reflection of the events, Mrs B stated:

> "The advocacy role that relatives have is a difficult position that I found myself in being both a family member and a trained health care professional. Good acute clinical care should never be dependent on the advocacy role of a patient's relatives."

SDHB and staff

56. Dr E, the on-call respiratory consultant, was not contacted during Mrs A's stay in the ED (after the handover discussion with Dr C), or in the CCU until after Mrs A's death. As stated above, SDHB's "Thrombolysis in Pulmonary Embolism" policy indicates that a "systolic BP <90mmHG with no other cause apparent", or "a sustained fall of more than 40mmHg in systolic BP with no other cause apparent" are indications for thrombolysis.

57. SDHB acknowledged that discussions with the on-call SMO should have occurred on Day 1 at 7.30pm, 7.50pm, 9.15pm, and 10.25pm, and at 4.00am and 5.00am the following morning. SDHB stated that in the absence of documentation in the clinical notes, it cannot explain why this did not occur.

58. Speaking to SDHB after these events, Dr F stated that generally his understanding of the line of communication for patients with concerns would be to contact the on-call medical registrar in the first instance, the ICU registrar in the second instance, and only thereafter the on-call SMO. He believes the latter would be unusual and uncommon at the public hospital. In addition, the Clinical Team Coordinator (who was present for the handover of

Mrs A but did not review her face-to-face) stated that it would be relatively unusual for a consultant to come in at night.

59. In response, SDHB stated that usual practice would always depend on the specific clinical circumstances and on the nature and speed of deterioration of the patient. It said that under no circumstances should there ever be any hesitation to call the on-call SMO where it is felt that there is a clinical need to do so. It noted that the EWS policy clearly states that the registrar should discuss a patient with the SMO if the EWS is 8–9.

60. Dr E considers that there was a failure of communication, and, in his view, he should have been contacted during the night in question. As such, he had not been made aware of the treatment with IV fluids, or the low BP readings in the middle of the night. Dr E stated:

> "Unfortunately, an opportunity was missed to consider treatment with thrombolysis at 7.30pm on [Day 1]. Rather than discuss the hypotension and high early warning score with the on-call consultant, and monitor for hypotension that might fulfill definite thrombolysis criteria, fluid resuscitation was commenced to treat [Mrs A's] hypotension. This would not be usual treatment in submassive or massive pulmonary embolism such as in [Mrs A's] case."

61. SDHB submitted an ACC patient injury claim on behalf of the family, for "failure to consider thrombolytic drugs in a timely manner", which subsequently was accepted.

Clinical Incident Report

62. SDHB undertook a review of the events leading up to Mrs A's death, and made the following findings:

- Thrombolysis is very reasonable in "life threatening" PE, but the uncertainty increases if this is less than that, and in trying to define what exactly "life-threatening" means. In addition, while thrombolysis was "on the mind" of the medical team, there seemed to be an obvious reluctance to proceed with this.
- A high workload during the night in question was noted: the registered nurse caring for Mrs A had a total of four patients, and the house officer and medical registrar were tasked to cover the entire medical service. In addition, the house officer had been in his PGY2[10] role for only a few weeks at this time.
- There were regular patient reviews throughout the night, although the findings of the reviews were not documented.
- There was a good case for thrombolysis as early as 7.00pm on Day 1 (while Mrs A was still in the ED and when her case was discussed by the admitting registrar and the on-call specialist consultant); however, it does not seem that all the relevant details were clear to both parties when the discussion took place.

[10] Post Graduate Year 2.

- In the 12 months prior to Mrs A's admission, no other patients with PE were treated with thrombolysis at either of the DHB's hospitals.

63. It was recommended that the relevant DHB guidelines be modified to include stronger directions regarding an assessment of the severity of PE; that SMOs must be able to access imaging and laboratory results remotely; and that all staff should receive regular training. In addition, it was recommended that an audit of PE presentations and management within SDHB be considered.

64. SDHB's CEO stated:

> "I wish to extend my condolences to the whānau and appreciate the opportunity for Southern DHB to update your Office on the learnings taken and improvements made to reduce the likelihood of similar occurrences in the future."

Responses to provisional opinion

65. Mrs B was provided with the opportunity to comment on the "information gathered" section of the provisional opinion, and her comments have been incorporated into the opinion where relevant.

66. SDHB was provided with the opportunity to comment on the provisional opinion, and was asked to seek any comments from Dr F and Dr D and incorporate them in its response. The DHB stated that it "unreservedly" accepts the finding that it breached Right 4(1) of the Code, and told HDC:

> "We wish to work effectively to address the problems that your investigation has further illuminated, by increasing our efforts in improvement activities already being undertaken in the implementation of the Deteriorating Patient Recognition and Response programme and related activities. We also intend to specifically focus on organisational culture when it comes to matters such as nursing and resident medical staff escalating to senior medical staff, their concerns about changes in a patient's condition."

67. However, the DHB does not accept that this case "is indicative of a concerning pattern among junior staff not to involve senior clinicians". It considers that Dr F used an appropriate line of communication by contacting registrars in the first instance, and that the failure to follow SDHB's policy for escalating an EWS of 8 or 9 to an SMO was the result of a series of clinical decisions, not a systemic issue.

68. SDHB also asked HDC to reconsider the decision to refer the DHB to the Director of Proceedings, in light of SDHB's disagreement about this pattern, and noting that as SDHB has accepted the breach of the Code and the recommendations made, has taken steps to identify and prevent the conduct that is in breach of the Code, and has apologised to the family, there is little more to be gained from such action. These submissions are addressed below, at paragraphs 90–92 and 124.

69. Dr F told HDC that he is "extremely regretful" of the events of the night in question, and stated:

> "I have reflected at length on what I could have done differently, and the deficiencies identified in my care. I accept your criticisms and those of Dr Smith [HDC's expert advisor] and have taken them on board. I have worked on, and continue to work on, these issues that have been brought up, as well [as] continue to improve my practice as a doctor."

70. Dr D is now working overseas. HDC made multiple attempts to contact Dr D to obtain a response to the provisional opinion, but was unsuccessful.

71. Dr C was provided with the opportunity to comment on the sections of the provisional opinion that relate to him. His comments have been incorporated into the opinion where relevant. In addition, he stated:

> "I will not forget [Mrs A]. Indeed, I reflect on what happened with [Mrs A] whenever I take care of a sick patient with respiratory failure and cardiogenic shock, especially in the covid-19 era. In the last 2 years overseas, I have learnt that communication between teams, handing over sick patients face to face at the bedside, and performing regular reviews are critical in the care of the very ill. In my experience, such practices and culture were inconsistent at the SDHB at the time …
>
> Starting my career soon as an SMO myself, this case has had a significant impact on how I communicate with colleagues, whether junior, senior, or from other departments, how I support my junior staff and nursing colleagues, the importance of handover and a clear plan, regular reviews, as well as early intervention in a patient exhibiting shock."

72. Dr C also recalled being told of Mrs A's passing on the day following his shift, and stated: "I was shocked and saddened by the news at the time and want to reiterate how sorry I am that her family has had to contend with such grief."

Opinion: Southern District Health Board — breach

Introduction

73. When Mrs A was transferred to SDHB, a diagnosis of PE was considered promptly and subsequently confirmed by a CT scan. However, Mrs A's condition did not improve, and she died 17 hours after her presentation to the public hospital. I consider that there were multiple missed opportunities by SDHB staff to escalate Mrs A's deterioration to the responsible SMO, and to consider thrombolysis as a potential treatment.

74. Because of the poor documentation, this Office has faced challenges in assessing the care provided to Mrs A, and, in particular, in attributing responsibility to individuals. It is highly

concerning that the DHB was unable to identify with any certainty the registrars responsible for some of the clinical decision-making and care provided to Mrs A.

75. To assist my consideration of the care provided, I obtained expert respiratory medicine advice from Dr Nicola Smith, and expert emergency medicine advice from Dr David Prisk.

Handover of care while remaining in ED — other comment

76. Mrs A was handed over from the ED to the CCU team at 6.00pm. However, because of an access block at the public hospital, she was not admitted to the CCU ward until 11.12pm, and instead stayed in the ED while under the care of the respiratory team.

77. My expert emergency medicine advisor, Dr Prisk, stated that Mrs A's case raises questions about the responsibility of ED medical staff for patients in these situations. In particular, he noted that Mrs A started to deteriorate while in the ED, and it is unclear whether an ED SMO should have assumed responsibility for her care or should have contacted the on-call physician responsible for her care. Dr Prisk advised that this is a difficult situation faced by ED medical staff in all parts of New Zealand. He noted that the Australasian College for Emergency Medicine's Statement on Responsibility for Care in Emergency Departments says, with regard to patients in ED awaiting inpatient beds:

> "[T]he emergency department retains the primary responsibility for the management of the patient including observation, medication administration, nursing care, and the immediate response to any emergent situation."

78. In Mrs A's case, handover to the respiratory team occurred while she was still in ED, and it appears that the respiratory team assumed overall responsibility for her care after that. This decision appears to be at odds with the above Australasian College for Emergency Medicine's Statement on Responsibility for Care in Emergency Departments. SDHB may wish to consider the College's Statement, and use this to create its own guideline with regard to patients in ED awaiting inpatient beds.

79. While I note my advisor's comment that this situation is common throughout New Zealand and is not confined to this case, I find it concerning. In my view, it highlights the impact on coordination of care in such situations, and the risks involved when a patient deteriorates in the ED but is no longer under the care of the ED team.

Care provided to Mrs A

Failure to escalate care

80. In the ED, following her initial assessment with the Acute Admitting Registrar (about 6pm), Mrs A was reviewed by an unnamed medical registrar at 7.30pm, and the notes document that her care was also discussed with a medical registrar (also unnamed) at 9.20pm, 10.21pm, and 10.35pm. Despite her EWS being 9 on three occasions in the ED (between 7.30–7.50pm), Mrs A's care was not escalated to, or discussed with, the on-call SMO, Dr E, and instead she was only administered IV fluids.

81. SDHB initially told HDC that it is likely that Dr C was the registrar who reviewed Mrs A while she was in the ED, although in its response to the provisional opinion it supported Dr C's

comments that he was not the registrar concerned. Dr C cannot recall the exact details of the case, but he believes he was not the registrar who reviewed Mrs A at 7.30pm or 9.20pm (his shift ended at 10pm). SDHB told HDC that three registrars were rostered on the evening/ night shift, and therefore it cannot confirm the registrar/s involved in the decision-making of Mrs A's care while she was in the ED. The other two medical registrars rostered on during this time cannot recall the events, or having had contact with Mrs A. I note Mrs B's comment that she recalls that the doctor who reviewed Mrs A in ED within the hour or so before she went to CCU was the same registrar who admitted Mrs A, Dr C.

82. I have carefully considered the statements provided by SDHB, Dr C, and Mrs B, together with the clinical record. The standard of proof that applies to these matters is the balance of probabilities. Unfortunately, it is not possible (particularly noting the lack of documentation) to be able to determine to that standard of proof which registrar was involved in Mrs A's care at 7.30pm or 9.20pm. In addition, SDHB was also unable to confirm the identity of the medical registrar with whom Mrs A's care was discussed at 10.21pm and 10.35pm. SDHB said that it could have been any of the three registrars who were rostered to the evening or night shift.

83. At 9.00pm, Mrs A's systolic BP dropped to 88mmHg. IV fluids were administered, and while it is unclear whether a medical registrar was contacted by the nurses at this time, a note made later, at 9.20pm, indicates that a respiratory registrar was involved then. At 10.21pm, Mrs A had another period of hypotension, where her systolic BP dropped to 86mmHg. She was placed in the semi-Trendelenburg position in an attempt to raise her blood pressure, which was documented to have increased to 99mmHg at 10.35pm. Again, her care was not escalated to the SMO at either of these times.

84. In the CCU, it is documented that RN G discussed Mrs A's condition with the Clinical Team Coordinator as well as Dr F and Dr D, during the early morning of Day 2. Despite Mrs A's EWS fluctuating between 5 and 7, and her systolic BP dropping to 90mmHg at both 4.00am and 5.00am, her care was not escalated to the SMO by Dr F or Dr D, and no assessment plan was documented.

85. Dr F told HDC that his general understanding of the line of communication for patients with concerns would be to call the on-call medical registrar in the first instance, the ICU registrar in the second instance, and only thereafter the on-call SMO, and he believes the latter would be unusual and uncommon at the public hospital. In addition, the Clinical Team Coordinator stated that it would be relatively unusual for a consultant to come in at night. In contrast, SDHB stated that under no circumstances should there ever have been any hesitation to call the on-call SMO where it was felt that there was a clinical need to do so.

86. Dr Smith advised that the failure to discuss a critically ill and deteriorating patient with the on-call SMO would constitute a "serious departure from accepted practice". She stated:

> "It is expected that medical staff are able to recognize a critically ill and deteriorating patient and that they will escalate care by discussing with the on-call SMO or Intensive Care Unit."

87. In addition, SDHB's policies are clear in that an SMO must be contacted in the event of an EWS of 8 or 9, and that thrombolysis is indicated in a patient with a systolic BP of less than 90mmHg with no other apparent cause.

88. It is concerning that staff considered it uncommon for an on-call consultant to be contacted at the public hospital overnight, especially when Mrs A's EWS scores clearly indicated that she was not improving with the plan in place, and SDHB's EWS policy stipulated that SMO escalation was warranted on multiple occasions. Dr Smith considers the failure of the medical staff involved in Mrs A's care to follow the EWS policy to be a serious departure from accepted practice, and I agree. There appears to be disjuncture between SDHB's position on SMO involvement and what was understood by junior staff and occurring in practice.

89. In my view, it is SDHB's responsibility to foster a culture that ensures junior staff are aware that they are able to escalate care to SMOs when necessary, that they can do so without concern, and that consultants are accessible and approachable.

90. In response to the provisional opinion, SDHB stated that junior staff used an appropriate line of communication by contacting registrars in the first instance. SDHB noted Dr D's comment that she did not contact the SMO sooner as she felt that Mrs A's vital signs had not been deteriorating, Dr C's comment that he would not hesitate to contact the SMO if necessary, and Dr E's comment that his experience as an on-call SMO was of receiving occasional calls from the nursing team. SDHB submitted that the failure to follow policy was not a systemic issue but a "series of clinical decisions".

91. I acknowledge these submissions. However, while the lack of appropriate escalation was partially influenced by a lack of recognition of Mrs A's deterioration, there were clear signs that SMO input was warranted on multiple occasions, and proper application of SDHB's policies should have prompted SMO engagement (as outlined above). This did not occur. I consider that SDHB must take responsibility at an organisational level for the failure by multiple staff to follow its policy and escalate care to the SMO.

92. SDHB has accepted that it is responsible for fostering a culture that encourages junior staff to escalate care, and has since developed a poster to be placed throughout the ED to encourage staff not to hesitate to contact the on-call SMO team.

Failure to administer thrombolysis

93. I consider that the failure of staff to escalate Mrs A's care appropriately, and therefore that there was a lack of senior medical input into her care, resulted in Mrs A not receiving appropriate management for her condition. This included the failure of staff to administer thrombolysis in a timely manner, instead treating her hypotension with IV fluids and the semi-Trendelenburg position, which Dr Prisk considers to have been inappropriate. Dr Prisk noted that what was required in this case was the clinical wisdom that could be provided only by an experienced medical specialist. In addition, Dr Smith, my expert respiratory medicine advisor, advised:

> "Decision making regarding thrombolysis in acute PE is complex, and neither a House Officer nor Registrar would necessarily have sufficient expertise to make this decision. It is expected that medical staff are able to recognize a critically ill and deteriorating patient and that they will escalate care by discussing with the on-call SMO or Intensive Care Unit."

94. What transpired was that staff focused solely on Mrs A's BP and not her overall presentation. Dr Prisk noted that Mrs A was clearly in shock and, between 7.30pm and 10.35pm on Day 1, she was a candidate for thrombolysis, not simply temporising measures to correct her blood pressure.

95. Dr Smith advised that in her opinion, three opportunities for giving thrombolysis to Mrs A were missed.[11] SDHB's Clinical Incident Report noted the same, stating that there was a good case for thrombolysis as early as 7.00pm.

96. Dr Prisk noted that the administration of thrombolytic therapy for acute PE is not always life-saving or benign, as there is a significant risk of severe cranial bleeding. However, he stated:

> "[Mrs A] was critically ill with pulmonary emboli, and although she had many signs suggesting that she had a high risk of early mortality, these were apparently not recognised or acted upon by junior medical staff. There seem to have been several missed opportunities to administer thrombolytics to [Mrs A], and although she may still have died of massive pulmonary emboli, thrombolytics may have given her a chance of survival."

97. I accept both Dr Smith's and Dr Prisk's advice. While I acknowledge the risks associated with thrombolysis, and the potential inexperience staff may have had with this therapy (possibly leading to a reluctance by staff to proceed with this course of action), there were multiple times during Mrs A's stay at the public hospital where opportunities for administering thrombolysis were missed. This inaction deprived Mrs A of the opportunity for potentially lifesaving treatment.

Documentation

98. During Mrs A's hospital stay, most of her registrar and house officer reviews were not documented and, as such, the rationale for the clinical decisions made were not clear. In addition, the ED nursing notes did not specify the registrar with whom the nursing staff discussed Mrs A's care.

99. Dr Smith noted that there are significant inconsistencies between the clinical record and other information provided by SDHB and Mrs A's family, which indicates a poor standard of clinical documentation. Dr Smith advised that "accepted practice is for any clinical review of

[11] At 7.30pm (when Mrs A had deteriorating vital signs indicating development of shock, her BP was 90/60mmHg down from an initial BP of 161/102mmHg, and her EWS was 9), at 10.21pm (when Mrs A's BP fell further to 86/68mmHg), and during the period between 4am and 7am in the CCU on Day 2, during which Mrs A's systolic BP was consistently 90mmHg.

a patient to be documented by the doctor undertaking the review in the clinical record". She noted that the SDHB Clinical Incident Report, Mrs B's recollection, and subsequent statements from staff indicate that conversations occurred between staff, and that assessments of Mrs A were undertaken, but these were not documented.

100. Dr Smith advised that if a house officer or registrar review was undertaken but not documented, then this would be "a serious departure from the required standard of documentation". In the ED, the nursing notes document that Mrs A was reviewed by a registrar at 7.30pm, but this review is not documented. In the CCU, both Dr D and Dr F recall reviewing Mrs A (twice in Dr F's case), but neither doctor documented their reviews. I accept Dr Smith's advice that these omissions are serious departures from the required standard of documentation.

101. Dr Prisk shares the same view as Dr Smith, and noted that as the medical documentation at the public hospital was poor, it makes it very difficult to understand the thought process behind Mrs A's care.

102. I agree. The Medical Council of New Zealand's statement on "Managing Patient Records"[12] states that patient records are a crucial part of medical practice, as they reflect a doctor's reasoning and are an important source of information about a patient's care. In addition, patient records help to ensure good care of patients, and clear communication between doctors and other health practitioners. The lack of documentation in this case made it difficult for both SDHB and HDC to obtain a clear picture of the reasons for withholding thrombolysis, and for the interventions undertaken (IV fluid and positioning), and to understand why escalation to senior medical staff did not occur despite being indicated, and to determine which SDHB staff members assessed Mrs A and when. The documentation deficiencies in this case can be attributed to multiple staff at the public hospital, both doctors and nurses,[13] across both the ED and the CCU.

Conclusion

103. As set out above, Mrs A was at the public hospital for 17 hours, and during this time she deteriorated and died. There were missed opportunities for SDHB staff to exercise sound clinical judgement and assess Mrs A's condition critically, escalate Mrs A's care to the responsible SMO, initiate thrombolysis on a number of occasions when it was clinically indicated, and communicate effectively with one another. In addition, the evidence gives the impression that it was unusual for senior staff to be accessed overnight, and in this case the documentation fell well below accepted standards.

104. There were repeated failures involving numerous individuals across the ED and the respiratory team, and I consider this to be a service delivery failure for which, ultimately, SDHB is responsible. Accordingly, I find that SDHB breached Right 4(1) of the Code of Health and Disability Services Consumers' Rights (the Code).[14]

[12] https://www.mcnz.org.nz/assets/standards/0c24a75f7b/Maintenance-patient-records.pdf.
[13] With the exception of RN G.
[14] Right 4(1) states: "Every consumer has the right to have services provided with reasonable care and skill."

Opinion: Dr C — no breach

105. Dr C was the admitting medical registrar for Mrs A, and handed over her care to the respiratory team at 6.00pm on Day 1.

106. As noted above at paragraph 82, it is not possible for me to determine which registrar was involved in Mrs A's care at 7.30pm or 9.20pm, and therefore, which registrar failed to escalate Mrs A's care. That is, failures in the standard of care cannot be attributed to Dr C, and therefore I do not find that he breached the Code.

107. In addition, I note the conflicting versions of events in relation to the telephone conversation between Dr E and Dr C. While I am unable to make a finding as to what exactly was handed over to Dr E by Dr C at 6pm, I remind Dr C of the importance of fully documenting key information exchanged during telephone conversations in which plans of care are being determined.

Opinion: Dr F — adverse comment

108. Dr F was the house officer on duty in the CCU on Day 2, and he reviewed Mrs A at 4.00am and 6.00am. Mrs A's EWS was 5 at 4.00am, and 7 at 6.00am, and her systolic BP was around 90mmHg at both reviews.

109. As per SDHB's "Adult Vital Sign and Early Warning Score Observation Recording and Escalation" policy, there should have been a documented assessment (which included the plan, intervention, escalation, and review time frame) at the time of both of Dr F's reviews. However, there is no documentation for either review. My expert respiratory medicine advisor, Dr Smith, advised that omitting to document a review is a serious departure from the required standard of documentation. I agree.

110. In addition, despite Mrs A's vital signs and EWS not improving, no change to the plan was made after Dr F's reviews. Notwithstanding that the EWS did not specifically require escalation, Dr Smith advised that Mrs A's condition at this time warranted further action. Dr Smith considers that Mrs A's consistent systolic BP of 90mmHg indicated that she was in shock, and that an opportunity to consider thrombolysis at this time was missed. Dr Smith stated:

> "Decision making regarding thrombolysis in acute PE is complex, and neither a House Officer nor Registrar would necessarily have sufficient expertise to make this decision. It is expected that medical staff are able to recognize a critically ill and deteriorating patient and that they will escalate care by discussing with the on-call SMO or Intensive Care Unit."

111. I accept this advice and consider that Dr F should have recognised that Mrs A was critically ill, and escalated her condition to the SMO so that thrombolysis could be considered.

112. Dr F has not provided any reason for failing to document his reviews, or any rationale for his decision-making at these times. However, he told SDHB that he recalls that the night in question was a busy one, and that from his point of view there were a number of patients more unwell and potentially of more concern than Mrs A. He also noted that, in his understanding, contacting the on-call SMO would be unusual and uncommon at the public hospital.

113. While I am critical of Dr F's care in the areas described in the foregoing paragraphs, I acknowledge that he was a relatively junior doctor at the time, with a significant overnight workload, that the decision not to consult was a judgement call (as opposed to being contrary to a plan or a policy), and that he was likely more susceptible to the practice at the public hospital of not escalating concerns to senior doctors overnight. I note that Mrs A's EWS had not reached the DHB's escalation threshold on either of his reviews. Despite Mrs A's systolic BP staying consistently around 90mmHg, it had not gone below this.

Opinion: Dr D — adverse comment

114. Dr D was the medical registrar on duty on Day 2. Dr D reviewed Mrs A only once, at 6.30am, but did not document the review. During Mrs A's stay in the CCU, her EWS had been fluctuating between 5 and 7, and her systolic BP had dropped to 90mmHg at both 4.00am and 5.00am. At 6.30am, Mrs A's EWS was 6. Mrs A's care was not escalated to the SMO by Dr D at this time.

115. In her apology letter to the family, Dr D recalled that Mrs A's BP had been around 90–100mmHg most of the night, and that at that time she felt that the trend of Mrs A's blood pressure and other vital signs had not been deteriorating but rather staying much the same (albeit with no improvement), and so she made the decision to continue the current care and speak to the consultant in the morning. Dr D wrote:

> "On reflection, I regret that I had not seen [Mrs A] more than once that evening so that I could have at least subjectively determined if I felt there was a change in condition … Most of all, I regret not speaking to the consultant at an earlier time."

116. As per SDHB's "Adult Vital Sign and Early Warning Score Observation Recording and Escalation" policy, there should have been a documented assessment (which included the plan, intervention, escalation, and review time frame) at the time of Dr D's review, but this did not occur. My expert respiratory medicine advisor, Dr Nicola Smith, advised that omitting to document a review is a serious departure from the required standard of documentation, and I agree. In addition, having noted that Mrs A did not appear to be improving, and that her systolic BP had dropped, I consider that earlier escalation of her care to the SMO was warranted.

117. Dr Smith advised that Mrs A's condition in the CCU warranted further action. Dr Smith considers that Mrs A's consistent systolic BP of 90mmHg indicated that she was in shock, and that an opportunity to consider thrombolysis at this time was missed. Dr Smith stated:

> "Decision making regarding thrombolysis in acute PE is complex, and neither a House Officer nor Registrar would necessarily have sufficient expertise to make this decision. It is expected that medical staff are able to recognize a critically ill and deteriorating patient and that they will escalate care by discussing with the on-call SMO or Intensive Care Unit."

118. Whilst I accept this advice and consider that Dr D should have recognised that Mrs A was critically ill and escalated her condition to the SMO, I note that Dr D reviewed Mrs A only once, at the end of the CCU admission. In addition, I acknowledge Dr D's intention to speak to the consultant in the morning, and that, at the time of Dr D's review, Mrs A's EWS of 6 did not mandate escalation. I also acknowledge Dr D's reasoning that the trend of Mrs A's blood pressure and other vital signs had not been deteriorating, but was staying consistent.

119. Lastly, I note that Dr D has reflected on the care she provided to Mrs A, and proactively wrote to the family to apologise. I commend her for this.

Changes made since events

120. SDHB told HDC that currently it is working towards full implementation of the Health Quality & Safety Commission's "Recognition and Response" programme,[15] and is in the process of working to establish clinical governance around this. SDHB said that it would be useful to discuss this case as part of that, as it is important to understand how its system is working in reality and what the staff understanding is.

121. SDHB told HDC that other than implementing the recommendations made in the Clinical Incident Report (as discussed above in paragraph 62), no further changes to the service have been made. It stated: "[T]his was a very unfortunate event and has provided valuable learning for those involved."

[15] https://www.hqsc.govt.nz/our-programmes/patient-deterioration/workstreams/recognition-and-response-systems/.

Recommendations

122. I recommend that SDHB:

a) Contact Mrs A's family to offer another meeting to discuss both the Clinical Incident Report and HDC's findings. Evidence that this offer has been extended is to be sent to HDC within one month of the date of this report.

b) Provide HDC with an update on its progress on the Clinical Incident Report's recommendation that an audit of PE presentations and management within SDHB be considered. The update is to be provided to HDC within one month of the date of this report.

c) Provide HDC with an update on its progress on the implementation of the Recognition and Response programme. The update is to be provided to HDC within one month of the date of this report.

d) Use this investigation as an anonymous case study for the emergency medicine and respiratory medicine teams at the public hospital, and confirm with HDC that this has occurred, within six months of the date of this report.

e) Review the medical staffing levels at the public hospital overnight to ensure that there is an adequate mix of skills and capacity to meet acuity of demand. The outcome of the review, and details of any changes made as a result, are to be provided to HDC within three months of the date of this report.

f) Undertake an audit of the adequacy of clinical documentation within the public hospital, with a randomised sample of 15 recent acute patient presentations across a three-month period. The outcome of the audit is to be sent to HDC within six months of the date of this report. Where the audit does not show 100% compliance, SDHB is to present to HDC a plan on how it intends to address the documentation deficiencies identified.

h) Consider the Health Quality & Safety Commission's resource on "Patient, Family and Whānau Escalation: Kōrero mai projects — what we know so far", and advise whether any continuous improvement projects could flow from the learnings in this investigation, within six months of the date of this report.

i) Consider the Australasian College for Emergency Medicine's Statement on "Responsibility for Care in Emergency Departments" and use this to create its own guideline with regard to patients in ED awaiting inpatient beds. The outcome of this consideration, and any changes made as a result, is to be provided to HDC within one month of the date of this report.

j) Consider developing a policy and process to allow for increased supervision of resident medical officers (especially house officers) during their first few weeks of a rotation. The outcome of this consideration, and any changes made as a result, is to be provided to HDC within three months of the date of this report.

k) Promote awareness or develop a process or pathway for nurses to contact senior doctors directly in appropriate circumstances such as a lack of response from house

officers and registrars. Evidence that this has been completed is to be sent to HDC within six months of the date of this report.

l) Provide training to its staff on the following topics:

- PE management and the case for thrombolysis;
- EWS and escalation from RMO to SMO;
- The recognition of critical illness and shock states;
- Medical documentation

Evidence that the training has been completed, and copies of the training materials used, are to be sent to HDC within six months of the date of this report.

123. I note that Dr D has already provided Mrs A's family with a written apology. In response to the recommendation made in the provisional opinion, Dr F provided a written letter of apology to Mrs A's family for the aspects of the care that he provided that fell below accepted standards.

Follow-up actions

124. I have carefully considered SDHB's submissions in regard to my proposed decision to refer the DHB to the Director of Proceedings. While I acknowledge the considerable improvements SDHB has made in response to this complaint, I consider that there is a high public interest in holding SDHB accountable for having severely departed from the accepted standard of care in the services it provided to Mrs A.

125. As such, SDHB will be referred to the Director of Proceedings in accordance with section 45(2)(f) of the Health and Disability Commissioner Act 1994 for the purpose of deciding whether any proceedings should be taken.

126. A copy of this report with details identifying the parties removed, except SDHB and the experts who advised on this case, will be sent to the Technical Advisory Service, the Health Quality & Safety Commission, the Ministry of Health, the Australasian College of Emergency Medicine, and the Royal Australasian College of Physicians, and placed on the Health and Disability Commissioner website, www.hdc.org.nz, for educational purposes.

Addendum

127. The Director of Proceedings decided to take proceedings.

Appendix A: Independent clinical advice to the Commissioner

The following expert advice was obtained from respiratory medicine specialist Dr Nicola Smith:

"Expert advice to the Health and Disability Commissioner regarding C20HDC00739.

I have been asked to provide an opinion to the Commissioner on case number C20HDC00739 and have read and agree to follow the Commissioner's Guidelines for Independent Advisors. My name is Dr Nicola Smith. I am a Respiratory Physician and have been employed for 9 years in that role at Capital and Coast DHB. My undergraduate training was at the University of Auckland, and my advanced training in respiratory medicine was completed at Wellington Regional Hospital and Sir Charles Gairdner Hospital, Perth, Australia. I have the following qualifications and professional memberships — MBChB, BHB, Dip Ch. Health, FRACP.

The advice requested was to provide comment on:

1. Communications with ED
2. Communications between doctors and nurses in the ward
3. Communications with family
4. Documentation
5. Delay in thrombolysis treatment
6. Attempts to resuscitate
7. Any other issues you note

Sources of information reviewed:

1. Clinical records
2. SDHB invitation to family meeting [2019]
3. SDHB letter following family meeting [2019]
4. SDHB Open disclosure letter to family [2020]
5. SDHB letter to family re: adverse event report [2020]
6. SDHB adverse event report
7. Letter from [Mrs B] [2020]
8. SDHB response to [Mrs B] [2020]
9. Letter from [Mrs B] [2020]
10. SDHB response to [Mrs B] [2020]
11. Request from ACC [2020]
12. SDHB response to ACC [2020]
13. Letter to staff with assignment of recommendations [2020]
14. Adult vital sign and early warning score observations chart
15. Thrombolysis in pulmonary embolism
16. Adult pulmonary embolism — diagnosis and management
17. Speak up information
18. Family story from adverse event for teaching
19. Response from [Dr D]
20. Response from [Dr C]
21. Complaint
22. SDHB response

Factual Summary

On [Day 1] at 10am [Mrs A] presented to [a medical centre] with a three-day history of shortness of breath. She was suspected to have a pulmonary embolism and was treated with 70mg of subcutaneous Enoxaparin (Clexane) at 1.10pm. She was transferred to [a public hospital], arriving by ambulance at 2.48pm.

At [the public hospital] [Mrs A] was assessed by [Dr I]. The time of assessment is unclear. [Dr I's] notes are written at 4.34pm. She reviews [Mrs A's] vital signs and documents that a possible pre-syncopal event has occurred with hypoxia (Oxygen sats 71%) within the ED. [Dr I's] impression was of either a pulmonary embolus or NSTEMI (heart attack). A CTPA scan was requested and a plan made to treat with Clexane 70mg and Aspirin 300mg. [Dr I] prescribes Aspirin on the medication chart and this is given at 3.55pm.

[Dr I's] next note is at 4.48pm noting the blood test results and noting that the CTPA was awaited.

At 4.56pm a CTPA was performed and showed large bilateral pulmonary emboli (PE) with evidence of right heart strain. The radiologist's report notes that this was discussed with [a doctor] at 5.54pm.

At 6pm medical registrar [Dr C] reviewed [Mrs A] in the Emergency Department. Her vital signs are BP 111/87, Oxygen sats 98% on 5L, RR 26–28/min and HR 122/min. [Dr C's] impression is that [Mrs A] has suffered from a massive PE, with an intermediate to high risk of mortality. He discusses [Mrs A] over the telephone with the on-call respiratory senior medical officer (SMO) [Dr E]. Following this discussion, his plan is for [Mrs A] to be admitted to the CCU with telemetry monitoring, treatment with Clexane, and if there are signs of 'shock or hypotension consider thrombolysis'. [Dr C] does not prescribe any medication on the medication chart provided. IV fluids are charted, but as there is no corresponding specimen signature it is not clear who prescribed these.

At 7.30pm the nursing notes document that [Mrs A] has been reviewed by the medical registrar because of hypotension. The vital signs chart records that the Blood Pressure is 90/60, pulse rate 120/min and respiratory rate is 27/min. The Early Warning Score (EWS) is 9. There is no documentation of a review by a medical registrar in the clinical record provided to me.

At 8pm a further nursing note is made of 'fluctuating BP'. [Mrs A] is moved into a resuscitation bay (R2) to 'allow closer monitoring and management if deteriorates further'.

At 8.17pm [Dr I] notes the Troponin results in the clinical record.

At 10.21pm the ED nursing notes record that the nurse was concerned that the BP had dropped to 86/68mmHg. The respiratory registrar was called and informed. The nurse was advised to repeat the BP measurement in 15 minutes. [Mrs A] was placed in the

Trendelenberg position and the BP at 10.35pm was 99/70. The nursing notes document that the respiratory registrar was informed of this result.

At 11.10pm [Mrs A] arrives on [the Coronary Care Unit].

At 3.30am on [Day 2] [RN G] records that the systolic blood pressure is 91–103 (100mmHg) and that the plan is for '? Thrombolysis if SBP is <90mmHg'. [RN G] records that [Mrs A] may need thrombolysis if her systolic BP is <90mmHg and that she should have 1 hrly obs. He records that he has contacted both the CTC nurse and the on-call House Officer for a further plan and been advised to monitor for a further BP drop. Between 4am and 6am [Mrs A] remains hypotensive. The vital signs chart records hourly blood pressures of 90/60. The blood pressure is within the Red Zone of the vital signs chart and the EWS is between 5 and 7. This chart also records an on-call house officer review at 4am. There is no documentation of a review by a house officer in the clinical record provided to me.

At 6am on [Day 2] [RN G] documents that he has asked the on-call House Officer to review [Mrs A] again because of shortness of breath and anxiety. BP is 92/70. It is unclear from the clinical record if a physical review of [Mrs A] occurs by a doctor, there is no documentation of a review in the notes provided to me. The notes record that a registrar is telephoned. It is not documented which registrar is informed. [RN G's] note records that the outcome of this discussion is that no changes to management are required. [Mrs A's] daughter is telephoned and asked to come in to the hospital.

At 6.30am the Vital Signs Chart records that a registrar review has occurred. There is no documentation of this review in the clinical record.

At 8.20am [Dr D] records that a cardiac arrest call was made at 7.10am. CPR was performed for 40mins and was unsuccessful. After discussion with the family present CPR was stopped and [Mrs A] passed away.

Subsequent to this in the clinical record [RN G] records at 7.35am he had reviewed the patient multiple times over the night with vital signs remaining stable. He had discussed with the CTC nurse, OCHS and registrar at the start of the night and [Mrs A] was not for thrombolysis. He records that he was concerned again at 5am and asked the registrar to see [Mrs A] and no changes to her management were made.

I have been asked by the Commissioner to comment of the following areas:

1. Communications with ED

Communications within ED are at the expected standard. Accepted practice for patients within the ED whose care has been transferred to a subspecialty would be for the ED nursing staff to continue to care for the patient and report any changes in condition to the sub-specialty registrar. The nursing notes record that the medical registrar was informed when [Mrs A's] condition changed, and that he was updated on her progress by nursing staff in the ED.

2. Communications between doctors and nurse on the ward.

It would be expected that ward nursing staff caring for a critically unwell patient inform medical staff if the patient's vital signs or clinical condition deteriorate. If the Early Warning Score increases or enters the Red or Blue zones nursing staff must inform the registrar who should attend within 20mins. [RN G] communicated his concerns about [Mrs A's] condition on at least two occasions during the night, both to nursing colleagues and medical staff, at the start of the shift and again at 6am. This is consistent with accepted practice. I am unable to comment on the standard of communication by the CTC nurse, OCHS and medical registrar due to the absence of documentation.

3. Communications with family

There is no documentation of the communication with the family by the admitting registrars ([Dr I] and [Dr C]) and therefore it is difficult to comment on the standard of communication provided. [Dr I] records that [Mrs A's] daughter is present during her assessment. At this stage the diagnosis of PE is suspected but not confirmed. It is not documented if family were informed after the CTPA result or if family were present during [Dr C's] assessment. Accepted practice would be to include a patient's family in discussions of medical care during an acute admission if the family are present and the patient consents. Communication if family members are not present would depend on the nature of the illness, the ability of the patient to understand information given and communicate themselves with their family, the patient's wishes for family to be informed, the time of night and the workload of the staff involved. It is accepted practice to inform the next of kin by telephone if a patient acutely deteriorates overnight and there is concern that this is life-threatening. [Mrs A's] daughter ([Mrs B]) was informed when her mother was unwell and anxious at 6am on [Day 2], and this is consistent with an accepted standard of care.

Communication between SDHB and [Mrs A's] family following her death, (appendices 2,3,4 and 5) are at an appropriate standard.

4. Documentation

There are significant inconsistencies between the clinical record and other information provided by SDHB and [Mrs A's] family indicating a poor standard of clinical documentation. Accepted practice is for any clinical review of a patient to be documented by the doctor undertaking the review in the clinical record. Telephone conversations between nursing staff and doctors not present on the ward should be documented in the clinical record by nursing staff. The SDHB adverse event report (appendix 6), the recollection of [Mrs B] (appendix 7) and [Dr D's] letter (appendix 19) indicate that conversations occurred between staff and assessments of [Mrs A] were undertaken that may not have been documented. Review of the clinical record shows no documentation of any medical review occurring after [Dr C's] assessment at 6pm, either in the ED or on [the Coronary Care Unit], however nursing notes and the Vital Signs Chart suggest that a registrar review occurred at 7.30pm, a house officer review occurred at 4am and a registrar review occurred at 6.30am on [Day 2]. A telephone

interview with [Dr F] (appendix 6) records that he reviewed [Mrs A] twice during his shift. [Dr D's] letter (appendix 19) indicates that she assessed [Mrs A] once during the night. If a house officer or registrar review was undertaken, but not documented, this would be a serious departure from the required standard of documentation.

5. Delay in thrombolysis treatment

It is my opinion that three opportunities for giving thrombolysis were missed. At 7.30pm [Mrs A] had deteriorating vital signs indicating development of shock. The Blood Pressure was 90/60 (from an initial BP on presentation to [the medical centre] of 161/102 mmHg), pulse rate 120/min. The Early Warning Score (EWS) was 9. Nursing notes indicate that a registrar review occurred but this is not documented. As had previously been advised by [Dr E] thrombolysis should have been considered at this time.

Again at 10.21pm whilst still in the Emergency Department [Mrs A's] BP fell further to 86/68mmHg. Nursing notes record that the respiratory registrar was informed and that the nurse was advised to repeat the BP in 15mins. This advice was contradictory to [Dr E's] treatment plan. There is no record of the respiratory registrar reviewing [Mrs A] following this fall in Blood Pressure or discussing her with [Dr E].

The third opportunity to consider thrombolysis was during the period between 4am and 7am on [Day 2] on [the Coronary Care Unit].

During this time period [Mrs A's] systolic BP was consistently 90mmHg. [Dr E] had instructed that [Mrs A] be given thrombolysis if there was evidence of shock or hypotension. Both [Dr F] and [Dr D] (appendix 6 and 19) recall that their understanding was that thrombolysis would only be undertaken if the systolic BP fell below 90mmHg, i.e. it had to reach 89mmHg before thrombolysis was considered. It appears that there was a miscommunication in the plan for thrombolysis over the course of the night. This is most likely to have occurred at the handover between the evening and night medical staff. There is no written documentation of this handover. This would be consistent with standard practice within New Zealand hospitals where handover between shifts is verbal and whilst there are usually written handover sheets these do not form part of the clinical record and are usually destroyed at the end of the shift.

Decision making regarding thrombolysis in acute PE is complex, and neither a House Officer nor Registrar would necessarily have sufficient expertise to make this decision. It is expected that medical staff are able to recognize a critically ill and deteriorating patient and that they will escalate care by discussing with the on-call SMO or Intensive Care Unit.

It is unclear from the clinical record if any doctor reviewed [Mrs A] following [Dr C's] review at 6pm on [Day 1]. In a telephone interview (appendix 6) [Dr F] recalls 'that the night in question had been a busy one and that from his point of view there were a number of patients more unwell and potentially more of a concern than the late [Mrs A]'. A failure to review a critically unwell patient with observations indicating shock,

with a documented plan in place to undertake thrombolysis in this circumstance, would be a serious departure from accepted practice. A failure to discuss a critically ill and deteriorating patient with the on-call SMO or ICU would be a serious departure from accepted practice. If medical reviews were undertaken, but not documented, this would be a serious departure from the required standard of documentation.

6. Attempts to resuscitate

I have reviewed the actions of staff during the attempts to resuscitate [Mrs A] on [Day 2]. Based on the information available the response was appropriate and at an accepted standard of care.

7. Any other issues you note

a. Prescription of Clexane

The medication chart provided to me does not have Clexane (Enoxaparin) prescribed. Clexane is documented as being part of the treatment plan for [Mrs A] by [Dr I], [Dr C] and [Dr E]. The dosing of Clexane for a large PE is 1mg/kg twice daily. [Mrs A] received her first dose of Clexane in [the medical centre] at 1.10pm on 27/11/19. A second dose would have been required at 1am on the [Day 2]. There is no record of any Clexane being prescribed or administered to [Mrs A] during her admission to the public hospital. A failure to administer further anticoagulation in a patient with this history would be a serious departure from accepted practice. If Clexane was administered, but not documented, my view is that would be a serious departure from the required standard of documentation.

b. Use of the Early Warning Score by medical staff

[The public hospital] has an Early Warning Score (EWS) system in place. The EWS is a national escalation pathway designed to enable early identification of a deteriorating patient independently of the skill level or experience of the clinical staff involved, so that a patient's care is appropriately escalated to an experienced medical staff member to provide timely intervention. The system is highly effective when used appropriately by clinical staff. The EWS system was not used correctly by the medical staff involved in [Mrs A's] care on [the Cardiac Care ward]. The reasons for this are unclear. [Dr F] recalls in a telephone interview (appendix 6) that the usual practice for a deteriorating patient 'would be to call the on-call medical registrar in the first instance, the ICU registrar in the second instance and only thereafter the on call SMO. He believed the latter would be unusual and uncommon at [the public hospital].' During the three time periods identified as missed opportunities for thrombolysis [Mrs A's] Blood Pressure was in the 'Red Zone' of the Vital Signs Chart, and the Early Warning Score system mandates that a registrar review occurs, that there is discussion with the SMO on-call and consideration of referral to critical care (appendix 14). On each occasion nursing staff notified the registrar or house officer of the hypotension. It is unclear if a registrar review was undertaken (See above under documentation). Discussion with the on-call SMO did not occur. Failure of the medical staff involved in [Mrs A's] care to follow the Early Warning Score policy would be a serious departure from accepted practice. If

these steps were followed, but not documented, my view is that would be a serious departure from the required standard of documentation.

Recommendations:

1. The standard of documentation by the medical staff involved in [Mrs A's] care was poor. I recommend SDHB undertake an audit of clinical notes to see if this is an isolated problem or more widespread within the organisation.
2. I recommend that SDHB undertake a review of the use of Early Warning Scores to ensure that this tool is being used appropriately, in particular that on call SMOs are contacted when required. I recommend the SDHB ensure that all clinical staff are adequately trained in the use of the EWS.
3. I recommend that SDHB review the medical staffing levels overnight to ensure that there is adequate capacity to care for multiple critically unwell patients.

Dr Nicola Smith 17/09/20"

The following further clarification was sought from Dr Smith, once evidence was obtained from SDHB that Mrs A was given one dose of enoxaparin at the public hospital on [Day 1]:

"If [Mrs A] was given the enoxaparin at [the public hospital] that part of my report can be disregarded.

Kind regards, Nicola."

Appendix B: Independent clinical advice to the Commissioner

The following expert advice was obtained from emergency medicine specialist Dr David Prisk:

"**Introduction**

My full name is David Lee Prisk. I graduated from the West Virginia School of Osteopathic Medicine in Lewisburg, WV, USA, in 2002, and completed a categorical residency in emergency medicine at East Carolina University/Pitt County Memorial Hospital in Greenville, NC, USA, in 2005. I became certified by the American Board of Emergency Medicine in 2007 and became a Fellow of the Australasian College for Emergency Medicine in 2016. I have been a consultant emergency physician in the Palmerston North Hospital Emergency Department since 2012 and have served as clinical director/medical lead of the department since 2014.

I have been asked to provide an opinion to the Commissioner on case number **C20HDC00739**.

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

Referral Instructions

Background

On [Day 1] [Mrs A] presented at [a medical centre] with a three day history of shortness of breath. She was diagnosed with suspected pulmonary embolism. She was transferred to [a public hospital] by ambulance.

[Mrs A] was found to have large pulmonary emboli of both left and right main pulmonary arteries. She was subsequently admitted to the respiratory ward. The next morning she suffered cardiac arrest, resuscitation attempts were unsuccessful, and she sadly passed away.

The complainant, [Mrs A's] daughter [Mrs B], has concerns that actions could have been taken earlier which may have changed the outcome.

Advice Requested

I have been asked to review the following sources of information and advise whether I consider the care provided to [Mrs A] met accepted standards in all the circumstances and explain my rationale.

In particular, I have been asked to comment on:

1. Triage and initial assessment
2. Diagnosis
3. Treatment

4. Consideration of thrombolysis treatment
5. Handover to respiratory ward
6. Communications with family
7. Any issues noted

Sources of Information

1. Complaint form dated [2020]
2. Southern DHB's response dated [2020] and associated appendices
3. Clinical records from Southern DHB

Advice

Preliminary Comment

The Southern DHB Adverse Event Report (Appendix 6) … is thorough in its review of the details, including timeline, of this case. Its conclusions, too, are reasonable and consistent with my own thoughts. However, there are additional comments to be made about particular aspects of this case.

Triage and initial assessment

The initial triage and assessment documented on the [the medical centre] Emergency Outpatient Record appears to have been completely appropriate. [Mrs A's] symptoms, vital signs, physical examination, and basic investigations prompted suspicion of pulmonary embolism. [Mrs A] was treated with enoxaparin, and transfer to [the] Emergency Department was organised.

On arrival at [the] Emergency Department, [Mrs A] was given a triage code 2. The last line on the triage sheet stated that [Mrs A] looked 'ashen'. This nursing assessment is consistent with [Mrs B's] assessment of her mother looking 'awful' and being blue around the nose and lips when she was taken out of the ambulance.

Her initial vital signs in [the ED] were consistent with those first taken at [the medical centre]: tachycardic, tachypnoeic, hypoxic, normotensive, afebrile. She was quite clearly at least a triage category 2, and if she did not appear to be in imminent danger of cardiac arrest, it may have been difficult to justify assigning her triage category 1.

Diagnosis

The presumptive diagnosis of pulmonary embolism was correctly made at [the medical centre]. This diagnosis was then confirmed by CTPA in [the ED].

The severity of [Mrs A's] illness, however, does not seem to have been fully appreciated by medical staff at [the public hospital]. As noted in the Adverse Event Report, the PESI score was miscalculated; [Mrs A] fell into the high risk category, not intermediate to high risk. This influenced the initial decision to withhold thrombolytic treatment, and likely influenced decisions throughout the night to withhold thrombolytic treatment.

It also seems that the junior medical staff's focus remained on [Mrs A's] blood pressure, and not her overall clinical picture. As [Mrs A] deteriorated throughout the night, only the nurses caring for her seemed to recognise that she was critically ill.

Treatment

First line treatment of PE is anticoagulation. This was initiated at [the medical centre], with the first dose given being either 70 mg or 100 mg of subcutaneous enoxaparin (it is difficult to tell from the notes). For [Mrs A's] weight of 72 kg, 100 mg would have been more than the twice daily therapeutic dose of 1 mg/kg and slightly less than the once daily therapeutic dose of 1.5 mg/kg. [Mrs A] seems to have been given an additional 70 mg of subcutaneous enoxaparin in [the ED]. It is unclear from the medical notes if the ED registrar who initially saw [Mrs A] was aware that she had already been given a dose of enoxaparin at [the medical centre].

Nevertheless, 'aggressive anticoagulation' for pulmonary embolism is recommended as first line treatment for pulmonary embolism, and these doses of enoxaparin certainly met that definition.

Treatment of [Mrs A's] hypotension with IV fluids and reverse Trendelenburg position at [the public hospital] was inappropriate. [Mrs A] was clearly in shock and, between 19:30 and 22:35 on [Day 1], she was a candidate for thrombolysis, not simply temporising measures to correct her blood pressure. [Mrs A] was given 1 litre of IV fluid at 19:30, again at 21:00, and again at 05:30. This amount of IV fluid may have had an adverse effect on [Mrs A], as she had evidence of right ventricular dysfunction on CT and a raised BNP; it is not inconceivable that this amount of IV fluid caused further right ventricular strain that led to her cardiovascular collapse. European Society of Cardiology 2019 Guidelines on Acute PE suggest a fluid challenge of < 500 mL, but urge caution so as not to overdistend the right ventricle and cause a reduction in systemic cardiac output.

Movement of [Mrs A] to a resuscitation bed in the ED at 20:00 appears to have been appropriate.

Consideration of thrombolysis treatment

Thrombolysis was documented as a possible treatment in the admission note written by the medical registrar [Dr C], who wrote that thrombolysis would be considered if [Mrs A] became hypotensive. There is no further documentation of thrombolysis as a consideration until the note written in retrospect after [Mrs A] suffered cardiac arrest, when it was documented that alteplase was given 10 minutes into the resuscitation attempt. There is no other documentation of medical decision making by any junior or senior medical officer. The reason for withholding thrombolytic medication from [Mrs A] prior to her cardiopulmonary arrest is opaque.

Similar to the European Society of Cardiology (ESC) 2019 Guidelines on Acute PE (Diagnosis and Management of), the Southern DHB Guideline for Thrombolysis in PE

gives indications for thrombolysis as systolic blood pressure less than 90 mmHg with no other cause apparent or a sustained fall of more than 40 mmHg in systolic blood pressure with no other cause apparent. Southern DHB's guideline states that thrombolysis may also be required if the patient suffers cardiopulmonary arrest, if there is severe right ventricular dysfunction, or if the patient has severe hypoxaemia unresponsive to standard medical therapy due to PE. [Mrs A] was not quite hypotensive enough to meet one definition of haemodynamic instability according to this guideline, but her RV dysfunction and hypoxaemia treated with nasal CPAP does not seem to have been given any weight at all.

Unlike the Southern DHB Guideline, the ESC Guidelines go on to state that obstructive shock is defined not simply by persistent hypotension, but by evidence of end-organ hypoperfusion (altered mental status; cold, clammy skin; oliguria/anuria; increased serum lactate). This definition mirrors a remark in the 2016 CHEST Guideline and Expert Panel Report on Antithrombotic Therapy for VTE Disease: 'patients with PE and without hypotension who have severe symptoms or marked cardiopulmonary impairment should be monitored closely for deterioration. Development of hypotension suggests that thrombolytic therapy has become indicated. Cardiopulmonary deterioration (symptoms, vital signs, tissue perfusion, gas exchange, cardiac biomarkers) that has not progressed to hypotension may also alter the risk-benefit assessment in favor of thrombolytic therapy in patients initially treated with anticoagulation alone.' [Mrs A] was anuric (the significance of which seems only to have been recognised by her daughter), she was anxious and agitated, and, toward the end of the night, appeared to be shutting down peripherally. The ward nurse noted that the medical registrar opted not to administer thrombolytics (or apparently discuss that possibility with her consultant) because her vitals were 'holding'. [Mrs A] certainly remained hypotensive, hypoxic, and tachycardic, but it is unclear why this clinical picture was thought to be reassuring.

[Mrs A] was critically ill with pulmonary emboli, and although she had many signs suggesting that she had a high risk of early mortality, these were apparently not recognised or acted upon by junior medical staff. There seem to have been several missed opportunities to administer thrombolytics to [Mrs A], and although she may still have died of massive pulmonary emboli, thrombolytics may have given her a chance of survival.

Handover to Respiratory Ward

From the available documentation, it appears that significant things were not discussed at handover to the respiratory ward, mainly the syncopal event and severe hypoxia [Mrs A] suffered when she returned from the toilet in ED, and a discussion with [Mrs A's] family about the prognosis of a patient with massive pulmonary emboli.

It does appear that hypotension as the indication for thrombolysis was discussed.

Communication with Family

There is nothing documented about communication with [Mrs A's] family until the cardiac arrest note, which briefly details the decision made with [Mrs A's] daughter to stop resuscitative efforts.

Any Issues You Note

1. Medical documentation at [the public hospital] was poor. This makes it very difficult to understand the thought process behind [Mrs A's] care.

2. Recognition of a critically ill patient by junior medical staff was poor. It seems there was rigid attention paid to one aspect of a clinical guideline, but no attention paid to any other aspect of [Mrs A's] clinical presentation.

3. Communication with the family was poor.

4. Handover to the respiratory ward was inadequate.

5. [Mrs A's] collapse in ED raises questions about the responsibility of ED medical staff for patients admitted to an inpatient service but who remain in ED due to access block. ED medical staff attended to [Mrs A] when she collapsed (though this is not documented and is only mentioned in [Mrs B's] account), but apparently had no further involvement in her care. [Mrs A] started to deteriorate while in the ED, and it is unclear if an ED SMO should have assumed responsibility for her care or should have contacted the on-call physician responsible for her care. This is a difficult situation faced by ED medical staff in all parts of New Zealand and Australia; ED staff face a constantly rising tide of undifferentiated, acutely ill and injured patients while also looking after patients who have been diagnosed, treated, referred, and are waiting — sometimes for many hours — to go to inpatient beds. Australasian EDs frequently must function as EDs and as surrogate wards. Should ED staff have capacity to assume care for patients who deteriorate in their department? This is a difficult question to answer. The Australasian College for Emergency Medicine's Statement on Responsibility for Care in Emergency Departments says, with regard to patients in ED awaiting inpatient beds, 'the emergency department retains the primary responsibility for the management of the patient including observation, medication administration, nursing care, and the immediate response to any emergent situation.' According to this document, true transfer of responsibility only occurs when the patient leaves ED and arrives on an inpatient ward. While it appears that ED staff did respond quickly and appropriately when [Mrs A] collapsed, it does not appear that they participated in any further medical decision making, including the decision to withhold thrombolytics. This may have been out of necessity, but without documentation, it is difficult to find the action of ED medical staff either reasonable or problematic.

6. It is concerning that one aspect (persistent hypotension) of the Southern DHB Guideline for administering thrombolytic treatment to a patient with PE was

followed closely, but the guidelines that required junior doctors to contact the responsible SMO for a patient with signs of shock and EWS > 6 was ignored. In an interview with [RN G], ward RN, he stated that because of [Mrs A's] restlessness and anxiety, he pushed for reviews of [Mrs A] by the house officer, who thought that several blood pressure readings of < 90 mmHg had been inaccurate. This suggests confirmation bias in an inexperienced and overwhelmed junior doctor; it suggests that he was looking for a way not to act or to involve his seniors. In an interview with [the Clinical Team Coordinator], she stated that it would be unusual for a consultant to come in at night and that it would not be routinely done. In an interview with [Dr F], PGY-2, he believed that calling the on-call SMO would be unusual and uncommon at [the public hospital]. Administering thrombolytic therapy for acute PE is not always life-saving, and it is not always benign: there is a significant risk of severe extra- and intra-cranial bleeding. What was required in [Mrs A's] case was not a focus on one vital sign or one aspect of a clinical guideline, but the clinical wisdom that could only be provided by an experienced medical specialist.

7. All of the above issues call into question the culture at [the public hospital]. Involving senior medical staff in critical decisions, or calling them in to assist struggling junior doctors, should be encouraged and expected, not simply — and, it is implied, possibly poorly — tolerated. Nurses who are not getting the response they know is needed from a junior doctor should have a mechanism to ring the on-call consultant and ask for advice or request their presence at the patient's bedside.

General Comment

I have been asked to comment on each section's compliance with the standard of care/ accepted practice and, if a departure from the standard of care is identified, to qualify the significance of that departure. I have also been asked to provide recommendations for improvement that may help to prevent a similar occurrence in the future.

[Mrs A's] triage, initial assessment, and diagnosis met the standard of care and were within the bounds of accepted practice. Early administration of enoxaparin also met the standard of care.

Administration of 3 litres of IV fluid and, after 19:30 on [Day 1], the withholding of thrombolytic treatment, was a severe departure from the standard of care. Likewise, the lack of involvement of the responsible SMO was also a severe departure from the standard of care.

Handover to the respiratory ward seems to have been inadequate and was a moderate departure from the standard of care.

Communication with the family generally appears to have been poor, and was a moderate to severe departure from the standard of care.

Medical documentation at [the medical centre] met the standard of care. The initial note written by the ED registrar was also of an acceptable standard. The medical

admission note was inadequate, and there was poor medical documentation thereafter. This would be considered a severe departure from the standard of care.

Recommendations for improvement would include:

1. a strengthening of the guideline for thrombolysis in patients with acute PE to include specific references to indicators of shock

2. improved application of the requirement for junior doctors to involve senior doctors in the care of seriously unwell patients

3. improved education and training for junior doctors in the recognition of critical illness and shock states

4. a mechanism for nurses to contact senior doctors if the response from junior doctors is deemed to be inadequate

5. increased emphasis on appropriate medical documentation

6. increased emphasis on good communication between medical teams and between medical practitioners and family/whānau

Please let me know if you need further clarification of my advice, or if I may be of any further assistance.

Yours sincerely

Dr David Prisk, FACEM"