Medical Centre

General Practitioner, Dr B

Northland District Health Board

A Report by the

Health and Disability Commissioner

(Case 18HDC00793)

Health and Disability Commissioner

Te Toihau Hauora, Hauātanga

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Executive summary

1. This report concerns the care provided to a woman by a general practitioner (GP), and her subsequent care when she attended the Emergency Department at Northland District Health Board (NDHB). The report highlights the importance of an adequate assessment of a patient who presents with signs of sepsis, and of appropriate intervention for a time-critical condition. It also highlights the need for district health boards to provide adequate guidance for staff to identify sepsis in a triage system, and adequate systems and resources to manage times of high acuity.

2. The woman presented to her medical centre as she was feeling unwell. A triage nurse noted that the woman had significantly low blood pressure, a low temperature, and a wound on her leg. The GP reviewed the woman, but despite her significantly low blood pressure and concerning symptoms, he did not consider the risk of sepsis in his assessment. The GP discharged the woman home.

3. Shortly after returning home, the woman presented to a public hospital. She was triaged by a registered nurse, who noted her low blood pressure and assigned a triage score of 3 — to be seen within 30 minutes. No secondary triage was undertaken, and it was not until approximately two hours after arriving in the ED that the woman was provided with active management for sepsis.

Findings

4. The Commissioner found that the GP failed to provide services with reasonable care and skill and, accordingly, breached Right 4(1) of the Code. The Commissioner was critical that the GP did not assess the woman's condition adequately, as he failed to query her low blood pressure or give adequate consideration to her risk of sepsis. The Commissioner considered that the medical centre was not vicariously liable for the GP's breach of the Code.

5. The Commissioner also found NDHB in breach of Right 4(1) of the Code, and was critical that the woman was not allocated the appropriate triage code, the ED sepsis pathway for triage was inadequate, and a secondary triage did not occur. He was also concerned about the significant delay in the woman being assessed medically and provided with the appropriate treatment.

Recommendations

6. The Commissioner recommended that the GP apologise to the woman and provide HDC with a written report on his reflections of this case, and review the references cited in the expert advice report.

7. The Commissioner recommended that NDHB undertake training for its staff on the Adult Sepsis Pathway, conduct an audit of its protocols and systems around the Early Warning Score (EWS) and the Adult Sepsis Pathway, and assess the changes made since this incident.

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Complaint and investigation

8. The Health and Disability Commissioner (HDC) received a complaint from Mrs A about the services provided to her at the medical centre on 7 February 2018.

9. During the course of the investigation, further information was obtained from Northland District Health Board (NDHB) about the services provided to Mrs A on 7 February 2018.

10. The following issues were identified for investigation:

- *Whether the medical centre provided Mrs A with an appropriate standard of care on 7 February 2018.*
- *Whether Dr B provided Mrs A with an appropriate standard of care on 7 February 2018.*
- *Whether Northland District Health Board provided Mrs A with an appropriate standard of care on 7 February 2018.*

11. The parties directly involved in the investigation were:

Mrs A	Complainant/consumer
Dr B	Provider/general practitioner (GP)
Medical centre	Provider
Northland District Health Board	Provider

12. Further information was received from:

RN C	Registered nurse/ medical centre
RN D	Registered nurse/NDHB
RN E	Registered nurse/NDHB
Dr F	Emergency Department (ED) consultant
Dr G	ED house officer

13. Also mentioned in this report:

Dr H	GP
RN I	Registered nurse

14. General medical advice was obtained from in-house expert Dr David Maplesden (**Appendix A**), and independent expert advice was obtained from an emergency specialist, Registered Nurse (RN) Craig Jenkin (**Appendix B**).

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Information gathered during investigation

Introduction

15. Mrs A was in her seventies at the time of events. This opinion relates to the service she received at the medical centre on 7 February 2018, and her subsequent care in the Emergency Department at the public hospital. Mrs A required treatment for septic shock,[1] hypotension,[2] and acute kidney injury,[3] and was admitted to the Intensive Care Unit (ICU). She was discharged in March 2018.

Background

16. On 2 February 2018, Mrs A lacerated her lower leg. On 5 February 2018, Mrs A noted that redness had developed around the wound on her leg, and the surrounding skin had begun to blister. Mrs A told HDC that the following day her condition deteriorated, and she was dizzy, nauseous, and lethargic.

Medical centre

17. The medical centre provides general medical care.

Dr B

18. Dr B obtained a provisional general scope of registration with the Medical Council of New Zealand (MCNZ) in November 2017. Dr B commenced his employment at the medical centre in 2017. He was permitted to practise at the medical centre under the supervision of Dr H[4] for his first 12 months in New Zealand, to become familiar with the New Zealand health system and the required standard of medical practice. The medical centre stated that following his appointment, Dr B completed its orientation programme and read the PRIME[5] folders and *Coles Medical Practice in New Zealand*.[6]

Supervision

19. Dr H was the supervisor responsible for Dr B's orientation and induction programme. In addition, Dr H was responsible for providing regular protected supervision time and oversight to ensure that Dr B was able to carry out his duties. Dr H advised that initially the supervision was daily, and thereafter meetings were held on a weekly basis for three months. After three months, the meetings were held on a monthly basis.

Presentation to the medical centre — 7 February 2018

20. On 7 February 2018, Mrs A and her husband presented to the medical centre.

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[1] A life-threatening condition that occurs when a body-wide infection leads to dangerously low blood pressure.
[2] Abnormally low blood pressure.
[3] A deterioration of kidney function.
[4] General practitioner and clinical director at the medical centre.
[5] Primary Response in Medical Emergencies.
[6] An introduction to the main legislation, ethical standards, and guidelines that govern medical practice in New Zealand.

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Initial triage assessment

21. On arrival, Mrs A was triaged by RN C in the nursing triage room. RN C outlined the redness of Mrs A's leg and recorded her vital signs as blood pressure 67/52mmHg,[7] oxygen saturation 95%, temperature 35.6°C,[8] and heart rate 95 beats per minute (bpm).[9] RN C stated that she was having difficulty obtaining an accurate manual blood pressure, and requested that a senior nurse take Mrs A's blood pressure. The senior nurse also found Mrs A's blood pressure to be 67/52mmHg.

22. RN C documented that since the previous day Mrs A's leg had felt burning hot, and she had been achy and headachy, with cold sweats and dry retching. RN C noted a small skin tear in the front of Mrs A's left lower leg, with bruising above the skin tear, and red/hot blistering to the side of the skin tear and at the back of the lower leg. RN C recorded that on examination Mrs A "appear[ed] a bit confused and not fully cognitive". RN C said that according to Mrs A's husband, this was not normal. RN C documented her plan for Mrs A to be seen by a GP acutely.

Handover to Dr B

23. Dr B was the GP at the medical centre on 7 February 2018. RN C stated that following her triage assessment she asked Dr B to review Mrs A promptly, and advised him of Mrs A's observations of low blood pressure, low temperature, elevated heart rate, and confusion.

24. Dr B said that when RN C asked him to review Mrs A in the nursing triage room, he was seeing another patient in his consultation room. He told HDC that it was his usual practice to review patients in the consultation room. Dr B stated that RN C verbally handed over the details of her initial triage assessment. He said that he was told that Mrs A was afebrile,[10] and he was asked to assess whether Mrs A required antibiotics for her wound. Dr B told HDC that RN C did not convey that Mrs A's blood pressure was unstable, or that there was any concern that Mrs A was unwell.

25. Dr B said that he was not logged into the computer in the nursing triage room, and that RN C was entering her triage notes on the computer. In response to the provisional opinion, Dr B stated that it was his usual practice to review patient notes in the medical record prior to seeing the patient. He stated that in this case, however, he did not review the nursing triage notes because it was his expectation that RN C's verbal handover was sufficiently adequate.

Dr B's examination of Mrs A

26. Dr B subsequently recorded his examination in Mrs A's clinical notes. He noted that Mrs A appeared well, was responding well to commands, and that she answered his questions appropriately. He recorded: "[S]hort term and long term memory intact."

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[7] Mrs A's normal blood pressure is 122/72mmHg.

[8] A normal temperature for an adult is around 37°C.

[9] A normal heart rate in an adult is 60–100bpm.

[10] Not feverish.

27. Dr B documented that Mrs A had struck her leg five days previously and had caused a wound. He noted that she had been in pain for the past two days, felt nauseous, had a worsening fever and a poor appetite, and felt generally unwell.

28. Dr B recorded his examination of Mrs A's leg wound as:

> "9 x 10 cm circumferentially around vesicular lesion with evidence of prior trauma. There is no purulence or drainage at this time. There is no evidence of necrosis. There are some satellite lesions."

29. Dr B auscultated[11] Mrs A's heart and lungs. He noted that her chest was clear and her heart sounds and rhythm were normal, and recorded "RRR" (regular rate and rhythm). He did not record her specific heart rate in the clinical notes. Dr B told HDC that although Mrs A complained of tactile fever, she was afebrile with a normal respiratory rate, and there were no symptoms of diaphoresis[12] or tachycardia.[13] Dr B told HDC that he did not take Mrs A's blood pressure reading himself.

30. Dr B recorded his impression of cellulitis[14] and folliculitis.[15]

Discharge

31. Mrs A stated that Dr B examined her leg and then proposed that they make a "group decision" about her treatment options, including transfer to hospital or going home.

32. Dr B told HDC:

> "There was a discussion with [Mrs A] and her husband regarding the decision to go to hospital. As I recall, it was clear that they did not want to go to the hospital and the decision was made to treat outpatient with return precautions because of this."

33. Dr B did not document this discussion. He said that he advised Mrs A to commence the antibiotics straight away and to present in one or two days' time for a further review. He stated that he advised Mrs A to return to the clinic or otherwise seek medical attention if her symptoms worsened or if she developed new or alarming symptoms.

34. In response to the provisional opinion, Mrs A stated that in response to Dr B's comment that it was a group decision, her husband said, "Well, you're the doctor." Mrs A stated that neither she nor her husband told Dr B that she did not want to go to the hospital.

35. Dr B recorded the following discharge plan:

> "Monitor for worsening fever or signs of infection as discussed. Follow up in 24–48 hours to monitor effectiveness of antibiotics and compare erythema (drawn today in

[11] Listened with a stethoscope.
[12] Excessive sweating.
[13] A fast resting heart rate.
[14] Inflammation of connective tissue.
[15] Inflammation of one or more follicles, especially of the hair.

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office). Flucloxacillin[16] 500mg tablets 3 times daily 7–14 days depending on response. If symptoms worsen or do not improve within 2 days seek medical attention immediately, also if you develop new or alarming symptoms seek immediate medical attention as discussed."

36. Dr B stated that the medical centre did not carry flucloxacillin for dispensing, and that Mrs A did not appear to be unwell during the consultation. He said that he understood that Mrs A's husband would collect the prescription for Mrs A immediately from a nearby pharmacy.

37. A nurse dressed and bandaged Mrs A's leg wound.

38. Mrs A stated that when she left the medical practice, she required support to stand so that she did not fall.

39. Dr B told HDC that he was not told by the nursing staff that Mrs A should have IV fluids, or that there were any concerns or that he had overlooked something. He said that his supervisor, Dr H, was not on site at the time of events, but he was available by telephone. Dr B acknowledged that he did not seek Dr H's guidance at that time.

40. The medical centre said that on 7 February 2018, another doctor was present next door in the clinic, and was available to Dr B for any immediate support or advice as needed.

41. Approximately five minutes after Mr and Mrs A returned home, Mrs A's husband called their daughter (a health professional) and told her that Mrs A was unwell with a systolic BP of 65mmHg. Mrs A's daughter arrived a few minutes later, and noted that her mother was pale, had an increased respiration rate, an absence of radial pulses, lethargy, and a swollen left leg, and was cold to touch. She checked her mother's vital signs and noted a heart rate of 92bpm and a systolic BP of 55mmHg. Mrs A's daughter considered that her mother's symptoms indicated septic shock, and as no ambulance was available in the area, she immediately drove her mother to the public hospital.

42. Dr B told HDC that he apologises for not having recognised that Mrs A presented with signs of sepsis. He said that his review of Mrs A in the nursing triage room contributed to his oversight, as this meant he was unable to review the notes prior to seeing Mrs A, and that had he recognised that Mrs A's blood pressure was low, the treatment would have included IV fluid resuscitation and IV antibiotics, with urgent ambulance transfer to hospital.

Presentation to the public hospital — 7 February 2018

43. At 11.31am, Mrs A presented to the ED accompanied by her husband and daughter. In response to the provisional opinion, Mrs A told HDC that on arrival at the ED, her daughter told the ED clerk that she (Mrs A) had sepsis.

44. At 11.37am, Mrs A was assessed by the triage nurse, RN D.

[16] An oral antibiotic.

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NDHB ED triage scale

45. The ED follows the Australasian Triage Scale[17] (ATS), which provides for the allocation of a triage code to each presenting patient to ensure patient prioritisation for treatment according to the urgency of the patient's condition. The triage code sets a maximum waiting time before the patient receives a clinical assessment by a nurse or doctor, and subsequent treatment. The ATS set out a series of indicative clinical descriptors to assist in the allocation of code categories. Triage Code 1 (T1) pertains to imminently life-threatening conditions or the need for immediate treatment. A Triage Code 2 (T2) patient requires treatment within 10 minutes, and pertains to life-threatening or important time-critical conditions. Triage Code 3 (T3) pertains to potentially life-threatening, potential adverse outcomes from a delay of more than 30 minutes, or severe discomfort or distress.

46. Each triage code category has a corresponding performance indicator threshold. The ATS provides that 75% of Triage Code 3 patients are to be seen within 30 minutes, and 80% of Triage Code 2 patients are to be seen within 10 minutes.

Initial triage assessment

47. RN D triaged Mrs A and recorded:

> "Developed l[eft] lower leg cellulitis. Has seen GP — sent to hospital if unwell. Area of swelling/redness l[eft] lower leg. GP marked area. Pt [Patient] alert oriented, no dizziness noted, afebrile, feeling unwell, palpated pulse, past medical history SCC[18] + BCC.[19]"

48. Mrs A's baseline observations were BP 82/61mmHg,[20] pulse 91bpm, respiratory rate 19 breaths per minute,[21] temperature 35.4°C,[22] and oxygen saturation 100%.

49. RN D recalls that when Mrs A presented to the ED she was accompanied by her daughter. RN D stated:

> "[Mrs A was] haemodynamically stable[23] when assessed with minimal haemodynamic compromise. Patent airway,[24] no breathing difficulties or distress, minimal tachycardia[25] with a strong palpated radial pulse, no dizziness, BP (not part of the triage scoring) was low, but patient said that her normal blood pressure was low, however a strong regular radial pulse was palpated. Patient was pink and well perfused, afebrile. Skin on leg appeared red with an area of the skin marked with black marker by GP, no blisters and no redness beyond this marking observed."

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[17] New Zealand Emergency Departments use the Australasian triage scale.
[18] Squamous cell carcinoma.
[19] Basal cell carcinoma.
[20] Lower than normal.
[21] A normal range for adults is 16–20 breaths per minute.
[22] Lower than normal.
[23] Blood pressure and heart rate stable.
[24] The airway is open and clear.
[25] An abnormally fast heart rate.

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50. However, in response to the provisional opinion, Mrs A stated that the redness on her leg had spread beyond the markings made by Dr B by about one centimetre.

51. RN D performed the quick sepsis organ failure assessment[26] (qSOFA), and circled the box BP <100=1pt, giving an outcome of 1 point. A code of 2 points indicates Triage Code 2, and to initiate the Adult Sepsis Pathway.

52. RN D assigned Mrs A a triage code of 3 — to be seen by a doctor within 30 minutes. RN D told HDC that at the time of presentation, Mrs A was a category 3, with a qSOFA score of 1, and she was haemodynamically stable and no obvious distress was observed.

53. RN D stated that neither Mrs A nor her daughter disclosed any relevant medical history or co-morbidities other than a history of BCC and SCC. In addition, RN D said that neither Mrs A nor her daughter mentioned the previous hypotension at her GP visit, and that Mrs A's GP had not sent a letter or made a telephone call advising of any concerns. Although RN D did note Mrs A's low blood pressure, she told HDC that Mrs A said that her normal blood pressure was low.

54. In response to the provisional opinion, Mrs A stated that during the triage assessment she told RN D that her normal heart rate was 72bpm, her normal blood pressure was 122/72mmHg, and her breathing was usually slow. Mrs A also stated that her daughter gave RN D the history that Mrs A had a systolic BP of 65mmHg when taken at the medical practice, and when repeated at home her systolic BP had dropped to 55mmHg.

55. In response to the provisional opinion, RN D told HDC that at the time of triage her assessment was made without a complete patient history. She said that had she been made aware that Mrs A had seen the GP and had significant hypotension, then she would have assigned a triage score of 2.

56. RN D stated that on the information available to her from Mrs A and her daughter, and her assessment of Mrs A's condition and the qSOFA score, she considered that the triage score of 3 was appropriate.

Delay in ED medical review

57. RN D stated:

> "At time of triage assessment patient feeling unwell but appearing well in herself. At the time of triage [I] informed the clinical nurse co-ordinator of [Mrs A's] B[lood] p[ressure]. ED was full and [I] was unable to bring the patient in at the time."

58. RN D told HDC that the Clinical Nurse Co-ordinator (CNC), RN E, told her to direct Mrs A into the waiting room, as there was no bed available at the time. RN D said that during the shift she reminded RN E that Mrs A was in the waiting room.

[26] The Quick Sepsis Organ Failure Assessment is used to predict mortality. Possible scores range from 0 to 3, with scores of 0–1 denoting low risk and scores of 2–3 denoting high risk.

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59. In addition, RN D said that she spoke to Mrs A and her daughter and advised them to alert her to any changes in Mrs A's condition, or if she required any pain relief.

60. In response to the provisional opinion, Mrs A stated that RN D did not advise her to report any changes in her condition or if pain relief was required. Mrs A stated that she was experiencing "bad pain".

61. RN E told HDC that she cannot recall the details of Mrs A's presentation on 7 February 2018. However, she said that in these circumstances, her normal practice would be to make adjustments in the ED to accommodate a patient with a blood pressure reading of 82/61mmHg.

62. NDHB said that the CNC is responsible for the allocation of patients to beds, but on that day the "ED was overwhelmed by demand [and] there were no bed spaces available to shift this patient from the waiting room".

63. At 1.14pm, Mrs A was moved from the ED waiting room into a treatment cubicle.

64. RN I was the nurse allocated to the treatment cubicle. At 1.30pm, RN I established IV access and commenced administration of 1 litre of fluid. Blood was obtained for testing, in accordance with the interventions outlined in the Adult Sepsis Action Plan.[27]

65. At 1.54pm, ED house officer Dr G reviewed Mrs A's triage assessment and noted her hypotension. Dr G told HDC that she was concerned that Mrs A had waited for a medical review for several hours with hypotension. Dr G said that on examination Mrs A looked well, but the hypotension was off her usual baseline and was in the presence of an infective illness. Dr G ordered antibiotics, transferred Mrs A to the resuscitation room, and requested a surgical review for a necrotising fasciitis.[28] Dr G escalated Mrs A's care to ED Senior Medical Officer (SMO) Dr F.

66. Dr F told HDC that he reviewed Mrs A and agreed with Dr G's assessment of Mrs A's condition and the plan to escalate her care. However, Dr F stated that he was concerned about the delay in Mrs A's review by a doctor after presenting to ED, and said that Mrs A was under-triaged when she was assigned a triage code of 3. Dr F told HDC that Mrs A should have received a triage code of 2.

67. At 2.50pm, RN I recorded in the Intravenous and Subcutaneous Fluids chart the administration of further IV fluids[29] to Mrs A.

68. The medication chart shows that at approximately 3pm, RN I administered flucloxacillin[30] and clindamycin[31] to Mrs A.

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[27] Direction for staff in the treatment and management of patients who present with sepsis.
[28] A severe soft tissue infection that is caused by bacteria and is marked by painful, red, swollen skin over affected areas.
[29] One litre of IV fluid.
[30] An antibiotic.

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69. According to NDHB, at approximately 3.30pm Dr G noted that after 2 litres of fluid, Mrs A's systolic BP had increased to 94mmHg.

70. NDHB stated that a surgical registrar reviewed Mrs A at some stage after the IV antibiotics had been commenced. The registrar did not record her assessment at the time, but documented retrospectively that Mrs A possibly had severe cellulitis. The registrar noted Mrs A's blistered lesion, and a fluid sample was taken for testing.

71. The medication chart shows that at 3.55pm, RN I administered IV gentamicin[32] to Mrs A.

72. At 4.20pm, Mrs A's care was transferred to the medical team.

73. NDHB stated that a medical registrar reviewed Mrs A at some stage after she was referred to the medical team, and charted metaraminol[33] and 4 litres of IV fluid, owing to her ongoing hypotension.

74. RN I recorded that at 5pm, Mrs A's BP was 133/61mmHg. The nursing notes state that Mrs A was reviewed by a medical consultant, and she was administered IV metaraminol at 7ml/hour.

75. At 5.30pm, a medical physician reviewed Mrs A and contemporaneously documented his impression that she had septic shock and most likely cellulitis, and that ideally she should be monitored in a high dependency unit.

76. At 6.26pm, Mrs A was admitted to the Intensive Care Unit. She remained there for one week, and required treatment for septic shock,[34] persistent hypotension, and acute kidney injury secondary to the septic shock. Mrs A was diagnosed with a necrotising infection of her leg, and required extensive debridement and skin grafts. She was discharged on 29 March 2018.

NDHB

77. NDHB told HDC that hypotension was recognised and documented clearly, and it considers that because the qSOFA scoring for sepsis was 1 point, it did not meet its definition of a triage code of 2. Nonetheless, NDHB has acknowledged that there was a "significant delay between triage and medical assessment (2 hours and 23 minutes)". NDHB also noted that there was a delay in "treatment being commenced (1 hour and 40 minutes to first IV antibiotics after moved into treatment area …)". According to NDHB, "these times are well outside of the target for treatment of sepsis".

Emergency Department acuity — 7 February 2018

78. NDHB told HDC that on 7 February 2018, Mrs A arrived at the ED during "the middle of an overwhelming surge of presentations to the ED". NDHB said that by 7.45am that day, already five medical patients were in ED waiting for beds in an already full hospital. Fifteen

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[31] An antibiotic.
[32] An antibiotic.
[33] Used for the prevention and treatment of hypotension.
[34] A life-threatening condition caused by infection.

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patients presented to the ED between 10am and 11am, a further eight patients (including Mrs A) arrived between 11am and 12pm, and a further eight patients arrived between 12pm and 1pm. NDHB said that on 7 February 2018, in total 131 patients presented to the ED in 24 hours, and 27% of these patients presented in the three-hour window between 10am and 1pm.

79. NDHB also told HDC:

> "Not only was the ED extremely busy with numbers of presenting patients exceeding and overwhelming capacity, the department was experiencing access block and bed block due to the whole hospital also being full."

80. NDHB said that all available treatment spaces in the ED were full at the time when Mrs A arrived. In NDHB's view, the fact that the ED was so busy when Mrs A arrived "undoubtedly contributed to overall inefficiencies in the department and regrettable delays in [Mrs A's] care".

ED staffing levels — 7 February 2018

81. RN D was the triage nurse in the ED on 7 February 2018. She told HDC that she recalls that there was a "large, constant, steady flow of patients" that day.

82. With regard to nursing staff levels, NDHB told HDC that there was a full roster of staff that day, including six registered nurses, one co-ordinator, and one triage nurse. It said that because of the high demand, an additional back-up triage nurse commenced a shift at 10.00am. Another registered nurse commenced a shift at 11am to support the CNC, and at 1pm a fast-track nurse[35] commenced a shift.

83. In response to the provisional opinion, RN D stated that the back-up triage nurse was assisting with the ED workload, which meant that a secondary triage was not completed and the triage area was then staffed by only one nurse, who had no overview of the waiting room.

84. NDHB told HDC that on the morning of 7 February 2018 it also released junior doctors from training, and they were seeing patients in the ED by 10.30am. At 11.30am, the ED medical staff included two senior medical officers, one registrar, and two house officers. NDHB said that on this day one ED doctor was absent.

DHB sepsis management policy

85. NDHB provided HDC with its Adult Sepsis Action Plan[36] (ASAP) Pathway. The ASAP pathway provides that patients who present with a qSOFA score of >2 should be assigned a triage code of 2 and sepsis management commenced. Within 60 minutes of commencing the ASAP Pathway, patients should be given oxygen, IV antibiotics, and IV fluids, and blood tests, medical review, and urine output measures should be completed.

[35] Reviews patients in the fast-track area by investigating and commencing early treatment to patients in the waiting room.

[36] Issued 2015 and revised in August 2019.

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Subsequent events

86. In response to the provisional opinion, Mrs A stated that following her admission to hospital, her husband returned to the medical centre and told a nurse that she was given fluids in hospital. Mr A stated that prior to leaving the practice, a nurse told him that in her opinion, Mrs A had needed fluids. RN C told HDC that she has no recollection of making any comment to Mr A about Mrs A needing fluid replacement.

Further information

Mrs A

87. Mrs A stated that after nearly two months in hospital she is recovering well. However, she considers that when she presented to the medical centre, Dr B should have recognised her signs of sepsis. Furthermore, if the nursing staff held a different opinion from Dr B, Mrs A considers that they should have raised this with him.

88. Dr H told HDC that he has increased the level of support for Dr B, and meetings have been held on a weekly or daily basis. Dr H said that the medical centre has received positive feedback from patients, indicating positive experiences with Dr B.

MCNZ

89. In June 2019, MCNZ advised that it was undertaking a performance assessment[37] in respect of Dr B to determine whether he met the required standard. MCNZ advised that the performance assessment process is educative, and it would assist Dr B with any deficiencies identified in his practice.

90. In response to the provisional opinion, Dr B stated that following the performance assessment, MCNZ concluded that he is practising at the required standard.

NDHB

91. NDHB stated:

> "We acknowledge that although the low blood pressure was clearly recognised there were deficiencies in our response and subsequent management. This case highlighted significant systems, process as well as resource issues which we have tried hard to address in the interim."

Changes made since these events

Medical centre

92. Dr H advised that following these events, Dr B was provided with daily to weekly supervision to ensure that his consultations were monitored, and that he was provided with adequate support on complex cases.

Dr B

93. Dr B said that he has made changes to his practice to ensure that an event such as this does not happen again. He advised that he reviews all nursing notes relevant to patient care, and discusses any concerns held by the nursing staff. He said that he practises with a

[37] Under section 36 of the Health Practitioners Competence Assurance Act 2003.

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low threshold for considering hospital admission and advice about a patient's condition, and if a patient declines admission to hospital or proposed medical treatment, he records the decision. He advised that he personally takes a patient's vital signs when there is concern that the disease process could be potentially life-threatening.

NDHB

94. NDHB told HDC that since these events it has made a number of changes to its practice, including:

- Implementation of the national early warning score process (EWS).
- Development of a new triage process of triage first, followed by a secondary focused assessment by a waiting-room nurse.
- Development of a new Adult Sepsis Pathway Protocol.
- Increased staffing levels in the ED.
- Development of a new pathway that new investigations are initiated within its fast track (low acuity) system to improve patient flow during times of high patient volumes in ED.
- Implementation of a new ED patient management system, Emergency Department at a Glance (EDAAG), designed to display patient vital signs electronically and calculate the EWS automatically.
- Review and amendment of the ED incident management plan to respond better when the ED's capacity is overwhelmed.

Responses to provisional opinion

95. Mrs A, Dr B, the medical centre, and NDHB were all given the opportunity to respond to relevant sections of the provisional opinion. Where appropriate, their comments have been incorporated into the report.

96. Dr B told HDC that he apologises sincerely for failing to recognise that Mrs A was more unwell than she appeared. Dr B stated that there was a breakdown in communication with the nursing staff, which contributed to his oversight. Dr B disputed the finding in the provisional opinion that he breached the Code.

97. The medical centre stated that it had no comment to make on the provisional opinion.

98. NDHB stated that it has used this case to make significant changes to triage, early recognition and treatment of sepsis, and managing increasing demand and overload.

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Opinion: Dr B — breach

99. At the time of events, Dr B was employed by the medical centre and had had two months' experience as a general practitioner in New Zealand. Prior to commencing his role at the medical centre, Dr B had completed an orientation programme in preparation for working within primary care in New Zealand. Dr B gained provisional registration with the Medical Council of New Zealand. As part of the requirements of his provisional registration to practise as a general practitioner in New Zealand, he participated in regular supervision from his supervisor, Dr H.

Assessment

100. On 7 February 2018, Mrs A presented to the medical centre with a leg wound that had blistered. She complained of having felt unwell for two days.

101. Mrs A was triaged by a nurse, who noted that Mrs A felt achy and headachy, her leg was burning, she had cold sweats, and she had been dry retching. The nurse stated that after her triage assessment she asked Dr B to review Mrs A promptly. The nurse told HDC that she informed Dr B of Mrs A's vital signs, including her low blood pressure, low temperature, elevated heart rate, and confusion.

102. Dr B told HDC that he was not told by the nurse that Mrs A's blood pressure was unstable, or of any concern that Mrs A was unwell. He recalls that he was told that Mrs A was afebrile, and he was asked to review her in regard to antibiotic treatment. Dr B acknowledged that he did not review the nursing triage notes, but said that he expected that the nurse would inform him of her triage assessment. He examined Mrs A in the nursing triage room.

103. I note that RN C advised that she told Dr B her observations that Mrs A's blood pressure and temperature were low, and that she had an elevated heart rate and was confused. Dr B refutes this, and advised that he was not told by the nurse that Mrs A's blood pressure was low or that she was unwell. Dr B acknowledged that he did not review RN C's triage notes, which record Mrs A's vitals.[38] On the information available to me, I cannot make a factual finding on whether or not this information was communicated to Dr B verbally.

104. Dr B reviewed Mrs A and noted that she appeared well and was responding appropriately. He took her history, and on examination he observed some satellite lesions near the wound. He noted Mrs A's temperature and respiratory rate, and her normal heart and chest sounds on auscultation. Dr B recalled that Mrs A was not sweating excessively, and that her heart rate at rest was not elevated, although he did not document her specific heart rate. He acknowledged that he did not personally take Mrs A's blood pressure reading, and regrets not having done this.

105. Dr B's impression was of "cellulitis and folliculitis". He prescribed antibiotics and advised Mrs A to seek medical attention if her symptoms worsened. Dr B stated that oral

[38] Blood pressure 67/52mmHg, temperature 35.6°C, heart rate 95bpm, and oxygen saturation 95%.

antibiotics were not available at the clinic, and it was his understanding that Mrs A's husband would collect the antibiotics immediately from a nearby pharmacy.

106. Dr B relied on RN C's verbal handover of Mrs A's triage assessment.

107. My general practitioner expert, Dr David Maplesden, advised me that Mrs A presented with moderate risk factors for sepsis, including:

- Significantly low blood pressure (hypotension)
- A pulse of 95bpm
- A low temperature of 35.6°C
- Light-headedness related to hypotension
- A source of infection

108. Dr Maplesden stated:

> "I acknowledge that there may have been some deficiency in the communication of [Mrs A's] symptoms and vital signs by nursing staff to [Dr B], but the responsibility lay with [Dr B] to ensure he had all the information necessary to stratify [Mrs A's] risk of sepsis and to manage her according to this risk."

109. Dr Maplesden advised:

> "[I]t was a reasonable expectation that [Dr B] would have queried [Mrs A's] blood pressure reading as part of his assessment of her even if the measurement was not available to him. His failure to either query the measurement or recognise the potential clinical implications of the measurement I think represents at least a moderate departure from the standards of expected care."

110. I accept this advice. Dr B was asked by a nurse to review Mrs A owing to concerns identified in her triage assessment. I consider that at this point, Dr B should have been on active enquiry. I note Dr B's recorded and recollected impression of Mrs A. However, in these circumstances, there were other presenting risk factors for sepsis. Accordingly, I am critical that Dr B failed to give adequate consideration to these risk factors when he performed his assessment of Mrs A's condition, and that therefore he did not query Mrs A's blood pressure reading. I am also concerned that Dr B did not document Mrs A's specific heart rate.

Discharge

111. Dr Maplesden advised me that Dr B gave appropriate safety-netting advice, and that in these circumstances Mrs A's family adhered to this. Dr Maplesden was mildly critical that given Mrs A's symptoms, Dr B did not provide her with a dose of oral flucloxacillin when he reviewed her. However, I note that Dr B stated that the medical centre did not carry flucloxacillin, and so he was not able to administer the antibiotic.

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Conclusion

112. Overall, I consider that the services provided to Mrs A by Dr B were below the acceptable standard. When he performed his assessment of Mrs A's condition, he failed to give adequate consideration to sepsis risk factors, and therefore he did not query Mrs A's blood pressure reading. As a consequence of these failures, the opportunity was missed to identify and access treatment for Mrs A's sepsis at an earlier time. For the reasons set out above, in my view Dr B failed to provide services to Mrs A with reasonable care and skill and, accordingly, breached Right 4(1) of the Code of Health and Disability Services Consumers' Rights (the Code).[39]

Opinion: Medical centre — no breach

113. As a healthcare provider, the medical centre is responsible for providing services in accordance with the Code. In this case, I consider that the errors that occurred did not indicate broader systems or organisational issues at the clinic. Therefore, I consider that the medical centre did not breach the Code directly.

114. In addition to any direct liability for a breach of the Code, under section 72(2) of the Health and Disability Commissioner Act 1994 (the Act), an employing authority may be vicariously liable for acts or omissions of its employees. A defence is available to the employing authority under section 72(5), if it can prove that it took such steps as were reasonably practicable to prevent the acts or omissions.

Supervision requirements

115. The medical centre employed Dr B as a general practitioner, and he commenced his employment in 2017. Dr H supervised Dr B in accordance with the Medical Council of New Zealand's requirements for a provisionally registered doctor. Dr B was provided with one-to-one supervision on a daily or weekly basis for three months following his appointment. In addition, Dr B completed the medical centre's orientation and read *Coles Medical Practice in New Zealand*.

116. The medical centre advised that following this complaint, it increased the level of support for Dr B, and his supervisors met with him on a daily to weekly basis.

117. My expert, Dr Maplesden, advised that the supervision arrangements for Dr B were consistent with accepted practice. I agree, and consider that the medical centre took reasonably practicable steps to prevent Dr B's inadequate assessment of Mrs A. Overall, therefore, I do not consider that the medical centre is vicariously liable for Dr B's breach of Right 4(1). I note that the medical centre has increased its level of supervision of Dr B, and I consider this to be appropriate.

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

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Opinion: Northland District Health Board — breach

118. DHBs are responsible for the operation of the clinical services they provide. They have a duty to ensure that patients receive quality services.

Initial triage assessment and triage categorisation

119. RN D was the nurse responsible for triaging Mrs A in the ED.

120. RN D triaged Mrs A and recorded:

> "Developed l[eft] lower leg cellulitis. Has seen GP — sent to hospital if unwell. Area of swelling/redness l[eft] lower leg. GP marked area. Pt [Patient] alert oriented, no dizziness noted, afebrile, feeling unwell, palpated pulse, past medical history SCC + BCC."

121. RN D took a full set of Mrs A's vital signs, including her blood pressure, which was 82/61mmHg.

122. RN D performed the quick sepsis organ failure assessment (qSOFA) and circled the box "BP <100=1pt", resulting in a total outcome of 1 point. The ASAP pathway provides that patients who present with a qSOFA score of >2 should be assigned a triage code of 2, and sepsis management commenced.

123. RN D assigned Mrs A a triage code of 3 — to be seen by a doctor within 30 minutes. RN D told HDC that at the time, Mrs A presented as a category 3 with a qSOFA score of 1, and she was haemodynamically stable and no obvious distress was observed.

124. RN D said that she was not informed by Mrs A or her daughter about Mrs A's previous hypotension as noted at her GP visit, or of any other relevant medical history. In contrast, Mrs A's daughter stated that she gave RN D the BP readings that were taken for Mrs A at the medical practice and at home. On the information available to me, I am unable to make a finding on this issue.

125. RN D stated that although Mrs A felt unwell, she appeared well in herself.

Documentation of triage assessment

126. HDC obtained independent clinical advice from RN Craig Jenkin. RN Jenkin advised:

> "[The triage information documented by RN D was] sufficient to make an appropriate triage decision and is of an equivalent equal to that of peers.
>
> The Subjective Objective Assessment Plan (SOAP) format that is used on the NDHB triage sheet in the evidence provided appears consistent with standard triage documentation. It is clear and articulate and covers pertinent information."

127. RN Jenkin advised that the triage assessment undertaken by RN D did not mention some of the detail of the history of the complaint. He said that "[n]ormally a further in-depth

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history is part of the secondary triage process", and he considers that this amounts to a mild departure from the standards of accepted practice.

128. I accept this advice. I consider that the triage form completed by RN D was sufficient to make an appropriate triage decision, but I am concerned that the lack of a secondary triage in this case meant that an opportunity to gather and record further information about Mrs A was missed.

Triage categorisation

129. The qSOFA scoring for sepsis was undertaken and scored 1 point. RN D told HDC that she assigned Mrs A a triage code of 3 (to be seen within 30 minutes) because only one abnormal vital sign was noted. RN D recalled that Mrs A advised that her blood pressure was normally low.

130. NDHB told HDC that at the time of events, its ED sepsis pathway referenced qSOFA. According to the pathway, a qSOFA score of 1 point did not indicate a triage code of 2. However, ED consultant Dr F told HDC that in his opinion, Mrs A should have been assigned a triage code of 2.

131. RN D stated that she told RN E about Mrs A's low blood pressure and was advised that no bed was available, so she referred Mrs A to the waiting room. RN D said that she alerted RN E again that Mrs A was in the waiting room.

132. RN E said that although she cannot recall Mrs A's presentation, her usual practice would be to make arrangements in the ED for a patient who presented with a BP reading of 82/61mmHg.

133. Owing to the lack of documentation and recall of these events, I am unable to find that RN D discussed Mrs A with RN E.

134. RN Jenkin noted that NDHB's ED sepsis pathway referenced qSOFA. He advised that qSOFA is used to predict mortality in a patient following a diagnosis of sepsis. He stated that qSOFA does not identify sepsis and therefore is not adequate to identify sepsis in a triage situation.

135. RN Jenkin advised:

> "It is my opinion that [Mrs A] should have been allocated a triage category 2 (imminently life-threatening, or important time critical and assessed by a practitioner in 10 minutes)."

136. RN Jenkin also advised that Mrs A's blood pressure of 82/61mmHg at triage was clinically significant hypotension, and urgent assessment by a health professional was required. He stated:

> "According to the College of Emergency Nurses New Zealand triage course pre-reading workbook (2011) '*hypotension is a late sign in shock and the importance of being*

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attuned to other signs and symptoms, as well as regular reassessment of the patient waiting at triage'."

137. RN Jenkin advised me that there are a number of causes of hypotension, and one of the possible causes is sepsis. Because sepsis has a high mortality rate, hypotension has become the "standard of care" for early detection and treatment of sepsis. He advised that in the majority of emergency departments, hypotension automatically places a patient in triage category 2.

138. RN Jenkin acknowledged that if RN D was not aware of Mrs A's history of hypotension, the allocation of a triage code of 3 was more understandable. As noted above, I have been unable to make a finding on this. Nevertheless, RN Jenkin advised that even if RN D was not aware of Mrs A's hypotension, the standard of triage assessment performed by RN D was a moderate departure from the standard of care.

139. RN Jenkin noted that since these events NDHB has established an Early Warning Score and triage first process, followed by a secondary focused assessment by a waiting-room nurse. RN Jenkin considers these changes to be appropriate.

140. I accept this advice. RN D failed to appreciate the significance of Mrs A's hypotension, and so was not alert to her actual condition. In these circumstances, RN D should have assigned a triage code of 2 (to be seen within 10 minutes), owing to the clinical significance of Mrs A's hypotension. In my opinion, the standard of the triage assessment was sub-optimal. The nurse did not recognise the urgency or clinical concern with regard to Mrs A's condition.

141. I am critical that the NDHB ED sepsis pathway referenced qSOFA, and that this pathway was not adequate to identify sepsis in an ED triage situation. It did not provide the criteria to alert staff to a patient who presented with the signs of sepsis in a triage situation, nor was it clear about the action staff should take. An ED triage pathway for sepsis is critical to guide its staff to identify sepsis accurately and take the appropriate time-critical actions. In my view, NDHB's ED sepsis pathway was inadequate, and this contributed significantly to Mrs A being triaged inappropriately.

142. I am critical that there was no secondary triage, which would have been an opportunity to revisit the first triage code.

143. I note that NDHB has implemented a first triage and a secondary triage process, and is implementing a new adult sepsis pathway in its triage policy and Early Warning Score process. I consider these steps to be appropriate.

Delay in medical review

144. I acknowledge that the triage policy contains some allowance for exceeding maximum wait times for clinical assessment. In particular, the policy provides that 75% of ATS 3 patients such as Mrs A will be seen within 30 minutes.

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145. Mrs A was triaged at 11.37am and assigned a triage code of 3, after RN D advised the CNC about Mrs A's blood pressure. NDHB said that the CNC is responsible for allocating patient beds, but that owing to the high acuity of patients in the ED, no beds were available to transfer Mrs A from the waiting room. NDHB also said that Mrs A presented to the ED in the middle of an "overwhelming surge of presentations to the ED", and that close to a third of all patients who presented to the ED on 7 February 2018 arrived in the three-hour period between 10am and 1pm.

146. At 1.30pm, Mrs A was examined by RN I, and active management for sepsis was commenced. Mrs A should have been seen within 30 minutes, but it was almost two hours before active management for sepsis was commenced and she was reviewed by a doctor.

147. RN Jenkin advised:

> "There are many variables that can make it difficult for a physician assessment in an ED within the 30 minute timeframe of triage 3. The variables can be, but are not limited to, the day of the week of the presentation/time of day of the presentation/what occurred on the previous two shifts/the occupancy of the hospital/the workload of specialities services/major trauma presentations/patient surges.
>
> ... Triage 3 is potentially life-threatening, potential adverse outcomes from delay >30min, or severe discomfort or distress with an Australasian benchmark of 75% of patients being seen within thirty minutes. With a prolonged wait to be seen by a [d]octor this standard was not met."

148. RN Jenkin considers that the failure to meet the standard of the ATS for waiting times for a medical review represents a moderate departure from the standard of care. He advised that if Mrs A's condition had been recognised appropriately as potential sepsis, then the early provision of an IV line and fluids by nursing staff prior to assessment may have reduced the complications caused by the delayed medical review.

149. I accept this advice. I acknowledge that an ED waiting room can be a busy and demanding environment, and that the occupancy of the hospital has an impact on the waiting time for a medical review. I note that the information provided by NDHB indicates that there were issues with high acuity that day, with particularly high numbers of presentations to the ED around the time Mrs A arrived. Nonetheless, a busy environment under pressure does not remove the obligation to provide appropriate services, and does not remove provider accountability for ensuring that appropriate steps are taken.

Conclusion

150. NDHB and its staff had a responsibility to ensure that services were provided to Mrs A with reasonable care and skill. I am critical that Mrs A was not given the appropriate triage code, and I am concerned that the ED pathway used to triage patients for sepsis was not adequate. The pathway needed to be clearer to assist clinicians to identify the indicators of sepsis accurately and guide their actions in a time-critical situation. I am also critical that a secondary triage did not occur, as this would have provided an opportunity to revisit the

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triage category and to gain more detailed information about Mrs A's history. Despite the triage code she was given, there was a significant delay in her being assessed medically and provided with appropriate treatment. As a result Mrs A's sepsis was not identified and treated in a timely manner. NDHB had the ultimate responsibility to ensure that Mrs A received care that was of an appropriate standard and complied with the Code. For the reasons set out above, in my view NDHB failed to provide services to Mrs A with reasonable care and skill. I therefore find that NDHB breached Right 4(1) of the Code.

151. I note that since these events, NDHB has made a number of changes to its practice, including increasing ED staffing, developing new triage processes, developing new pathways to improve patient flow, and implementing new ED patient management systems. I consider these changes to be appropriate.

Recommendations

152. I recommend that Dr B:

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

b) Provide evidence to this Office, within four weeks of the date of this report, confirming that he has reviewed the references cited in Dr Maplesden's advice.

c) Provide HDC with a written report on his reflections on his failings in this case, and the changes made to his practice as a result of this complaint, within four weeks of the date of this report.

153. I recommend that within six months of the date of this report, NDHB:

a) Undertake training for its staff on the Adult Sepsis Pathway, and provide HDC with evidence of this.

b) Provide HDC with an audit of the effectiveness of the following protocols and systems:

- The Early Warning Score (EWS)
- The Adult Sepsis Pathway

c) Assess the changes made since this incident and report the findings to HDC.

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Follow-up actions

154. A copy of this report with details identifying the parties removed, except NDHB and the experts who advised on this case, will be sent to the Medical Council of New Zealand, and it will be advised of Dr B's name.

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

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Appendix A: In-house clinical advice to the Commissioner

The following expert advice was obtained from GP Dr David Maplesden:

"1. Thank you for providing this file for advice. To the best of my knowledge I have no conflict of interest in providing this advice. I have reviewed the available information: complaint from [Mrs A]; response from clinical director of [the medical centre] [Dr H]; GP notes [the medical centre]; clinical notes Northland DHB.

2. [Mrs A] states she lacerated her left lower leg on 2 February 2018. On the evening of 5 February 2018 she noticed burning discomfort and redness developing around the wound. During the night the skin around the wound began blistering and [Mrs A] felt dizzy, nauseated and lethargic. She remained unwell and in bed during 6 February 2018 and her leg became increasingly red and swollen. The following morning [Mrs A's] husband took her to [the medical centre]. She was seen by a triage nurse who was unable to find her blood pressure with an automated monitor but eventually gained a low reading manually. The nurse outlined the extent of redness on [Mrs A's] leg and then Dr B attended her. [Mrs A] states: [Dr B] *came in and talked to the nurses about their findings. He looked at the wound on my leg, then said we should make a group decision about this — you could go home or go to the hospital …* A decision was apparently made for [Mrs A] to go home and [Dr B] provided a prescription for flucloxacillin 500mg TDS and told [Mrs A] to present to the hospital if her condition worsened. The leg was bandaged and [Mrs A] returned home although she required support from her husband so she didn't fall over. Her husband notified [Mrs A's] daughter (a [health professional]) of the events and the daughter attended immediately and transported her mother to [the public hospital] by car (there was no ambulance immediately available). At [the hospital] [Mrs A] required treatment for septic shock, persistent hypotension and acute kidney injury secondary to shock and was admitted to ICU for a week. She was diagnosed with a necrotizing infection of her leg and required extensive debridement and skin grafts with threat of amputation, being discharged eventually on 29 March 2018. [Mrs A] is concerned that her septic shock was not recognised or treated appropriately by [Dr B], and this placed her life in danger.

3. Response from [Dr H]

(i) [Dr B] apologises for not recognizing [Mrs A's] signs of sepsis. [Dr B] examined [Mrs A] in the nursing area outside of his consultation room and reflects that he may not have adequately reviewed the computerized nursing notes on his return to the consultation room and therefore overlooked [Mrs A's] hypotension. He reflects that had he recognised [Mrs A's] signs of sepsis, her treatment would have been IV fluids resuscitation, IV antibiotics and urgent ambulance transfer to [hospital]. He notes that had [Mrs A] returned for review in the event she worsened (as she had been advised to do) his approach would have been the more aggressive management described above.

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(ii) [Dr B] commenced practice at [the medical centre] in 2017 after arriving from [overseas]. Since the complaint from [Mrs A], time allocated for his professional support and supervision has been increased.

4. Clinical notes review

(i) Triage nurse notes dated 7 February 2018 are:

Nurse Consult

Presenting Complaint

Left lower leg was hit on […] 5/7 ago. Bled at the time. Cleaned it up and put a dressing on. Drove up to [another town] 3 days later.

Started feeling achey and leg burning yesterday morning while in [other town]. Cold sweats. Dry retching. Bit headachey. BO — bit loose. PU ok. Stayed in bed most of yesterday feeling wiped out and when got up felt bit dizzy. OK once up. Pain 7–8/10. Increases in ache/pain on mobilising. Feel light headed.

Not eaten or drunk anything today. Yesterday ate & drank.

Examination

appears a bit confused and not fully cognitive.

Left lower leg front — small skin tear, bruising above skin tear, red/hot/blistering to side of skin tear back of lower leg.

t 35.6

\bp 67/52

SP02 99 HR 95

Impression blistering/redness heat not necessarily related to original skin tear.

Plan see GP acutely

(ii) [Dr B's] notes dated 7 February 2018 are:

Presenting Complaint:

Complains of left lower extremity pain secondary to wound 5 days ago. pain x 2 days, worsening with tactile fever with nausea, no vomiting. Also complains of feeling ill generally. Poor PO intake.

Examination:

Temp: 36C Resp rate 16

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GEN: well appearing female responds to commands appropriately, answers questions appropriately. Short term and long term memory intact.

CARDIO: S1/S2 RRR

PULM: CTA B/L no adventitious sounds

SKIN: erythematous area approx. 9x10cm circumferentially around vessicular lesion with evidence of prior trauma. There is no purulence or drainage at this time. There is no evidence of necrosis. There are some satellite lesions.

Impression:

Cellulitis

Folliculitis

Plan:

— *monitor for worsening fever or signs of infection as discussed*

— *follow up in 24–48hours to monitor effectiveness of antibiotics and compare erythema (drawn today in-office)*

— *flucloxacillin 500mg tablets 3 times daily for 7–14 days depending on response*

— *if symptoms worsen or do not improve within 2 days seek medical attention immediately, also if you develop new or alarming symptoms seek immediate medical attention as discussed.*

(iv) Later on 7 February 2018 the practice nurse recorded contact with [Mr A]: *Husband called in at 11:00am to advise that when they got home from GP [Mrs A] collapsed. Ambulance was called and she was taken through to [the public hospital]?*

(v) [Public hospital] ED notes include triage recordings of BP 82/61, P 91, respiratory rate 19, temperature 35.4 and oxygen saturation 100%. [Mrs A] was noted to be *alert and orientated.* She was triaged category 3 (see within 30 minutes) and the ED notes include the comment: *Unfortunately hypotension not recognised at initial triage and waited in room for prolonged period of time (2.5 hours, ED M&M alerted).* This delay might raise some cause for concern but [Mrs A] has not complained about her management at [the hospital] and no response has been sought from Northland DHB. It appears once [Mrs A] was seen by a doctor appropriate management was commenced. The delay between [Mrs A] arriving at ED and active management being commenced for her sepsis does not appear substantially different to the delay between her assessment at [the medical centre] and her arrival at ED.

5. Comments

(i) I have included in Appendix 1 extracts from relevant guidance for identification and management of adult sepsis out of hospital taken from the NICE clinical guidance

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'Sepsis: recognition, diagnosis and early management' published July 2016[1]. I have used this guidance as a reference for accepted practice in recognition, diagnosis and early management of sepsis. The guidance included management principles which apply equally to New Zealand and the UK (where the guidance was developed).

(ii) On 7 February 2018 [Mrs A] presented a history of two days of feeling significantly unwell with intermittent chills and fever, light headedness, nausea and anorexia. She had an overt source of infection — that being cellulitis with blistering at the site of skin trauma on her left leg. I think [Mrs A] was clearly at risk of sepsis and required careful assessment to stratify that risk and manage according to risk.

(iii) The [medical centre] triage nurse undertook an appropriate and well documented assessment of [Mrs A]. She questioned whether there was some alteration in [Mrs A's] mental state (a 'high risk' criterion for sepsis) although [Dr B] found [Mrs A] to be alert and orientated as did [hospital] staff an hour or so later. [Mrs A] had a significantly low blood pressure with systolic less than 90 which is a high risk criterion for sepsis. It was likely her light headedness was related to her hypotension. Nurse recordings of pulse (95) and low temperature (35.6) together with the obvious source of infection were moderate risk factors for sepsis. In my opinion, the presence of the significant hypotension, likely symptomatic, in an unwell older patient with an obvious source of infection and other moderate risk factors for sepsis should have resulted in immediate hospital admission by ambulance, with commencement of fluid resuscitation if there was likely to be any significant delay in transport. While consent of the patient was required for this management, I do not think it was appropriate to present out-of-hospital management as a reasonable therapeutic option in the circumstances. I think it was a reasonable expectation that [Dr B] would have queried [Mrs A's] blood pressure reading as part of his assessment of her even if the measurement was not readily available to him. His failure to either query the measurement or to recognise the potential clinical implications of the measurement I think represents at least a moderate departure from expected standards of care. If nursing staff were concerned that [Dr B] had overlooked the significant hypotension, or that his management did not appear appropriate to the clinical situation, I think they had a responsibility to raise that concern with him. A possible mitigating factor is that [Mrs A] may not have appeared outwardly as unwell as she actually was, noting the triage category assigned at [the hospital] and the subsequent delay in her medical assessment there.

(iv) [Dr B] did provide appropriate safety netting advice which fortunately was heeded by [Mrs A] and her husband. It was also fortunate that [Mrs A's] daughter had medical expertise and immediately recognised the severity of her condition. I am mildly critical that, if community management was to be regarded as a reasonable option, the dose of oral flucloxacillin recommended for cellulitis (500mg QID)[2] was not provided to [Mrs A] given the extent and nature of her symptoms and signs.

[1] https://www.nice.org.uk/guidance/ng51 Accessed 13 June 2018
[2] https://bpac.org.nz/antibiotics/guide.aspx#cellulitis Accessed 13 June 2018

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(v) I recommend [Dr B] review the cited references. Consideration might be given to referral to the Medical Council of New Zealand for a competency assessment.

6. Addendum 21 February 2019

(i) I have reviewed [the medical centre's] response dated 11 January 2019 and note the following comment: *A minor point worth clarifying regarding oral antibiotics — recent studies have shown[n] that TDS (three times daily) dosing of flucloxacillin results in similar plasma concentrations to QDS (four times daily) so although BPAC guidelines recommend QDS dosing, I do not feel this was an unreasonable treatment dose.* I am not sure what literature is being referred to as a basis for this comment and would be happy to receive the relevant reference(s). I note a recent small study published after the events in question determined that in 12 healthy volunteers, flucloxacillin 1000mg three times daily with food resulted in equivalent blood levels as in participants without food in their stomachs[3]. A summary of the study came with the comment: *Caution is needed as this dosing with food has not been tested in sick patients and close monitoring may be warranted initially. Equally, the 500mg dose has not been tested[4].* I note [Dr B] provided [Mrs A] with a dose of flucloxacillin 500mg TDS. I remain of the view this was not consistent with guidance in place at the time of the events in question, particularly for a very unwell patient, although I accept this guidance may change in the future if further research supports such a change.

(ii) The supervisory arrangements in place for [Dr B] appear consistent with accepted practice.

(iii) I have reviewed [Dr B's] e-mailed response dated 20 November 2018. He emphasizes [Mrs A's] apparent wellness at the time of his assessment of her, and I note the DHB response also indicated [Mrs A] did not appear overtly unwell when assessed later at [the hospital]. Despite this, [Dr B] was sufficiently concerned about [Mrs A's] condition to have offered her hospital admission as a management option although the importance of this option was apparently not emphasised. I remain moderately critical that, in a patient at risk of sepsis, [Dr B] did not consider this diagnosis more thoroughly, particularly in a patient with an obvious focus of infection who was complaining of feeling generally unwell (including light-headedness) and with some concerning vital signs as discussed previously. I acknowledge there may have been some deficiency in the communication of [Mrs A's] symptoms and vital signs by nursing staff to [Dr B], but the responsibility lay with [Dr B] to ensure he had all the information necessary to stratify [Mrs A's] risk of sepsis and to manage her according to this risk.

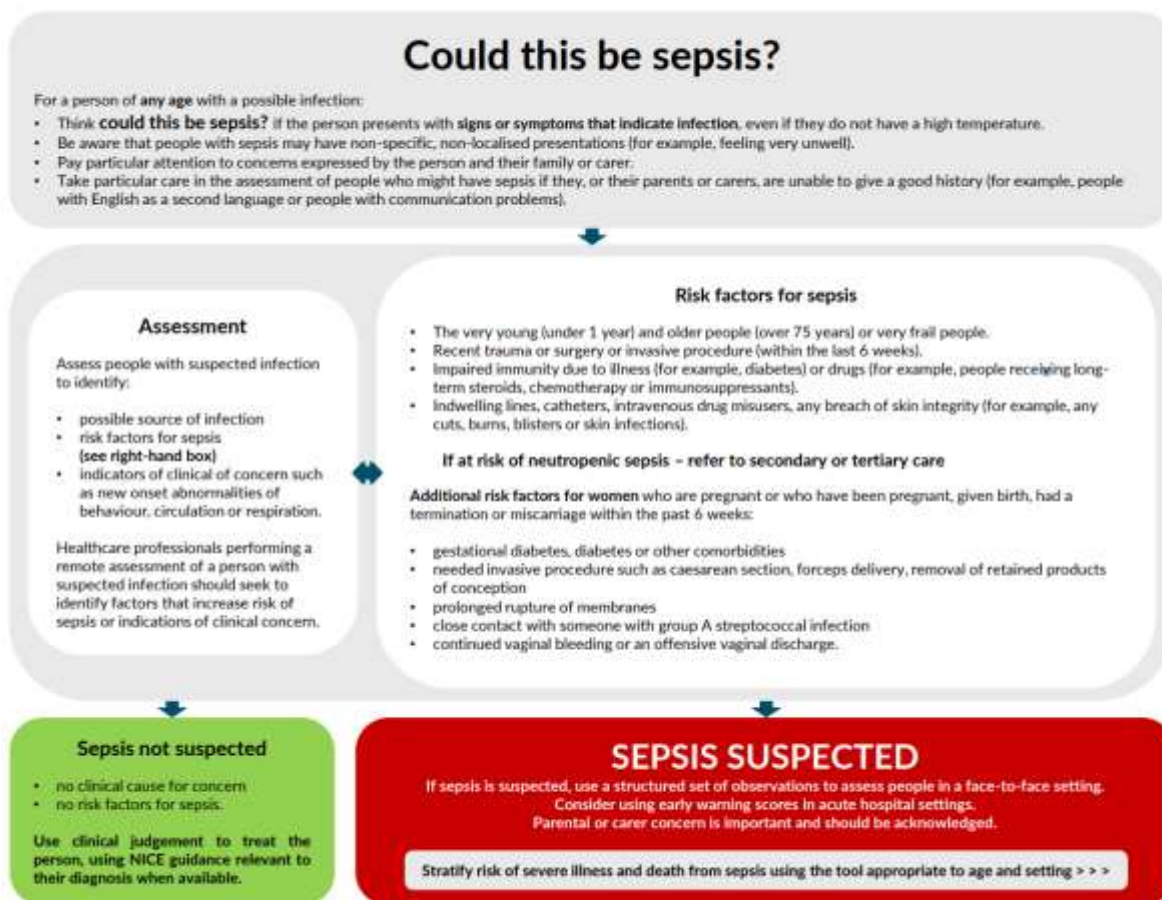
(iv) Remedial actions taken by [Dr B] since this incident appear reasonable."

[3] Gardiner S et al. In healthy volunteers, taking flucloxacillin with food does not compromise effective plasma concentrations in most circumstances. PLoS ONE. 2018;13(7)

[4] https://www.goodfellowunit.org/gems/oral-flucloxacillin-1000-mg-food-tds-probably-effective Accessed 19 February 2019

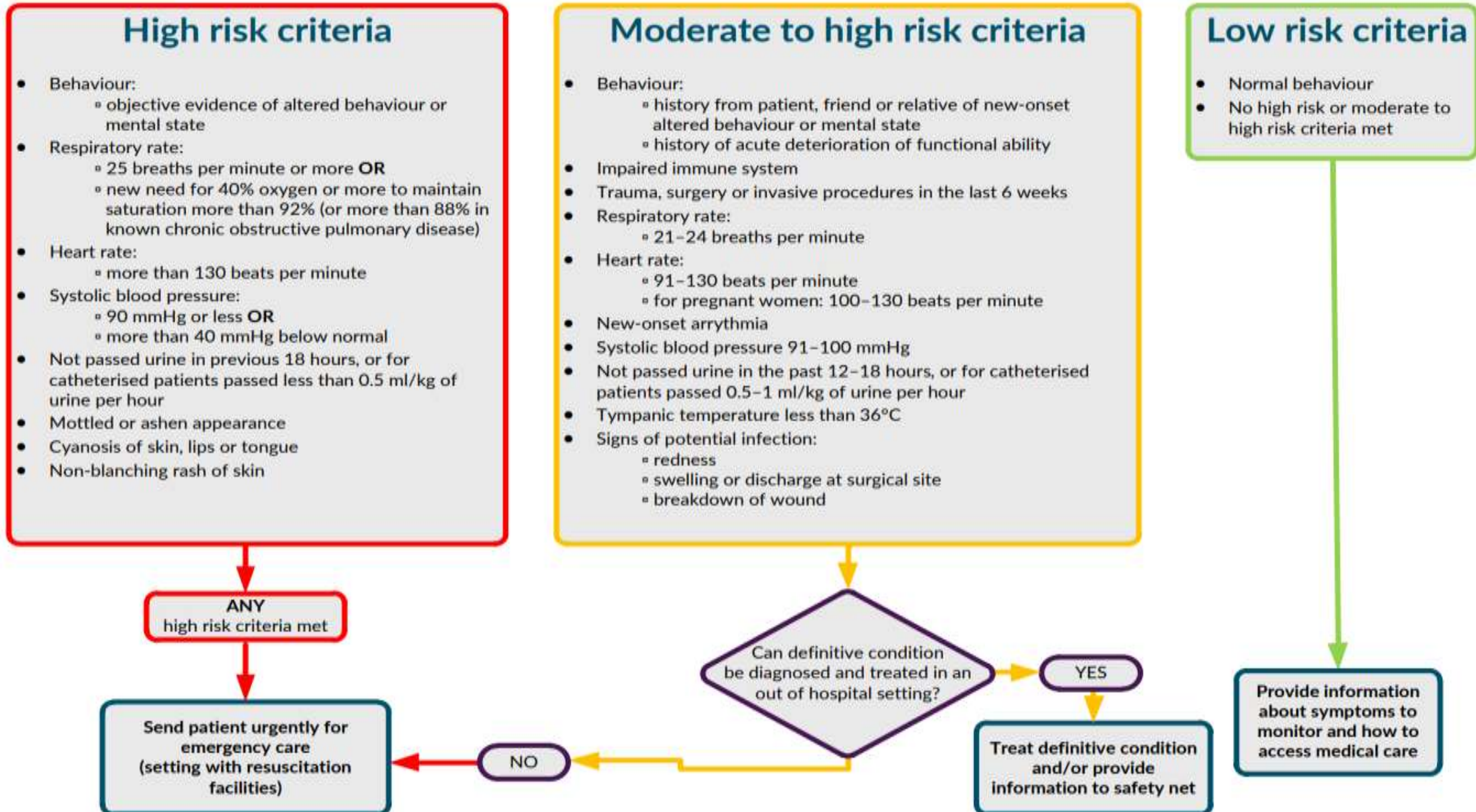
Names have been removed (except Northland DHB and the experts who advised on this case) to protect privacy. Identifying letters are assigned in alphabetical order and bear no relationship to the person's actual name

Appendix 1 From: Algorithm for managing suspected sepsis in adults and young people aged 18 years and over outside an acute hospital setting[5]



[5] https://www.nice.org.uk/guidance/ng51/resources/algorithm-for-managing-suspected-sepsis-in-adults-and-young-people-aged-18-years-and-over-outside-an-acute-hospital-setting-2551485716 Accessed 13 June 2018

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


Sepsis risk stratification tool: people aged 18 years and over out of hospital
High risk criteria
Behaviour:
objective evidence of altered behaviour or mental state
Respiratory rate:
25 breaths per minute or more OR
new need for 40% oxygen or more to maintain saturation more than 92% (or more than 88% in known chronic obstructive pulmonary disease)
Heart rate:
more than 130 beats per minute
Systolic blood pressure:
90 mmHg or less OR
more than 40 mmHg below normal
Not passed urine in previous 18 hours, or for catheterised patients passed less than 0.5 ml/kg of urine per hour
Mottled or ashen appearance
Cyanosis of skin, lips or tongue
Non-blanching rash of skin
Moderate to high risk criteria
Behaviour:
history from patient, friend or relative of new-onset altered behaviour or mental state
history of acute deterioration of functional ability
Impaired immune system
Trauma, surgery or invasive procedures in the last 6 weeks
Respiratory rate:
21–24 breaths per minute
Heart rate:
91–130 beats per minute
for pregnant women: 100–130 beats per minute
New-onset arrythmia
Systolic blood pressure 91–100 mmHg
Not passed urine in the past 12–18 hours, or for catheterised patients passed 0.5–1 ml/kg of urine per hour
Tympanic temperature less than 36°C
Signs of potential infection:
redness
swelling or discharge at surgical site
breakdown of wound
Low risk criteria
Normal behaviour
No high risk or moderate to high risk criteria met
ANY high risk criteria met
Send patient urgently for emergency care (setting with resuscitation facilities)
NO
Can definitive condition be diagnosed and treated in an out of hospital setting?
YES
Treat definitive condition and/or provide information to safety net
Provide information about symptoms to monitor and how to access medical care
NICE National Institute for Health and Care Excellence

Appendix B: Independent nursing advice to the Commissioner

The following expert advice was obtained from RN Craig Jenkin:

"I, Craig Jenkin, have been asked to provide an opinion to the Commissioner on case number 18HDC00793. I have read and agree to follow the Commissioner's Guidelines for Independent Advisors.

I currently hold the position of Clinical Nurse Specialist and Associate Charge Nurse Manager with the Department of Emergency Medicine at Wellington Regional Hospital. I have 15 years of Emergency Nursing experience. I have a Masters (clinical) qualification and am currently an RN prescriber within primary health and specialty teams.

Background of case (as per the letter provided to myself by … HDC):

[Mrs A] injured her leg on 2 February 2018 and over the next few days developed lethargy, nausea, swelling and blistering. She presented to a GP, on 7 February 2018, who prescribed antibiotics and advised her to monitor her symptoms. The GP advised her to go to hospital if her symptoms worsened or persisted within 2 days. Later that day, [Mrs A's] daughter took her to the [public hospital] Emergency Department. At 11.37am an initial triage assessment was performed by a RN and [Mrs A] was assigned a triage score 3 (to be seen within 30 minutes). [Mrs A] waited for two hours to be reviewed by a doctor. [Mrs A] required treatment for septic shock, persisting hypotension and acute kidney injury secondary to shock and was admitted to ICU for a week.

Documents provided:

1. Letter of complaint […]
2. Northland District Health Board's response dated 15 November 2018
3. Northland District Health Board's Emergency Department Triage Guidelines
4. Clinical records from Northland District Health Board covering 7 February 2018 to 8 February 2018.

Expert advice requested:

Review the provided documentation and advise whether the care provided to [Mrs A] by Northland District Health Board was reasonable in the circumstances and why.

In particular, please comment on:

I. The standard of the triage assessment and categorisation performed by RN D
It is my opinion that [Mrs A] should have been allocated a triage category 2 (imminently life-threatening, or important time critical and assessed by a practitioner in 10 minutes). I feel this would be the opinion of my peers at CCDHB ED.

[Mrs A's] blood pressure at triage was 82/61mmHg, this is a clinically significant hypotension and requires urgent assessment by a health professional. According to the College of Emergency Nurses New Zealand triage course pre-reading workbook (2011) '*hypotension is a late sign in shock and the importance of being attuned to*

other signs and symptoms, as well as regular reassessment of the patient waiting at triage'.

Causes of hypotension can include pregnancy, heart problems, endocrine problems, dehydration, lack of nutrients, severe allergic reaction or severe infection. Sepsis as a cause of hypotension has a very high mortality rate estimated at 40–60% (Tintinalli, J.E., et. al. 2016, 8th edition). Because of this it has become a 'standard of care' for early detection and treatment of sepsis (Rhodes, A., et. al, 2017) and in the majority of departments is an automatic Code 2.

As a marker for sepsis an isolated low BP scores 1 point according to the Quick Sepsis Organ Failure Assessment (qSOFA). The qSOFA is used to predict mortality, NOT to diagnose sepsis (https://www.mdcalc.com/qsofa-quick-sofa-score-sepsis). [Mrs A's] low BP therefore indicated an increased risk of mortality and required urgent (triage 2) assessment.

There are certain patient cohorts where established sepsis criteria cannot be met but sepsis may still be present. These include:

- Elderly or patients receiving renal dialysis may not manifest fever
- Heart rate limiting medications may blunt the tachycardic response
- Immunosuppressed patients (including those receiving high dose steroids or monoclonal antibodies) (CCDHB Adult Sepsis Pathway)

There was no evidence provided to say [Mrs A] met any of the aforementioned criteria so an isolated hypotension on its own makes sepsis difficult to define, however the hypotension was clinically significant and should be addressed early.

At the time of [Mrs A's] presentation the NDHB ED did not indicate that it had a sepsis pathway and RN D followed the existing established triage pathway. However, to not ensure rapid assessment of clinically significant hypotension means that this was below the expected standard of triage.

2. The standard of documentation in the triage assessment

Triage is a succinct process to identify the urgency of care required dividing presentations into 5 classes as shown in the table below.

The Australasian Triage Scale

Triage Category	**Description**	**Maximum Clinically Appropriate Triage Time**	**Performance Benchmark**
1	Immediately life-threatening	Immediate simultaneous triage and treatment	100%
2	Imminently life-threatening, or important time-critical	10 minutes	80%

3	Potentially life-threatening, potential adverse outcomes from delay > 30 min, or severe discomfort or distress	30 minutes	75%
4	Potentially serious, or potential adverse outcomes from delay > 60 min, or significant complexity or severity, or discomfort or distress	60 minutes	70%
5	Less urgent, or dealing with administrative issues only	120 minutes	70%

https ://www.health.govt.nziour-work/hospitals-and-specialist-care/emergency-departments/emergency-department-triage

I have reviewed the provided Triage information and in my expert opinion it is sufficient to make an appropriate triage decision and is of an equivalent equal to that of peers.

The Subjective Objective Assessment Plan (SOAP) format that is used on the NDHB triage sheet in the evidence provided appears consistent with standard triage documentation. It is clear and articulate and covers pertinent information. The Triage documentation did not mention any of the detail of the history that was stated in the *Copy of the Complaint.* If the triage nurse was unaware of this history it would make it more understandable that a triage 3 was allocated.

3. The Appropriateness of the time [Mrs A] waited to be seen by doctor

There are many variables that can make it difficult for a physician assessment in an ED within the 30min timeframe of triage 3. The variables can be, but are not limited to, the day of the week of the presentation/time of day of the presentation/what occurred on the previous two shifts/the occupancy of the hospital/the workload of specialities services/major trauma presentations/patient surges.

As indicated in the above table Triage 3 is potentially life-threatening, potential adverse outcomes from delay >30min, or severe discomfort or distress with an Australasian benchmark of 75% of patients being seen within thirty minutes. With a prolonged wait to be seen by a Doctor this standard was not met.

An inter-disciplinary approach to patient care has enabled nurse led identification of time critical conditions. If [Mrs A] had been appropriately recognised as potential sepsis then the early provision of an IV line and fluids by nursing staff prior to assessment may have reduced complications caused through the delay in seeing a treating physician.

I note at the GP practice there was a significantly low BP recorded and [Mrs A was] discharged home on oral antibiotics, [and] advised to go to the hospital if not feeling better. Noting this BP I would have thought the GP would have referred [Mrs A] straight to the hospital via ambulance from the practice.

4. Any matters in this case that you consider warrant comment

In the reply to the complaint NDHB highlight that they have established an Early Warning Score (EWS) and triage first process followed on by a secondary focussed assessment by a Waiting Room nurse.

The use of EWS is supported in current best practice guidelines by the Best Practice Advocacy Centre New Zealand *Sepsis: recognition, diagnosis and early management* June 2018 (https://bpac.org.nz/guidelines/4/#recommendations). This is based on the UK NICE guidelines. The guideline states in the introduction that 'A variety of stratification tools and Early Warning Score systems, with associated management algorithms are now being utilised'. Both these changes will likely assist in achieving what [Mrs A] wanted out of making the complaint of [not wishing] anyone else to go through a similar experience to this.

Rhodes, A., Evans, L. E., Alhazzani, W., Levy, M. M., Antonelli, M., Ferrer, R., Dellinger, R. P. (2017). Surviving Sepsis Campaign: International Guidelines for Management of Sepsis and Septic Shock: 2016. *Intensive Care Medicine, 43(3),* 304377. doi:10.1007/s00134-017-4683-6

Tintinalli, J. E., Stapczynski, J. S., Ma, 0. J., Yealy, D. M., Meckler, G. D., & Cline, D. (2016). *Tintinalli's emergency medicine: A comprehensive study guide* (Eighth edition). New York: McGraw-Hill Education."

The following further advice was provided by RN Jenkin:

"For 1. The standard of the triage assessment and categorisation performed by [RN D] I would say it is a moderate departure from the expected standard of care.

2. The standard of documentation in the triage assessment
Mild departure from expected standard of care. There is no evidence to state the past history of the presenting complaint was relayed to the RN. Normally a further in depth history is part of the secondary triage process. The documentation of the presenting complaint was appropriate, the interpretation of that information, to make it a code 2 instead of 3, is where the departure from expected care occurred.

3. The Appropriateness of the time [Mrs A] waited to be seen by doctor
Moderate departure from expected standard of care."

The following further expert advice was obtained from RN Jenkin on 8 May 2019:

"Thank you for the opportunity to read the response from Northland DHB. It does not change previous advice."