Capital and Coast District Health Board

Registered Nurse, Ms B

Emergency Department Registrar, Dr C

A Report by the

Health and Disability Commissioner

(Case 12HDC01172)

Health and Disability Commissioner
Te Toihau Hauora, Hauātanga

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Executive summary

Background

1. On 22 August 2012, Miss A (then a teenager) presented to the Emergency Department (ED) at a public hospital (Hospital 1) complaining of a sore throat, stiff neck, headache and vomiting. A classmate of Miss A had been diagnosed with meningococcal meningitis[1] 10 days earlier.

2. Miss A was triaged by registered nurse (RN) Ms B as an ATS[2] 3 patient (to be seen within 30 minutes). However, Miss A waited approximately three hours and 20 minutes to be seen by a doctor. During this time she was given anti-nausea medication, Panadol and ibuprofen. Her vital signs were not taken, and her condition was not reassessed while she waited to be seen by a doctor.

3. Miss A was diagnosed by registrar Dr C as having pharyngitis.[3] She received intravenous antibiotics overnight before being discharged the following morning with instructions to return to the ED should her condition deteriorate.

4. Over the course of the day, Miss A developed a rash on her hands and legs. She returned to the ED and was triaged as an ATS 2 patient (to be seen within 10 minutes). She waited approximately 55 minutes to be seen by a doctor. Blood cultures taken from her previous ED presentation indicated that she had contracted meningococcal meningitis.

5. On 24 August 2012, Miss A was admitted to Hospital 1 with a primary diagnosis of meningococcal meningitis and septicaemia,[4] and a secondary diagnosis of Group A Streptococcal (GAS) throat infection.[5] She received five days of intravenous antibiotics.

6. During her admission to Hospital 1, Miss A developed additional symptoms, including another rash, a painful lump on her leg, and ongoing joint aches. These symptoms were identified as an immunological response to her illness. On 27 August 2012, she was discharged from Hospital 1 with a five-day prescription for oral antibiotics.

7. After returning home, Miss A continued to experience joint pains, developed more lumps on her legs, and her rash became a deeper red. On 31 August 2012, Miss A was

[1] Inflammation of the meninges (the three membranes enclosing the brain and spinal cord) caused by infection with the bacterium *Neisseria meningitidis* (also known as meningococcus).
[2] Australasian Triage Scale.
[3] Inflammation or infection of the pharynx, causing a sore throat.
[4] Pathogenic microorganisms and their toxic by-products in the bloodstream causing a systemic response to infection.
[5] An infection of the oral pharynx and tonsils caused by Streptococcus bacterium, characterised by sore throat, chills, fever, swollen lymph nodes in the neck, and sometimes nausea and vomiting. Group A Streptococcus is a common but virulent bacterium that kills the tissue it infects and produces toxins that can trigger a form of shock, affecting the vital organs.

taken to the public hospital (Hospital 2), where she was diagnosed with rheumatic fever.[6]

8. At the time of Miss A's complaint to HDC, an echocardiogram[7] showed damage to her tricuspid valve.[8] A subsequent echocardiogram taken on 31 May 2013 showed no valvular damage to Miss A's heart.

Commissioner's findings

9. Emergency medicine specialist Dr John Chambers advised:

> "Following both presentations to ED [Miss A] exceeded recommended waiting times to be seen by a doctor by significant time frames for a patient with her acuity. On each occasion she exceeded the recommend[ed] waiting time by a factor of x4. This was an unacceptable delay especially in the context of suspicion of significant sepsis both initially and on representation."

10. I am concerned that the ED triage process was not implemented effectively and safely on two successive visits. This is a systemic issue that is directly attributable to the CCDHB.

11. I note that CCDHB has made a number of changes to its practice in this regard, including increasing ED staffing (including triage) and developing new pathways for patients from triage. However, Miss A was entitled to expect that CCDHB would provide her with services of an appropriate standard, and the abovementioned failings resulted in unacceptable delays in Miss A's assessment. In my view, CCDHB failed to provide services in a manner that minimised potential harm to Miss A, in breach of Right 4(4) of the Code of Health and Disability Services Consumers' Rights (the Code).[9]

12. Adverse comment is made about RN B and Dr C.

Complaint and investigation

13. HDC received a complaint from Miss A regarding services provided to her at Hospital 1 between 22 and 27 August 2012.

14. On 30 July 2013 an investigation was commenced. The following issues were identified for investigation:

[6] An acute inflammatory disease resulting from infections that are caused by Streptococcus bacteria, usually in the absence of antibiotic treatment. The disease is marked by fever and inflammation of the joints, nerves, and heart, where it can progress to scarring and permanent dysfunction of the valves.
[7] A diagnostic test using ultrasound waves to produce a functional image of the heart muscle.
[8] The first of the four heart valves that blood encounters as it enters the heart; it is situated between the right atrium and the right ventricle.
[9] Right 4(4) of the Code provides that "[e]very consumer has the right to have services provided in a manner that minimises the potential harm … to that consumer".

- *The adequacy and appropriateness of the care Capital and Coast District Health Board provided to Miss A in August 2012.*
- *The adequacy and appropriateness of the care registered nurse RN B provided to Miss A on 22 and 23 August 2012.*
- *The adequacy and appropriateness of the care Dr C provided to Miss A on 23 August 2012.*

15. The parties directly involved in the investigation were:

Miss A	Consumer/Complainant
Capital and Coast District Health Board	Provider
RN B	Registered nurse (RN)
Dr C	Emergency Department registrar

16. Information was received from each of the above parties, as well as from the following third parties:

Mr D	Consumer's partner/Witness
Hospital 2 / DHB 2	Provider
Medical clinic	Provider

17. The following parties are also mentioned in this report:

Dr E, Senior House Officer (Emergency), Hospital 1
Dr F, Physician (Internal Medicine), Hospital 1
Dr G, Registrar (Infectious Diseases), Hospital 1
Dr H, On-call House Surgeon, Hospital 1
Dr I, Medical clinic
RN J, Registered Nurse, Medical clinic
RN K, Registered Nurse, Hospital 1
Dr L, Physician (Infectious Diseases), Hospital 1

18. Independent expert advice was obtained from Dr David Maplesden (**Appendix A**), RN Dawn Carey (**Appendix B**), and an emergency medicine specialist, Dr John Chambers (**Appendix C**).

Information gathered during investigation

Relevant background

19. As at August 2012, Miss A was a teenager and full-time student. Miss A told HDC that "about ten days prior" to her admission to Hospital 1, a fellow student "came down with meningitis". Miss A's class was advised to be watchful for any flu-like symptoms and to seek medical assistance immediately should any such symptoms develop.

Consultation at a medical clinic — 22 August 2012

20. On 22 August 2012, Miss A woke up "feeling very unwell with a sore throat, a fever and flu-like aching". She had had a sore throat for "a day or so". She visited the medical clinic, where she was seen by Dr I and RN J.

21. Dr I told HDC that upon examining Miss A, she considered that the most likely diagnosis was influenza. Dr I took a throat swab and asked RN J to see Miss A for an influenza test. Miss A told HDC that she "let the nurse know that [she] had been exposed to meningitis". Neither the notes taken by RN J or Dr I record that Miss A had reported exposure to meningitis.

22. RN J advised HDC that "to [her] knowledge there was no mention of [Miss A] being in contact with meningitis at this time". Dr I advised HDC that she discussed Miss A's test results with RN J and that "at no time was there any mention of [Miss A] informing [RN J] that she had been exposed to meningitis". Miss A was given throat lozenges and a prescription for antibiotics pending return of her throat swab results. She then returned home.

First presentation to Hospital 1 ED — Wednesday 22 August 2012

23. Miss A told HDC that her condition deteriorated over the course of the day. By the afternoon, she had developed "a fever, severe headache, body aches, neck stiffness and … [she] was extremely disorientated". By approximately 10pm, she was "vomiting and the neck stiffness and drowsiness were worse".

24. At 11.08pm, Miss A (together with her partner, Mr D) presented to the Emergency Department (ED) at Hospital 1. Mr D told HDC that initially he was unsure whether to take Miss A to the ED, but he was advised by his two siblings (who are both nurses) and his school counsellor to take Miss A straight to the ED given her exposure to meningitis.

Departmental acuity and staffing levels on 22–23 August

25. CCDHB told HDC that 148 patients presented to the ED on 22 August, and that this is "above average".

26. Between 10pm and 11pm, nine patients presented to the ED waiting room, with a further seven patients arriving over the following hour (including Miss A). All 20 treatment spaces within the ED were full. There were three patients in corridor spaces. ED registrar Dr C noted:

> "[T]here were high volumes of presentations and evidence of ongoing overcrowding of our department with patients experiencing access blocks leading to delays in assessment, treatment and timely transfer to the wards … Rarely [do] we resort to placing patients in corridors — this is not best practice but occurs when there are no other safe options. There were 3 people in corridor spaces already at 2300 with more patients arriving — this reflects a situation of crowding in the ED with inevitable delays at all levels. This is recognised as a system-wide problem."

27. Handover to the night shift took place between 10.30pm and 11.30pm. The night shift was staffed by one registrar (Dr C) and two senior house officers (SHOs), together with an Associate Charge Nurse Manager (ACNM) and seven registered nurses, one of whom was allocated to the waiting room (RN B). A senior medical officer (SMO) was on call.

28. Dr C advised that he was "the most senior doctor on site". At the time, he had 10 years' experience in emergency medicine, had completed the written component of the Australasian College of Emergency Medicine (ACEM) fellowship examinations, and was a few months away from transitioning into an SMO role. He advised that his role was "characterised by frequent interruptions and management of competing priorities", including direct or indirect involvement with all ED patients and supervision of the SHOs on duty.

29. RN B told HDC that she started her shift at 10.45pm with a "full waiting room". At the time, she had been triaging for three months (having completed the College of Emergency Nurses NZ Triage Course earlier that year). RN B told HDC that "six other nurses and an ACNM were on that night but due to staffing levels and skill mix it was likely that the ACNM and I were the only nurses on that evening able to triage".

Hospital 1 triage policy

30. Hospital 1's triage policy, which is based on the ACEM Triage Guidelines, provides for the allocation of an Australasian Triage Scale (ATS) category to each presenting patient. It is designed to ensure patient prioritisation for treatment according to the urgency of the patient's condition, by setting a maximum time for which that patient should wait before receiving clinical assessment and treatment.

31. ACEM guidelines on the implementation of ATS set out a series of indicative clinical descriptors to assist in the allocation of ATS categories. ATS 2 pertains to imminently life-threatening conditions or the need for important time-critical treatment. An ATS 2 patient requires treatment within 10 minutes. Relevant clinical indicators include "suspected meningococcemia" and circulatory compromise (including a heart rate of over 150 beats per minute (bpm) in an adult). ATS 3 pertains to potentially life-threatening conditions or situational urgency. An ATS 3 patient is to be seen within 30 minutes. Relevant clinical indicators include dehydration and moderately severe pain of any cause requiring analgesia.[10]

32. An initial triage assessment is performed by the triage nurse, who is described in the policy as "an experienced emergency nurse who has successfully completed a triage education programme and who has advanced clinical assessment and interpersonal skills". The initial triage assessment is to include the following:

> "The Triage Nurse performs a brief assessment to identify immediate life threatening problems and high risk presentations from those conditions that are less urgent. This assessment will include identifying the presenting complaint, a

[10] Pain relief medication.

> brief description of the patient's present signs & symptoms and risk factors, and the subsequent allocation of an ATS category.
>
> The initial triage assessment should in principle take no more than 2 to 3 minutes per patient, and gather sufficient information to determine clinical urgency and identify immediate care requirements."

33. Hospital 1's triage policy also provides for a "second level of triage assessment on all waiting patients" by a triage assessment nurse who works alongside the triage nurse. The triage assessment nurse is described in the policy as "a second nurse at triage with a specific role in assessments and ongoing management of patients in the waiting area". The second triage assessment is to take place in the triage assessment room, and involves revisiting the history of the presenting complaint and obtaining a full set of vital signs.[11]

34. Each ATS category has a corresponding performance indicator threshold. Hospital 1's policy provides that 75% of ATS 3 patients are to be seen within 30 minutes, and 80% of ATS 2 patients are to be seen within 10 minutes. ACEM guidelines on the implementation of ATS in Emergency Departments provide that the time of assessment and treatment is usually the time of "first contact between the patient and the doctor initially responsible for their care". However, where a patient has contact exclusively with nursing staff acting under the clinical supervision of a doctor, it is the time of first nursing contact. Dr C advised that August 2012 was the ED's "busiest month on record" at the time, with 19% compliance in seeing ATS 3 patients within 30 minutes.

35. Hospital 1's triage policy further provides:

> "Regular re-assessment of patients waiting for care is essential. Reassessment should occur when a patient's wait exceeds his/her ATS category maximum waiting time, regardless of whether there has been a change in the patient's status, or when there has been an observed change in the patient's clinical condition."

36. The responsibilities of the triage team include "[i]nforming the Associate Charge Nurse Manager (ACNM) where workload exceeds the triage nurses' ability to provide effective and timely triage and triage reassessment. The ACNM will provide and/or facilitate assistance as required".

Initial triage assessment

37. Miss A told HDC that when she arrived at the ED, there were two nurses behind the front desk. Miss A recalls that she spoke only to the nurse who assessed her.

38. Miss A was triaged by RN B at 11.08pm at the front desk of the ED. Miss A and Mr D told HDC that they immediately told her about Miss A's exposure to meningitis.

[11] A full set of vital signs includes heart rate, respiratory rate, temperature, blood pressure and an assessment of mental status if relevant.

39. RN B told HDC that Miss A reported having a "painful sore throat" which "resembled a previous strep throat infection [Miss A] had had". RN B further advised that "as [Miss A] described flu-like symptoms I asked if she had a headache, which she did, and photophobia,[12] which she did not. She reported neck stiffness and general body aches but was able to put chin to chest and move her neck with ease."

40. RN B recalls that during the assessment, Miss A was "tearful/emotional", and the rest of her history was given by Mr D. Miss A told HDC that she heard the conversation that took place between RN B and Mr D, and that Mr D:

> "explained [her] symptoms to the Emergency Department Nursing Staff as [she] was physically unable to do so … [Mr D] stressed that [she] had been exposed to meningococcal via another [student] that had been diagnosed with the virus ten days earlier."

41. Mr D told HDC that he advised RN B of Miss A's exposure to meningitis. Mr D recalls being asked whether he was sure that it was not the flu, to which he recalls responding that he had a feeling that it was not. Mr D also recalls RN B asking whether Miss A had a rash, which she did not.

42. RN B noted in the triage assessment record that Miss A was complaining of "headache vomiting stiff neck and general body aches" but had "full r[ange] o[f] m[otion] of neck". The triage assessment record makes no reference to Miss A having been recently exposed to meningitis. RN B advised that she "cannot recall whether [Miss A's] partner advised [her] of the exposure to meningitis" and that she "believe[s] if [she] had known about the exposure or additional symptoms [she] would have stated this in [her] triage assessment".

43. In her response to my provisional opinion, RN B stated that she conducts an assessment for any signs of meningitis in any patients presenting to the ED with flu-like symptoms (such as Miss A). RN B stated that she disagrees that this indicates that she was made aware of the exposure. She said this is considered to be "best practice" in triaging patients with influenza-like illnesses.

44. RN B measured Miss A's heart rate and oxygen saturation, which she noted in the triage assessment record as 156bpm[13] and 98% respectively. RN B told HDC that she did not take Miss A's blood pressure as part of her initial triage assessment because she "was triaging [Miss A] at the front triage desk which does not have access to a sphygmomanometer[14] to take blood pressure". RN B also advised that she is "sure [she] performed a temperature check but [is] unsure why this was not documented".

45. RN B categorised Miss A as an ATS 3 patient, indicating that she was to be seen by a doctor within 30 minutes. RN B acknowledged to HDC that Miss A's elevated heart rate would have otherwise increased her to an ATS 2 (to be seen within 10 minutes).

[12] Abnormal sensitivity to light.
[13] A normal heart rate ranges between 60 and 100bpm.
[14] A device used to measure blood pressure (also known as a blood pressure meter).

However, she "considered [Miss A's] heightened emotional state may have contributed to her tachycardia[15]" and she "intended to check [Miss A's] heart rate again after she had become less anxious".

No further triage assessment undertaken

46. RN B told HDC:

> "It was my intention to undertake a further triage assessment, with a full set of vital signs, as the second part of our departmental triage process by taking the patient into a triage assessment room attached to the waiting room."

47. However, RN B told HDC that she was unable to do so due to the acuity of the ED and the competing demands on her as the sole triage nurse on duty.

Monitoring while in waiting room

48. Room allocation records indicate that Miss A remained in the ED waiting room from 11.25pm on 22 August until 12.50am on 23 August (approximately one hour and 25 minutes). Miss A told HDC that during this time she was "falling in and out of sleep and had developed an aversion to light". She said that her neck became so sore sitting up that she ended up putting down a blanket and lying flat on the floor.

49. In her complaint to HDC, Miss A advised that "[Mr D] went up to the reception at least 3 times to try and speed things up" and that when he "suggested I needed urgent care and that he believed I might have contracted meningitis he was told 'to stop diagnosing' and to sit down". CCDHB interviewed RN B, who stated that "should anyone approach her she would never say 'stop diagnosing' and would have attended the patient". Miss A told HDC that she did not hear the conversations that took place between Mr D and RN B.

50. Mr D told HDC that he recalls presenting to reception on two occasions after Miss A's initial assessment. RN B also recalls Mr D presenting to triage twice.

51. Mr D told HDC that he first presented to reception approximately one hour after Miss A's initial triage assessment, and reiterated his concerns regarding Miss A's condition including her recent exposure to meningitis. Mr D recalls that he spoke with the same nurse who had assessed Miss A earlier. Mr D told HDC that he recalls being advised by that nurse that the ED was very busy that evening, and that patients often present to ED with symptoms similar to Miss A's, which are later diagnosed as influenza.

52. RN B recalls that when Mr D first presented to the reception desk, she was in the middle of triaging another patient, and did not hear the conversation that took place between reception staff and Mr D. RN B recalls that she excused herself from that patient to speak with Mr D, who "did not advise her of any developing symptoms or make any comment about meningitis" but was "anxious about the waiting time". RN B further recalls that she told Mr D that she would "see to [Miss A] after she had finished with her current patient".

[15] An abnormally rapid heart rate.

53. Following her first conversation with Mr D, RN B went into the ED and spoke with SHO Dr E. RN B told HDC:

> "I gave him a basic account on [Miss A's] presenting complaint. I pointed [Miss A] out on the EDIS system[16] and spoke of my concerns re dehydration, tachycardia, pain and nausea."

54. RN B told Dr E that Miss A needed to come through to the Emergency Department, and probably needed IV fluids. RN B said that she wanted to administer pain relief while Miss A was in the waiting room but, due to Miss A's nausea, she felt that Miss A needed an antiemetic.[17]

55. Medication charts indicate that at 12.30am on 23 August, Dr E charted antiemetic medication for Miss A in the form of oral ondansetron, which was then administered by RN B. RN B told HDC that she "only had time for a visual check of [Miss A] when [she] gave her medication". RN B further advised that "neither [Miss A] nor her partner expressed any concerns about meningitis or developing symptoms at this time".

56. RN B told HDC that she also recalls speaking with the ACNM about Miss A's condition, although she cannot recall the "exact conversation" that took place. RN B advised that conversations of this type are usually brief, and involve RN B "pointing out" the patient about whom she is concerned and making a plan for the patient to be transferred into the assessment area. RN B noted that the ACNM has "constant access" to the EDIS screen, which RN B also updated to read "** Room please **" alongside Miss A's name.

57. In her response to my provisional opinion, RN B stated that her update of the EDIS screen was done "as an additional flag to the ACNM so that she would recognise that this was the patient we were discussing and not a stand alone statement of intent. My urgency and clinical concerns regarding Miss A's condition were conveyed in the conversation not in the text."

58. RN B did not document her conversations with either Dr E or the ACNM.

59. Mr D told HDC that he later presented to reception a second time. He recalls speaking with a different nurse, and again advising of his concerns regarding Miss A's deteriorating condition given her recent exposure to meningitis. The nurse told him that Miss A was about to be taken into ED. RN B recalls Mr D presenting to triage a second time "just prior to a bed being arranged".

Further assessment and treatment in the Emergency Department — Thursday 23 August 2012

60. Dr C told HDC that, having noted a number of "red flags on [Miss A's] triage that warranted urgent assessment", he asked that she be brought into the ED from the

[16] Emergency Department Information System.
[17] Medication used to prevent and alleviate nausea and vomiting.

waiting room. He recalls that "there was then some delay in finding an appropriate space, bringing her through into the department and having initial assessments".

61. At 12.50am, Miss A was moved into a cubicle in the ED. Medication charts indicate that at 2am Miss A was given paracetamol and ibuprofen.

Nursing assessment of Miss A

62. At 2.38am, a student nurse (under the supervision of a registered nurse) recorded an assessment of Miss A. The clinical record indicates that Miss A explained that "a colleague of hers from class was treated for meningitis last week", and that Miss A felt that she ought to "come into ED to get it checked out". The nursing notes further record that Miss A was "experiencing aches and pains around her entire body and stiffness to the neck" but had "NIL rashes".

63. A full set of Miss A's vital signs was also recorded at 2.38am. Miss A was noted as having a temperature of 38.2ºC[18], heart rate of 123bpm, respiratory rate of 26/min[19] and blood pressure of 90/44mmHg.[20]

Guidelines for management of the febrile patient with possibility of meningococcal disease or meningitis (any cause)

64. At the time of Miss A's admission, Hospital 1 had in place guidelines for the management of febrile patients with suspected or possible meningococcal disease or meningitis. The febrile patient protocol calls first for an assessment of whether the patient shows classical signs of meningococcal disease (petechial[21] or purpuric[22] rash) and, if not, whether there are signs and symptoms of meningitis (photophobia, neck stiffness, meningism[23]).

65. If the patient does not show signs of meningitis, but is unwell with a clinical or patient concern as to meningococcal disease, a treatment plan is prescribed as follows:

- Exclude sepsis syndrome,[24] meningism and classical features of meningococcal disease;
- Obtain specified blood tests, blood cultures and urinalysis; and
- Treat with intravenous ceftriaxone.[25]

Dr C's assessment and initial diagnosis of Miss A

66. The clinical record indicates that Miss A was seen by Dr C at 1.31am. Dr C subsequently clarified that this was "likely the time I first clicked on [Miss A's] name on the computer, not the time of first assessment". Dr C further advised HDC: "I

[18] Normal body temperature is 37°C.
[19] Normal adult respiratory rates typically range between 15 to 20 breaths/minute.
[20] Normal adult blood pressure is 120/80mmHg.
[21] A rash characterised by small purplish spots.
[22] A rash of dark red colour.
[23] Meningism refers to symptoms that may relate to irritation of the meninges, characteristically neck stiffness, photophobia, and headache.
[24] A systemic response to infection. Hypotension, organ dysfunction and hypo-perfusion (circulatory shock) are key indicators of sepsis.
[25] A broad spectrum antibiotic that includes coverage for meningococcal sepsis and meningitis.

believe I was interrupted prior to assessing [Miss A] by a high acuity patient. It is likely my initial assessment was around 0200–0230." Nursing notes taken at 2.38am record that the "ED Dr" was currently reviewing Miss A. Miss A also recalls being seen by a doctor at approximately 2.30am.

67. At 2.50am, Dr C recorded his assessment of Miss A as being "relatively well despite hypotension[26]". The clinical record notes that Miss A did not show signs of meningism. Dr C recorded that she had full range of motion in her neck and did not have a rash. He assessed her as being tachycardic with a moderate elevation of her respiratory rate and temperature, and borderline low blood pressure. He advised HDC that he did not consider there to be any evidence of hypo-perfusion[27] such as delayed capillary refill[28] or altered mentation.[29]

68. Dr C told HDC that his "initial working diagnosis" was of a streptococcal throat infection. He further advised that he "considered it unlikely for [Miss A] to have both a streptococcal throat infection (or severe pharyngitis) and meningococcemia[30]" given that it is "very rare to have concomitant strep pharyngitis and meningococcal disease".

Treatment plan

69. Dr C recorded a treatment plan that included intravenous fluids and ceftriaxone. Dr C told HDC:

> "I prescribed ceftriaxone for her throat infection but also based on the knowledge that meningococcal disease can present with a myriad of signs and symptoms — including non-specific febrile illness in an otherwise (reasonably) well appearing adult … Given the presence of a tachycardia, the history of contact with a patient diagnosed with meningococcal disease the week before I decided to treat with broad spectrum antibiotics, including cover for meningococcal disease (ceftriaxone)."

70. Miss A's treatment plan included specified blood tests and cultures, but did not include testing by lumbar puncture.[31] Dr C told HDC that he has a "low threshold" for such tests, having worked during the peak of the meningococcal epidemic, but that:

> "in this case there appeared to be a clear focus for the infection (the throat) based on exam and history and there was no meningism to exam. As such I had to consider the risks of [lumbar puncture] (discomfort, post-[lumbar puncture] headache, very rare infectious complications) with the potential benefit — on balance … I did not proceed to [lumbar puncture] at this time."

[26] Abnormally low blood pressure.
[27] Decreased blood flow through an organ, otherwise known as circulatory shock.
[28] The time taken for colour to return to an external capillary bed after pressure is applied to cause blanching.
[29] An alteration in mental status, such as confusion, memory loss and disorientation.
[30] The presence of Meningococcus (the bacteria formally known as *Neisseria meningitides*) in the bloodstream.
[31] A procedure that involves taking cerebrospinal fluid from the lower back through a hollow needle, usually for diagnostic purposes.

71. In any event, Dr C advised HDC that he was "aware that in the worst case scenario [he] had already treated presumptively for meningococcal sepsis and meningitis".

72. At 2.45am, blood tests were taken from Miss A for processing and, at 3.10am, intravenous ceftriaxone was commenced. A further set of Miss A's vital signs were recorded in the clinical notes at 3.45am, which showed that her temperature and heart rate had reduced to 36°C and 101bpm respectively. Her respiratory rate had also reduced to 16 breaths per minute, although she remained borderline hypotensive with blood pressure of 90/41mmHg.

Management of hypotension overnight

73. In her complaint, Miss A stated that "it was a long night of trying to get my blood pressure up to normal as it was very low. After doing some research of my own I have discovered that low blood pressure is yet another symptom of the early stages of meningitis".

74. The clinical record indicates that at 4.52am Miss A's blood pressure dropped to 75/35mmHg. Dr C was alerted to her change in condition. He told HDC that this triggered him to undertake a further review of Miss A. Dr C said that his impression was that Miss A was "clinically improving at this point — symptomatically and in all other indices aside from the blood pressure". Miss A was recorded as being afebrile at 37.2°C, with a heart rate of 95bpm, respiratory rate of 22 breaths per minute and oxygen saturation of 99%.

75. Nursing notes made at 4.53am record that Dr C reviewed Miss A's blood results, which he found to be "satisfactory". The nursing notes further record that Miss A's blood pressure was too low for her to be discharged. A plan for "further fluids" was noted.

76. Dr C retrospectively recorded his 4.53am assessment of Miss A at 6.05am. He noted that the blood results were "consistent with moderate infection/viral illness". Dr C further explained to HDC that Miss A's blood tests "did not raise any new red flags to change management and were consistent with an infectious illness but non-specific and without evidence of end organ injury or hypo-perfusion". Dr C noted in the clinical record that Miss A could not be discharged safely with her blood pressure at its present level. He further noted that Miss A was "feeling improved" and was "clinically well" despite her hypotension.

77. Nursing staff continued to monitor Miss A's condition overnight. At 5.57am, it was recorded that Miss A's blood pressure had increased to 88/42mmHg. She was documented as being afebrile at 37.1°C, with a heart rate of 90bpm, respiratory rate of 27 breaths per minute and oxygen saturation of 100%.

78. At 6.39am, it was recorded that Miss A was afebrile at 36.7°C with blood pressure of 87/41mmHg and heart rate of 97bpm. Her respiratory rate was recorded as having reduced to 20 breaths per minute, and her oxygen saturation was 99%.

79. At 7.05am, Miss A's vital signs were checked again, at which time her blood pressure had dropped to 76/35mmHg. She was afebrile at 36.5°C, with a heart rate of 89bpm, respiratory rate of 22 breaths per minute and oxygen saturation of 99%.[32]

Pre-discharge assessment

80. At 7.27am, it was documented that Miss A's blood pressure had risen to 96/74mmHg. She remained afebrile at 36.2°C, with a heart rate of 74bpm, respiratory rate of 16 breaths per minute and oxygen saturation of 99%.

81. Nursing notes taken at 7.35am record that Miss A's blood pressure "remain[ed] low but may be normal for her". On review, Dr C noted in the clinical record that Miss A's blood pressure was now "90 systolic"[33] and that he would "estimate this to be within normal limits for [Miss A] given [her] age/body habitus".

82. Dr C explained to HDC that he had "mistyped on the notes that the blood pressure was 90 (or may have been trying to convey that the BP was AT LEAST 90 — 90 being a nominal cut-off for hypotension in many texts/guidelines) … The blood pressure at this time pre-discharge was 96/74[mmHg]."

83. Dr C told HDC that he:

> "considered the improvement in her blood pressure from 75 to 96 systolic at discharge to be evidence of response to treatment particularly given no other evidence of hypo-perfusion and the improvement of all other indices (HR 75, RR 14, sats 100%, symptom improvement) and the normalisation of the diastolic[34] pressure … The diastolic clearly being normal and systolic being above those same cut-offs for hypotension and in my opinion within acceptable limits for a [teenaged] woman who was physically fit and of slim build."

84. The clinical record indicates that at 7.56am, Miss A reported feeling "improved" although her throat remained "sore+". Dr C recorded his assessment that Miss A's "other symptoms [had] settled, tachycardia has completely resolved" and her blood results were "okay".

85. In her complaint, Miss A advised that she was "discharged without the blood work being processed". CCDHB advised HDC:

> "Blood cultures take a period of time to culture any growth. The results of the blood culture would therefore not have been available to the clinicians at this presentation prior to [Miss A] being discharged … The normal process is that, should a positive result be obtained from a blood culture during normal working

[32] There is a further entry in Miss A's clinical record at 7.19am. It was recorded in the nursing notes that these details were entered into Miss A's clinical record in error and relate to another ED patient.
[33] Systolic pressure is the peak pressure in the arteries, which occurs near the end of the cardiac cycle when the ventricles are contracting (the upper reading of a blood pressure recording).
[34] Diastolic pressure is the minimum pressure in the arteries, which occurs at the beginning of the cardiac cycle when the ventricles are filled with blood (the lower reading of a blood pressure recording).

hours, the results are phoned to the team caring for the patient or to the ED in this case as the patient was discharged."

Discussion regarding admission to Short Stay Unit

86. The clinical record notes that Miss A was offered admission to the Short Stay Unit (SSU) for further hydration,[35] which she declined in favour of being discharged home.

87. Dr C told HDC:

> "We discussed the option of admission to our short stay unit (SSU) — I offered this due to the earlier hypotensive episode, initial symptoms and meningococcal contact. [Miss A] declined and preferred to go home with her support person. In my recollection I offered SSU as an option but agreed that discharge home was also an acceptable option given I had treated presumptively with ceftriaxone, seen a clinical improvement and [Miss A] had the capacity to return as required and I was aware there was a call-back system in place for positive blood cultures … At the time there was no ongoing management so admission would have been for observation."

Discharge from ED

88. At 7.44am, Miss A was discharged from the ED with a primary diagnosis of pharyngitis. Dr C told HDC that his opinion at the time was that Miss A's presentation was consistent with systemic inflammatory response syndrome[36] and dehydration secondary to a probable streptococcal throat infection. Miss A told HDC that she was given a prescription for penicillin and ibuprofen, and was told to follow up the test results of the throat swab taken by the medical clinic the following day.

89. The ED discharge summary form completed by Dr C further records that Miss A was advised to return to the ED if she became "more unwell today (faint, severe headache not responding to pain killers, drowsy etc)". The clinical record also notes that Miss A was advised of the low threshold for return given her hypotension.

90. Dr C told HDC that he does not recall discussing Miss A with an SMO, and that it is likely that Miss A had left the ED at the time of handover. Dr C advised that "at the time [he] was a senior registrar a few months away from becoming an SMO and as such there was no expectation that [he] would discuss all cases discharged overnight, though the opportunity was available whenever needed".

Streptococcal throat infection confirmed

91. On 23 August 2012 at 4.32pm, the medical clinic contacted Miss A by text message advising that her throat swab results showed a "strep infection" and asked that she contact the clinic regarding her script.

[35] Patients are able to remain in the Hospital 1's Short Stay Unit for up to 24 hours.
[36] A severe systemic response to a condition (such as an infection) which produces an acute inflammatory reaction.

Second presentation to Hospital 1 ED — Thursday 23 August 2012

92. Miss A told HDC that at approximately 2.30pm on 23 August 2012, she woke up feeling worse with a "burst blood blister looking spot" on her hand (but no other marks on her body). By 7.30pm she noticed that the spots had spread to her hand, left shin and right foot.

93. Miss A told HDC that she and Mr D immediately returned to the ED. At 8.11pm, Miss A was triaged by RN K, who noted in his triage assessment that Miss A was afebrile at 35.3ºC with "petechial spots all over her body", a headache and "some photophobia". RN K further noted that her throat swab result was "strep positive". No reference is made in the triage assessment form to Miss A having been exposed to meningitis. RN K categorised Miss A as an ATS 2 patient.

94. At 8.51pm, Miss A was assessed by the staff nurse on duty. The clinical record made retrospectively at 10.57pm notes that Miss A had been discharged earlier that day as she was "stable" but that she had since noticed petechial rashes "all over her body" and that Miss A had advised that "a lady who lives in the same hostel where she resides has just been diagnosed with bacterial meningitis". The clinical record indicates that Miss A was calm and co-operative, with clear airways, regular and unlaboured breathing, a strong, regular pulse and no neck stiffness. Photosensitivity was noted. Miss A was then placed into isolation.

95. Vital signs taken at 9pm indicate that Miss A was afebrile at 35.9ºC, with a heart rate of 91bpm, respiratory rate of 20 breaths per minute, blood pressure of 119/59mmHg and oxygen saturation of 98%.

Meningococcal meningitis confirmed

96. At 9.06pm, Miss A was seen by a doctor who noted a primary diagnosis of bacterial meningitis. Notes taken by an SHO at 11.12pm record that the "lab rang" and advised that Miss A's previous blood culture results showed "gm -ve diplococci",[37] indicating the presence of Meningococcus bacterium (*Neisseria meningitidis*).

97. Intravenous antibiotics, in the form of ceftriaxone and vancomycin,[38] were commenced at 9.10pm and 10pm respectively. Intravenous dexamethasone[39] was also commenced at 9.25pm. A lumbar puncture and various blood tests were performed, the results of which confirmed the diagnosis of meningococcal meningitis.

Admission to Hospital 1 — Friday 24 to Monday 27 August 2012

98. On 24 August 2012 at 2.30am, Miss A was admitted to Hospital 1 with a primary diagnosis of meningococcal meningitis and septicaemia, and a secondary diagnosis of GAS throat infection.

[37] Gram negative diplococcus is a type of bacteria with a specific form and reaction to Gram staining, an example of which is *Neisseria meningitidis* (the bacterium that causes meningitis and other forms of meningococcal disease).
[38] An antibiotic used against resistant strains of Streptococcus.
[39] A synthetic steroid used primarily as an anti-inflammatory agent.

Assessment and treatment plan

99. At 9.30am on 25 August Miss A was seen by Infectious Diseases Registrar Dr G, who recorded in Miss A's progress notes that the "meningococcal meningitis [was] improving rapidly". A suggested treatment plan was recorded for continued ceftriaxone over three to five days, with vancomycin and dexamethasone to be stopped.

100. Miss A told HDC:

> "My parents and I queried the Doctor whether or not I would need to take the penicillin I was prescribed on Wednesday for my Strep throat to treat that infection as well. We were clearly told that there was no need for the oral antibiotics and the IV antibiotics I was on would wipe out any other infection as well. This was also reiterated by other hospital Staff."

101. At 11.30am, Miss A was seen by a general physician, Dr F, who observed that Miss A appeared "more well today, sitting up, looking bright". Dr F noted that Miss A had a widespread petechial rash and no neck stiffness. Her overall impression was of "improving" meningitis, and she recorded a treatment plan as suggested by Dr G.

Communication between Miss A, Dr F and ED staff

102. Miss A recalls being congratulated multiple times by a number of staff on her persistence, and said that she is "shocked that [she] was put in the position where [she] had to be 'persistent' to save [her] own life". Miss A further recalls that Dr F was "shocked" that Miss A was turned away from ED, and that Dr F assured Miss A and her mother that the matter would be "taken further".

103. Dr F advised HDC:

> "'Shocked' is not a word I would ever use to a patient to describe care given by another health professional to them, especially when I was not in full possession of the facts. However I do remember saying that I was really sorry that she had had the experience of being discharged from the Emergency Department when she was so sick. We talked about the uncertainty of medicine and how it wasn't always easy to make a diagnosis. We also talked about how in spite of being discharged, she had received the appropriate antibiotics — which in all probability had saved her life. I did say I would go down to the department and make sure they were aware of what had happened so the case could be reviewed. Both [Miss A] and her parents seemed happy with this."

104. Dr F recalls then discussing Miss A's care with a senior ED doctor "to make sure they were aware of the case". Dr F remembers briefly discussing ED protocol and being advised that when Miss A re-presented to ED she had been about to be recalled because of a positive blood culture result for Meningococcus.

Miss A develops additional symptoms

105. During her admission, Miss A developed another rash, joint and muscle aches, and a painful lump on her leg. Miss A said that from the afternoon of 24 August, she began developing "now obvious" symptoms of rheumatic fever. She told HDC:

> "I had developed another rash that was different to the meningitis rash and my joints had become very stiff. I had trouble walking, even short distances, and experienced severe pain in my chest and, when I sat back down, in my legs. This got worse every day I was in hospital, which put me at unease, with the joint pain moving from being mainly in my legs to being in all of my joints. I also developed large lumps under the skin on my legs which were really painful and were of great concern as I didn't know what they meant or if they were normal."

106. Progress notes indicate that on 25 August, Miss A had "noticed 2 new small rashes on [her] hands" which continued to spread over the course of the day. Progress notes further indicate that from 26 August, Miss A was also experiencing ongoing joint aches and had developed a painful lump on her leg (pain score of 2/10 as at 5pm on 26 August), and that these symptoms were being managed with regular doses of ibuprofen.

107. At 7.38pm on 26 August, Miss A was seen by the on-call house surgeon, Dr H, regarding her "lump on leg with red rash, not able to mobilise". The progress notes record that Miss A was afebrile and alert, with a purpuric non-blanching rash on her upper and lower legs, swollen ankles and a small, hard lump on her left lower leg. Dr H recorded having spent "some time" explaining Miss A's symptoms in the context of meningococcal septicaemia, that she was receiving the correct treatment, and that her blood tests confirmed that her condition was improving. An ultrasound of the lump on Miss A's leg was arranged for the following morning.

108. At 9am on 27 August, an ultrasound was performed, which confirmed that there was no abscess in Miss A's leg. At 10.10am, Dr G assessed Miss A and noted that he considered the skin lesions to be consistent with erythema nodosum,[40] and that the joint pain was likely immunological and could be managed with Panadol and ibuprofen. At 10.50am, Miss A was assessed by Dr F, who also noted that she recognised the skin lesions as erythema nodosum.

109. Miss A told HDC that she "asked about these new symptoms multiple times to multiple doctors, each one telling us slightly different interpretations of these symptoms" and that "after all of this talking however, [she] just wasn't reassured".

110. Dr F told HDC:

> "I presume [Miss A] is referring to explanations from the on call house surgeon over the weekend, [Dr G] and myself … I recall telling [Miss A] that she not only had meningococcal meningitis but meningococcal septicaemia and that these other symptoms — the arthralgias (painful but not swollen joints) and erythema

[40] A skin disorder characterised by painful red nodules appearing mostly on the shins.

> nodosum were reflections of this. Added to this was the group A streptococcal throat infection which could also cause erythema nodosum. We discussed that this could take some time to resolve (but it would all resolve). From what has been documented in the notes, all these explanations are very similar — obviously wording was slightly different on each occasion."

Discharge — Monday 27 August 2012

111. At 10.50am, Miss A was seen by Dr F on her ward round. Dr F told HDC that she and Miss A had a discussion about discharge, and Dr F indicated that this could be arranged for later in the day provided Miss A had a suitable place to stay. Dr F advised that "there was an option for [Miss A] to remain another night but she chose to leave with her mother. We talked about convalescence and that it might be 1–2 months before these symptoms settled down".

112. Nursing notes record that at 11.05am Miss A's vital signs were "stable and within normal range", that it was explained to Miss A and her mother that "joint pain and a bit of immobility is normal for her illness", and that "[p]atient and mother [were] happy with this".

113. Dr F told HDC:

> "An hour or two later I spoke with [Dr G] regarding treatment of the Group A streptococcus. I thought it likely that 5 days of intravenous Ceftriaxone would have adequately treated this but in view of the tiny risk of rheumatic fever with untreated group A streptococcal infection wondered if any further oral antibiotics should be administered on discharge. [Dr G] discussed this with one of his consultants and the decision was for a further five days of oral penicillin to comply with guideline recommendations of ten days of treatment (although the feeling was that the five days of intravenous antibiotic would be sufficient)."

114. Miss A told HDC that she "finished [her] antibiotics by Monday the 27th and [her] blood pressure was steady. The pain was by this time extreme and [her] muscles had seized up to a point where [she] couldn't even stand up in the shower … [She] was told that 'this would pass' and [she] was discharged on Monday afternoon".

115. At 2.29pm, Miss A was discharged from Hospital 1 with a primary diagnosis of meningococcal meningitis and septicaemia, and a secondary diagnosis of GAS throat infection. Her discharge summary notes that she had developed erythema nodosum and arthralgia, which was thought to be "secondary to strep infection +/- recent meningococcal meningitis", and had been advised to complete five further days of oral penicillin "to cover strep throat".

Admission to Hospital 2 — Friday 31 August 2012

116. Following her discharge from Hospital 1, Miss A went to stay with her parents in another region. She reports being bedbound because of joint pains. She developed more lumps, and her rash became a deeper red.

117. On 31 August 2012, Miss A was taken to Hospital 2 by ambulance with a fever of 39.5ºC and body aches. The following day, she was diagnosed with rheumatic fever.

118. Miss A told HDC:

> "[T]he attending doctor said that the strep throat infection had been overlooked in Wellington and it had progressed into rheumatic fever. I was given high-dose aspirin which was very effective in relieving my joint pain and was put on another round of antibiotics. Results of an echocardiogram[41] show that there has been damage to my tricuspid valve.[42] There is also a likelihood of me developing arthritis. I have to take penicillin daily for an estimated 5–10 years and alter my lifestyle accordingly. This was all preventable and should have been detected earlier, potentially before any permanent damage to my heart was done."

119. DHB2 told HDC:

> "[T]he consultant physician responsible for [Miss A's] care during her admission to [Hospital 2] … thinks [Miss A] may have got the impression that her probable rheumatic fever originated from an overlooked sore throat in [Hospital 1]. What is more likely to have happened is that the probable rheumatic fever is a post-streptococcal infection autoimmunity phenomenon that can occur even when the previous sore throat was optimally managed."

Subsequent review of Miss A's condition

120. CCDHB told HDC that Miss A was reviewed by Dr L in March 2013 at Hospital 1's Infectious Diseases outpatient clinic. Dr L advised that he discussed the diagnosis of rheumatic fever with Miss A, and that he considers that "with the benefit of hindsight there is not substantive evidence for a diagnosis of rheumatic fever to be made".

121. CCDHB further advised that an echocardiogram taken on 31 May 2013 showed no valvular damage to Miss A's heart.

Changes made since this incident

122. Since this complaint, CCDHB, Dr C, and RN B have made various changes to relevant aspects of their respective practices. Details of these changes are set out below.

Changes made by CCDHB

123. On 5 March 2013, CCDHB issued its Sepsis Pathway Protocol, the purpose of which is to "reduce preventable harm to patients with severe infection and sepsis through early recognition and prompt treatment". The protocol is aimed at identifying patients with possible sepsis at triage stage to ensure that they receive higher triage level (at least an ATS 2) and antibiotics early in their presentation. CCDHB advised that it is

[41] A diagnostic test using ultrasound waves to produce an image of the heart muscle.
[42] The first of the four heart valves that blood encounters as it enters the heart; the tricuspid valve is situated between the right atrium and the right ventricle.

"almost certain" that Miss A would have been caught by this protocol had it been in place at the time of her presentation.

124. CCDHB has also developed and introduced a minor injury and illness area known as the "Minor Care Zone"/"Green Zone", which is designed to fast track lower acuity patients through ED (particularly those requiring nurse-led assessment and treatment).[43] CCDHB further advised that it has developed an Escalation Policy and implemented a new bedside handover process (including SMO room-to-room handover for all shifts).

125. CCDHB has revisited the nursing and medical staffing levels at Hospital 1 ED. The following changes have been made since August 2012:

- An additional Night RN has been allocated to address risks associated with resuscitation areas (where previously only one RN was allocated overnight). This nurse is assigned as a second resuscitation nurse but will also have triage skills and be able to assist with triaging during times of increased patient presentations.
- An additional 0.6 FTE has also been allocated to the resuscitation area to cover Saturday and Sunday morning shifts where the second resuscitation nurse was not previously on duty until 11am.
- The "float nurse" (rostered from 11am to 7.30pm) has been reallocated as a Clinical Initiatives Nurse who is able to provide relief at triage and assist in secondary triage assessment to ensure vital signs are documented in the higher triage category patients.
- A 1.4 FTE Clinical Nurse Specialist has been allocated to improve flow through the Green Zone Area.
- There are now six additional SMOs, six additional RMOs and five additional nursing staff working within the ED. CCDHB told HDC that this has enabled it to "increase staffing at the coalface with increased SMO presence (minimum two SMOs per shift) allowing improved supervision, early decision making and enhanced patient flow".
- There is also an additional medical registrar rostered overnight.

126. In its response to my provisional opinion, CCDHB outlined the following additional changes that have been made in ED since this incident:

- All overnight patient discharges from ED are now reviewed by an SMO as part of the morning handover.
- There is better access to the SSU for ED patients for observation.
- An Early Warning Score (EWS) system is now used when transferring patients to inpatient units, which assists in identifying deteriorating patients and those who should remain in the ED rather than being transferred to the wards or the assessment units.

[43] In its response to my provisional opinion, CCDHB advised that the Minor Care Zone is now fully staffed.

- Handover from the ED to the wards has been improved through the use of EWS observations and the ISBAR (Identify, Situation, Background, Assessment and Request or Recommend) format in order to identify a baseline for patients prior to transfer.
- The ED is currently piloting a rapid assessment and treatment project that provides early assessment of all patients and will improve triage compliance.

127. CCDHB further advised that there had been an increased focus on patient flow from triage to discharge across Hospital 1, including:

- A daily bed meeting with Patient Flow Co-Ordinators (PFCs), Charge Nurse Managers (CNMs), Operational Managers (OMs) and Hospital Executive staff in order to identify any barriers to flow throughout the hospital.
- A weekly operations meeting is held to review any SSiED (Shorter Stays in Emergency Department) breaches from the previous week and identify changes and improvements to patient flow required.
- Daily Breach Reports are distributed to key clinical staff (including PFCs, CNMs, OMs and Clinical Leaders) in order to identify any changes and improvements to patient flow that can be made.
- CCDHB has completed a model of care change and significant improvement to internal medicine services, resulting in improved patient flow and reduction in length of stay in internal medicine (CCDHB's largest acute service).
- CCDHB has introduced an electronic result sign-off to ensure that critical results are seen and signed off in a timely manner.
- CCDHB has introduced "Manage My Health", a shared care portal with primary health providers which allows for greater visibility of a patient's primary care record to be available for CCDHB clinicians.

Changes made by RN B

128. RN B told HDC that this incident occurred after she had been triaging for three months. She advised:

> "In the year since I have settled into the role of triage nurse and developed skills to manage a busy waiting room. Now when working alone at triage overnight I triage the patients within our triage assessment room and perform a full set of vitals. I also incorporate new processing, such the Sepsis Pathway into my practice."

129. RN B further advised that she has attended Morbidity and Mortality meetings, which include case reviews of previous patients and discussion of triage codes. RN B also told HDC that a number of changes to the triage process, including the development of varying pathways from triage, and additional staff, have "eased the pressures felt at triage".

130. In her response to my provisional opinion, RN B stated:

> "I now always ensure I document more clearly about patients I want to elevate from the waiting room so that other staff members understand the required

urgency and I clearly document within the clinical notes discussions I have with others within the multidisciplinary team."

Changes made by Dr C

131. Dr C told HDC:

> "Having seen a large number of patients with sepsis, including meningococcal disease in my 10+ years in Emergency Medicine I continue [to] consider this diagnosis in all my febrile patients and now consider it even in the face of evidence of another source. I have always had a low threshold for discussing difficult cases with colleagues and talking through my reasoning — I believe I have lowered this threshold even further since this case."

132. Dr C further advised that he continues to actively reflect on and promote practising with a low threshold for considering meningococcal sepsis (including a low threshold for administration of ceftriaxone, meningococcal PCR[44] on blood cultures and lumbar puncture).

133. Dr C told HDC that the various system changes at Hospital 1, including the introduction of the Sepsis Pathway, have "markedly improved the hospital's compliance with shorter stay in ED targets resulting in reduced access block and therefore reduced delays to first assessment". Dr C was also involved in establishing the abovementioned system whereby all overnight discharges are reviewed by an SMO.

Responses to provisional opinion

134. The following responses were received in response to my provisional opinion, in addition to the responses incorporated above.

CCDHB

135. CCDHB acknowledged that appropriate systems and processes were not in place at the time of Miss A's admission to Hospital 1, noting that there have since been significant improvements in waiting times, patient flow and patient safety. In particular, CCDHB advised that triage compliance for April 2014 had increased to 65% for ATS 2 patients (as compared to 48% in August 2012) and to 41% for ATS 3 patients (as compared to 19% in August 2012). CCDHB further advised that its Shorter Stays in Emergency Department health target had increased from 78.5% in August 2012 to 95.3% in May 2014 (despite annual increases in the presentation numbers to CCDHB ED).

136. With regard to RN B's triage assessment, CCDHB submitted that RN B undertook a basic assessment to exclude signs of meningism as a matter of "best practice" and

[44] Polymerase chain reaction, a laboratory technique used to make multiple copies of a segment of DNA for diagnostic purposes.

"not because she was made aware of any recent exposure to meningitis by [Miss A]". CCDHB stated further that it:

> "acknowledge[s] however that there is always room for miscommunication to occur, especially during a 3–5 minute triage assessment. It is possible that [Miss A] and [Mr D] did attempt to communicate the recent exposure to meningitis to [RN B] but that that information was not understood by [RN B]."

137. CCDHB stated that the guidelines on the implementation of ATS are "used as a guideline only, and as such there is room for an interpretation of the patient's condition by the person triaging the patient and should not be treated as an absolute".

138. With regard to RN B's assessment and monitoring of Miss A, CCDHB stated that RN B appropriately prioritised newly presenting patients, and that:

> "[RN B] was inundated in an overcrowded ED and waiting room with ongoing triage requirements with further patients attending ED acutely. The priority for the triage nurse in this situation is to assess the undifferentiated patient arriving in ED as until that is completed they are an unknown risk."

RN B

139. RN B submitted that the outcome in this case was the result of a systems failure. She stated that her focus on the evening of 22 August 2012 was "to move [Miss A] to a position within the ED where appropriate assessment and treatment would occur", and that she believes that she appropriately attempted to escalate the care and treatment of Miss A that evening.

140. With regard to her triage assessment of Miss A, RN B stated that she remains "adamant that had [she] been informed of the exposure to meningitis [she] would have stated so in [the] triage assessment note and triaged appropriately". RN B explained that when she undertakes a triage assessment of any patient presenting to ED with a "flu-like" illness, her practice is to conduct an assessment of any signs or symptoms of meningitis. RN B stated that this is "best practice", and she disagrees that such assessment is indicative of her having been made aware of Miss A's exposure to meningitis.

Dr C

141. Dr C conceded that "it would have been preferable, as a matter of good practice, for [him] to discuss [Miss A's] discharge with an SMO at handover". Dr C submitted that in making his statement that there was "no expectation that [he] would discuss all cases discharged overnight", he was referring to "an issue with the work culture" in the ED at the time. Dr C stated that since becoming an SMO himself, he has been instrumental in changing that culture (by establishing the abovementioned system whereby all overnight discharges are reviewed by an SMO).

Opinion: Preliminary comments

142. On 22 August 2012, Miss A presented to Hospital 1's ED complaining of a sore throat, stiff neck, headache and vomiting. She was discharged the following morning, having received intravenous antibiotics and fluids overnight. That evening, Miss A re-presented to the ED, at which time she was identified as having contracted meningococcal meningitis and septicaemia with a secondary diagnosis of GAS throat infection. She was admitted to Hospital 1 and received a further four days of intravenous antibiotic treatment before being discharged home.

143. There are a number of factual discrepancies between the various accounts provided to HDC regarding important aspects of the events that took place during Miss A's first presentation to Hospital 1. It is therefore necessary for me to address these discrepancies before setting out my decision in this matter.

Reported exposure to meningococcal meningitis and developing symptoms

Miss A's recollection

144. Miss A recalls that when she presented at ED she immediately told the nurse who assessed her about her recent exposure to meningitis. Miss A told HDC that she also heard a conversation between that nurse and Mr D, in which he "stressed that [she] had been exposed to meningococcal via another [student]".

145. Miss A told HDC that Mr D presented to reception "at least 3 times to try and speed things up" but that she did not hear the conversations that took place between him and ED staff.

146. Nursing notes taken at 2.38am on 23 August, after Miss A had been admitted to ED, record that Miss A advised that "a colleague of hers from class was treated for meningitis last week", and that Miss A felt that she ought to "come into ED to get it checked out".

Mr D's recollection

147. Mr D recalls that he and Miss A immediately advised the nurse at the front desk of Miss A's recent exposure to meningitis. Mr D recalls being asked whether they were sure that it was not the flu, to which he recalls responding that he had a feeling that it was not. Mr D further recalls being asked whether Miss A had a rash, which she did not.

148. Mr D told HDC that approximately one hour after Miss A's initial triage assessment, he presented to reception and reiterated his concerns about Miss A's condition (including her recent exposure to meningitis). He recalls that he spoke with the same nurse who had assessed Miss A earlier, and was advised that the ED was very busy and that patients often present with similar symptoms, which are later diagnosed as influenza.

149. Mr D told HDC that he later presented to reception a second time. He recalls speaking with a different nurse, and again advised of his concerns regarding Miss A's

deteriorating condition given her recent exposure to meningitis. Mr D advised that that nurse told him that Miss A was about to be taken into ED.

RN B's recollection

150. RN B told HDC that she cannot specifically recall whether Mr D advised her of Miss A's recent exposure to meningitis, although she is adamant that had she been aware of it she would have recorded it in the triage assessment form. RN B further explained that "as [Miss A] described flu-like symptoms I asked if she had a headache, which she did, and photophobia, which she did not. She reported neck stiffness and general body aches but was able to put chin to chest and move her neck with ease." This information is recorded in Miss A's triage assessment form, although it makes no reference to any reported exposure to meningitis. RN B explained that it is best practice to assess patients presenting with "flu-like" illness for signs or symptoms of meningitis.

151. RN B recalls that when Mr D first presented to reception he was "anxious about the waiting time" but "did not advise her of any developing symptoms or make any comment about meningitis". RN B stated that she did not hear the conversation that initially took place between Mr D and reception staff.

152. RN B administered antiemetic medication at 12.30am. RN B recalls that she "only had time for a visual check of [Miss A] when [she] gave [Miss A] medication", and that neither Miss A nor Mr D expressed concerns about meningitis or developing symptoms at that time.

153. RN B told HDC that she recalls Mr D presenting to triage a second time "just prior to a bed being arranged".

Consideration

154. It is clear from the clinical record that by at least 2.38am on 23 August, nursing staff at Hospital 1 were aware that Miss A had recently been exposed to meningococcal meningitis. What is less clear is whether this information was shared with RN B (or any other CCDHB staff) at any earlier stage in her presentation and, in particular, at triage.

155. The parties have conflicting accounts as to whether this information was shared with RN B. In the absence of any documentation of such information having been communicated, I have considered the available evidence in order to make a factual finding on this point.

156. First, Miss A's exposure to meningitis was the primary reason for her presentation to the ED, given her developing symptoms. As Miss A explained, she felt that she ought to "come into ED to get it checked out". Mr D also recalls being advised by his siblings and school counsellor to take Miss A straight to the ED given her exposure to meningitis. I would therefore be surprised if either Miss A or Mr D failed to communicate this information to ED staff upon arrival.

157. Secondly, both Miss A and Mr D recall advising the nurse who assessed Miss A (RN B) of the meningitis exposure immediately upon presenting to the ED. By contrast, RN B is unable to recall specifically whether she was informed of the exposure (although she is adamant that she would have documented it had she been aware). I am also aware that Mr D recalls RN B responding to this information by asking whether Miss A had a rash, a key indicator of meningitis (which she did not), and whether Mr D was sure that it was not the flu (which he had a feeling it was not). In my view, Mr D's recollection of these details lends credibility to his account.

158. RN B recorded a detailed triage assessment of Miss A, which included reference to a number of symptoms of meningitis, including headache, photophobia, neck stiffness and general body aches. RN B examined the range of motion in Miss A's neck, and found that Miss A could put chin to chest and move her neck with ease. RN B recalls asking whether Miss A had a headache, which she did, and photophobia, which she did not. However, the triage assessment record contains no reference to Miss A having been exposed to meningitis. I note RN B's submission that her assessment of Miss A for symptoms or signs of meningitis was a matter of best practice for a patient presenting with a "flu-like" illness, as opposed to an indication that she was made aware of Miss A's recent exposure to meningitis.

159. Having considered all the evidence available, I remain of the view that it is more likely than not that Miss A and Mr D advised RN B of their concerns regarding meningitis exposure during the initial triage.

160. It is unclear whether this concern regarding meningitis exposure was then subsequently reiterated by Mr D to nursing staff. It appears that Mr D presented to reception twice while Miss A was waiting to be seen, that the relevant conversations took place between Mr D and RN B, and that some concern was raised about Miss A's condition and the length of the waiting time. By RN B's own account, she was concerned about Miss A's "dehydration, tachycardia, pain and nausea". However, RN B stated that neither Mr D nor Miss A raised concerns about meningitis or developing symptoms while Miss A remained in the waiting room.

161. I do not consider that currently I have, or can obtain, sufficient information to determine whose account of events is accurate on this latter point. This does not mean that I have preferred one account over the other. It simply means that I do not have sufficient evidence to resolve these factual discrepancies or to take the matter further. In any event, it is not necessary for me to make a factual finding on this point for the purposes for this report.

Timing of Miss A's medical assessment

162. The clinical record indicates that Miss A was seen by Dr C at 1.31am. Dr C subsequently clarified that this was "likely the time I first clicked on [Miss A's] name on the computer, not the time of first assessment". Dr C further advised HDC: "I believe I was interrupted prior to assessing [Miss A] by a high acuity patient. It is likely my initial assessment was around 0200–0230."

163. Nursing notes taken at 2.38am record that the "ED Dr" (Dr C) was currently reviewing Miss A. Miss A also recalls being seen by a doctor at approximately 2.30am. I therefore consider it more probable than not that Miss A was first assessed by Dr C at approximately 2.30am on 23 August 2012, some three hours and 20 minutes after triage.

Opinion: Capital and Coast District Health Board

164. Capital and Coast DHB and its staff had a responsibility to ensure that services were provided to Miss A with reasonable care and skill. Systems and individuals need to work together to ensure that patients receive seamless and safe services. In my view, a series of systemic and individual failures led to unacceptable delays in Miss A's management and treatment on 22 and 23 August 2012.

165. I have carefully considered the extent to which the deficiencies in Miss A's care occurred as a result of individual staff action or inaction, as opposed to systems or organisational issues. While I have some concerns regarding RN B's management of Miss A while she remained in the ED waiting room during the night shift of 22–23 August 2012, CCDHB had the ultimate responsibility to ensure that Miss A received care that was of an appropriate standard and that complied with the Code. That responsibility comes from the organisational duty on district health boards to provide a safe healthcare environment for their patients.

Delays in assessment — Breach

166. I acknowledge that an emergency department can be a busy environment in which individual staff members often carry heavy workloads and are required to balance competing demands between patients of varying levels of acuity. A district health board therefore has a duty to ensure that its emergency department has sufficient staff and adequate systems to withstand fluctuating demands, and to enable those systems to be implemented effectively and safely.

Nursing assessment — First presentation to ED

167. Hospital 1's triage policy provides for an initial triage assessment (performed by the triage nurse), which is then supplemented by a "second level of triage assessment" (performed by the triage assessment nurse). Hospital 1's policy further provides that patients waiting for care are to be reassessed when they exceed their ATS category maximum waiting time (regardless of whether there has been a change in their status) and when there is an observed change in their condition.

168. CCDHB told HDC that there was one nurse (RN B) assigned to the waiting room for the night shift of 22–23 August 2012. This is contrary to Hospital 1's triage policy, which calls for a triage assessment nurse to work alongside the triage nurse. According to that policy, the triage assessment nurse is to be responsible for the ongoing management of patients in the waiting area. I also note the comment of my

nursing advisor, Ms Dawn Carey, that RN B (as sole triage nurse) "[i]deally … should not have been responsible for the ongoing monitoring of waiting patients".

169. RN B told HDC that she was unable to perform any further checks on Miss A following her initial triage assessment (aside from a "visual check" at 12.30am on 23 August) due to the acuity of the waiting room and the competing demands on her as sole triage nurse. As a result, Miss A remained in the waiting room without clinical assessment for approximately one hour and 25 minutes. In particular:

- Miss A's vital signs were not taken as part of a "second level of triage assessment";
- Miss A was not reassessed after she exceeded her ATS category maximum waiting time of 30 minutes; and
- Miss A was not reassessed after Mr D raised concerns regarding her condition and the length of the waiting time.

170. A full set of Miss A's vital signs was not taken until 2.38am on 23 August, some three hours and 30 minutes after triage. In my view, the failure to reassess Miss A in accordance with Hospital 1's triage policy was suboptimal and unacceptable in the circumstances.

Medical assessment — First and second presentations to ED

171. Miss A first presented to ED on 22 August at 11.08pm. She then waited until approximately 2.30am on 23 August 2012 to be seen by a doctor. This is roughly three hours after her maximum wait time of 30 minutes (as triaged) was exceeded.

172. Miss A then re-presented to ED on 23 August at 8.11pm. She was identified as requiring treatment within 10 minutes (ATS category 2). She was seen by her primary nurse at 8.51pm and by a doctor at 9.06pm. This is roughly 45 minutes after her maximum wait time of 10 minutes (as triaged) was exceeded.

173. Emergency medicine specialist Dr John Chambers advised:

> "Following both presentations to ED [Miss A] exceeded recommended waiting times to be seen by a doctor by significant time frames for a patient with her acuity. On each occasion she exceeded the recommend[ed] waiting time by a factor of x4. This was an unacceptable delay especially in the context of suspicion of significant sepsis both initially and on representation."

174. I acknowledge that Hospital 1's triage policy contains some allowance for exceeding maximum wait times for clinical assessment. In particular, that policy provides that 75% of ATS 3 patients (such as Miss A) are to be seen within 30 minutes. Dr C advised that August 2012 was the ED's "busiest month on record" at the time, with 19% compliance in seeing ATS 3 patients within 30 minutes. This falls significantly short of the prescribed performance indicator threshold of 75%. I agree with Dr Chambers' comment that "exceeding the time frame by a factor of x4 on successive visits suggest[s] a lack of sufficient resources at that time and again places that

individual patient at some risk". In my view, the delays in Miss A's medical assessment on both presentations to ED were suboptimal and unacceptable in the circumstances.

Summary of findings

175. I am concerned that the ED triage process was not implemented effectively and safely on two successive visits. This is a systemic issue that is directly attributable to the CCDHB.

176. I note that CCDHB has made a number of changes to its practice in this regard, including increasing ED staffing (including triage) and developing new pathways for patients from triage. However, Miss A was entitled to expect that CCDHB would provide her with services of an appropriate standard, and the abovementioned failings resulted in unacceptable delays in Miss A's assessment. In my view, CCDHB failed to provide services in a manner that minimised potential harm to Miss A, in breach of Right 4(4) of the Code.

Treatment — No breach

177. Although Miss A experienced significant delays in her assessment at Hospital 1, I am satisfied that the clinical treatment that was ultimately provided to her by CCDHB staff was of an acceptable standard, both in the ED on 23 August 2012 and in the ward between 24 to 27 August 2012. Details of my findings with regard to each of these admissions are set out below.

First admission to ED

178. At 2.50am on 23 August 2012, Dr C recorded his assessment of Miss A as being "relatively well despite hypotension". Dr C told HDC that his "initial working diagnosis" was of a streptococcal throat infection. I note that this diagnosis was correct, and that Dr C considered it unlikely that Miss A would have both a streptococcal throat infection and meningococcal disease. In any event, Dr C recorded a treatment plan that included cover for meningococcal disease (ceftriaxone). Dr C did not perform a lumbar puncture test, but advised HDC that he was "aware that in the worst case scenario [he] had already treated presumptively for meningococcal sepsis and meningitis".

179. Dr Chambers advised:

> "Empiric treatment for sepsis (which would also cover an early meningococcal infection) was correctly administered by [Dr C] which is highly likely to have saved [Miss A's] life. Although [Miss A] had to return for further care her condition on initial discharge did seem improved. Her blood pressure although still low was within acceptable parameters for the patient's age and size. Her treatment by [Dr C] was of an acceptable standard."

Admission to ward

180. On 24 August 2012, Miss A was admitted with a primary diagnosis of meningococcal meningitis and septicaemia, and a secondary diagnosis of GAS throat infection. My in-house clinical advisor, Dr David Maplesden, advised that the clinical management

of Miss A during this admission was consistent with expected standards, and that "[i]n essence, [Miss A] received timely and appropriate investigation of, and antibiotic treatment for, both her confirmed meningococcal and her streptococcal infections".

181. Miss A developed further symptoms, including another rash, joint and muscle aches, and a painful lump on her leg, which were identified by Drs G and F as an immunological response to her illness. Dr Maplesden advised that:

> "the persistent symptoms [Miss A] was suffering prior to discharge from [Hospital 1] on 27 August 2012 (erythema nodosum-like rash, polyarthralgia) were quite consistent with an immunological response to either of her confirmed bacterial infections, and these infections had been managed appropriately".

182. Miss A was discharged from Hospital 1 on 27 August 2012. Unfortunately, Miss A's condition deteriorated after she returned home and, on 31 August 2012, she was taken to Hospital 2, where she was diagnosed with rheumatic fever. Miss A told HDC that she was advised that her "strep throat infection had been overlooked in [Hospital 1] and it had progressed into rheumatic fever". DHB2 told HDC that:

> "the consultant physician responsible for [Miss A's] care during her admission to [Hospital 2] … thinks [Miss A] may have got the impression that her probable rheumatic fever originated from an overlooked sore throat in [Hospital 1]. What is more likely to have happened is that the probable rheumatic fever is a post-streptococcal infection autoimmunity phenomenon that can occur even when the previous sore throat was optimally managed."

183. I note Dr Maplesden's advice that the diagnosis of rheumatic fever is "somewhat complex". CCDHB stated that Miss A was reviewed at Hospital 1's Infectious Diseases outpatient clinic in March 2013 by Dr L who discussed the diagnosis of rheumatic fever with her. I am also aware that an echocardiogram taken on 31 May 2013 showed no valvular damage to Miss A's heart.

Summary of findings

184. In my view, the clinical treatment provided to Miss A during her admission to ED on 23 August 2012 and to the ward from 24 to 27 August 2012 was consistent with accepted standards.

Opinion: RN B

185. RN B was the sole triage nurse allocated to the waiting room of the Hospital 1 ED on the night shift of 22–23 August 2012. At the time, she had been triaging for three months (having completed the College of Emergency Nurses NZ Triage Course earlier that year).

Initial triage assessment

186. Miss A presented to Hospital 1 ED at 11.08pm on 22 August 2012. She was triaged by RN B at the front desk of the waiting room. Miss A's partner, Mr D, was also present.

Decision not to take a full set of vital signs — No breach

187. RN B took Miss A's heart rate and oxygen saturation, which she noted in the triage assessment record as 156bpm and 98% respectively. RN B told HDC that she did not take Miss A's blood pressure as part of her initial triage assessment because she was "triaging [Miss A] at the front triage desk which does not have access to a sphygmomanometer to take blood pressure".

188. RN Carey advised me that the triage assessment undertaken by RN B was appropriate. In particular, RN Carey advised that "the assessment should not be delayed for the assessment of vital signs". This is consistent with Hospital 1's triage policy, which notes that the initial triage assessment should take approximately two to three minutes and is intended to be a "brief assessment to identify immediate life threatening problems and high risk presentations from those conditions that are less urgent".

189. Hospital 1's policy provides that the initial triage assessment is then to be supplemented by a "second level of triage assessment", which involves a second nurse revisiting the history of the presenting complaint and obtaining a full set of vital signs. I am therefore satisfied that RN B's decision not to take Miss A's blood pressure as part of her initial triage assessment was reasonable in the circumstances.

190. RN B advised that she is "sure [she] performed a temperature check but [is] unsure why this was not documented". I am unable to make a factual finding on the information available as to whether a temperature check was performed. However, if such a check did occur, the responsibility lay with RN B to document those details in Miss A's triage assessment record.

ATS categorisation — Adverse comment

191. RN B categorised Miss A as an ATS 3 patient. Relevant clinical indicators of an ATS 2 categorisation include "suspected meningococcemia" and circulatory compromise (including a heart rate of over 150bpm in an adult).

192. Miss A presented to triage with a recorded heart rate of 156bpm. RN B acknowledged to HDC that Miss A's elevated heart rate would have otherwise increased her to an ATS 2 but that she "considered [Miss A's] heightened emotional state may have contributed to her tachycardia", and she "intended to check [Miss A's] heart rate again after she had become less anxious". This further check did not occur. I note RN Carey's comment that she "accept[s] RN B's contemporaneous assessment and evaluation that [Miss A's] heightened emotional state contributed to her elevated heart rate", but that behaviours that skew noted vital signs ought to be documented.

193. RN Carey advised me that if RN B was informed at triage of Miss A's recent exposure to meningitis, she should have allocated her ATS 2. However, if she was

unaware of this information, it would be acceptable for RN B to allocate ATS 3 to Miss A.

194. As is stated above, I consider it more likely than not that RN B was advised of Miss A and Mr D's concerns regarding meningitis exposure during her initial triage assessment. Accordingly, I am critical of RN B's ATS categorisation of Miss A as an ATS 3. However, I note that RN B nevertheless undertook a broad range of assessments that are indicative of her having considered meningitis during her initial triage of Miss A. In these circumstances, I find that RN B did not breach the Code.

Failure to arrange further assessment and monitoring — Adverse comment

195. Hospital 1's triage policy provides that patients waiting for care are to be reassessed either when they exceed their ATS category maximum waiting time (regardless of whether there has been a change in their status) or when there has been an observed change in their condition. This did not occur for Miss A. Instead, she remained in the waiting room for approximately one hour and 40 minutes after triage without any further assessment beyond the initial triage performed by RN B.

196. RN Carey advised me that, in her view, RN B was "responsible for communicating her assessment of [Miss A's] clinical needs — needing assessment or initiation of treatment within 30 minutes — or to ensure that [Miss A's] vital signs and condition were adequately monitored".

197. I accept RN Carey's advice and agree that RN B retained responsibility for ensuring that Miss A received appropriate assessment and monitoring while she remained in the waiting room.

198. RN B told HDC that she was unable to perform any further checks on Miss A due to the acuity of the waiting room and the competing demands on her as sole triage nurse.

199. Although RN B (as sole triage nurse) may not have had capacity to perform such assessment and monitoring herself, she was nonetheless responsible for effectively "flagging" Miss A's clinical needs to other CCDHB staff members. This is reflected in Hospital 1's triage policy, which records that one of the triage team's responsibilities is to inform the ACNM when workload exceeds the ability to provide timely triage and triage reassessment.

200. RN B told HDC that she recalls speaking with the ACNM about Miss A. She did not document that discussion and cannot recall the "exact conversation" that took place. RN B further advised that the ACNM had constant access to EDIS, which RN B updated to read "**Room please**" alongside Miss A's name.

201. In RN Carey's view, this text does not convey any urgency or clinical concern with regard to Miss A's condition. I note RN B's submission that her update of the EDIS screen was done "as an additional flag to the ACNM", and that she conveyed the "urgency and clinical concerns regarding [Miss A's] condition" in her conversation with the ACNM. As stated, RN B did not document her conversation with the ACNM and is unable to recall the "exact conversation" that took place. In the circumstances, I

remain of the view that an opportunity was missed for Miss A's condition to be reassessed. RN Carey further advised:

> "Whilst I appreciate that the duty ACNM could perhaps determine that [Miss A] had still not received treatment as per her allocated ATS category, this is reliant on the ACNM reviewing the EDIS for these issues rather than the triage RN effectively escalating clinical concerns. [RN B] was aware that [Miss A] presented with an elevated heart rate and required further assessment and as such the onus was on [RN B] to communicate such outstanding clinical concerns in an effective manner."

202. RN B told HDC that she also spoke with SHO Dr E regarding Miss A's condition. RN B did not document that conversation, but recalls advising him that Miss A needed to come into the ED, and that she had concerns regarding "dehydration, tachycardia, pain and nausea". At 12.30am on 23 August 2012, anti-emetic medication was charted. However, RN B told HDC that she "only had time for a visual check of [Miss A] when [she] gave [Miss A] medication".

203. I am concerned that RN B did not arrange a reassessment of Miss A's condition at this point, given that Miss A's vital signs had not been taken, she had exceeded her ATS maximum waiting time by approximately one hour, and RN B, by her own account, had concerns regarding her condition (including a continued concern regarding tachycardia). In my view, this was a further missed opportunity to reassess Miss A's condition, and is particularly troubling given that Miss A had been identified by RN B as tachycardic during her initial triage assessment at 11.08pm and RN B had been unable to undertake any further assessments of Miss A in the interim as intended. In my view, an unresolved concern regarding tachycardia in these circumstances ought to have prompted a reassessment of Miss A's condition. A visual check was insufficient, and I agree with Ms Carey's comment that RN B's ability to see Miss A in the waiting room does not amount to adequate monitoring.

204. However, I acknowledge that an ED waiting room can be a busy and demanding environment, and that the information provided by CCDHB indicates that there were issues with overcrowding and staffing in the Hospital 1 ED as at August 2012. I also note RN Carey's further advice that "[i]deally as the sole Triage RN in a busy ED, RN B should not have been responsible for the ongoing monitoring of waiting patients". This comment is consistent with Hospital 1 triage policy which, as has been stated above, calls for a triage assessment nurse to work alongside the triage nurse for the purposes of ongoing patient monitoring. As a matter of Hospital 1 policy, RN B (as sole triage nurse) should not have been responsible for the ongoing monitoring of waiting patients.

205. Accordingly, while I remain critical of RN B's failure to escalate Miss A's clinical needs effectively in a timely manner, with the result that a number of opportunities were missed for Miss A to be reassessed while she remained in the waiting room, I acknowledge that RN B took some steps to do so, including speaking with the ACNM and an SHO. I also acknowledge that the failure to arrange further assessment and

monitoring of Miss A occurred within the context of wider, systemic issues in the Hospital 1 ED at the time. For these reasons, I am critical of RN B's actions, but I do not find that she breached the Code.

Opinion: Dr C

206. Dr C told HDC that he was "the most senior doctor on site" for the night shift of 22–23 August 2012. At the time, Dr C had 10 years' experience in emergency medicine, had completed the written component of the ACEM[45] fellowship examinations, and was a few months away from transitioning into an SMO role.

Diagnosis and treatment — No breach

207. At 2.50am, Dr C recorded his assessment of Miss A as being "relatively well despite hypotension". Dr C told HDC that his "initial working diagnosis" was of a streptococcal throat infection. I note that this diagnosis was correct, as was subsequently confirmed by Miss A's throat swab results. However, Dr C advised that he considered it unlikely that Miss A would have both a streptococcal throat infection and meningococcal disease, as this would be "very rare".

208. In any event, Dr C recorded a treatment plan that included cover for meningococcal disease (ceftriaxone). Dr C did not perform a lumbar puncture test, but advised HDC that he was "aware that in the worst case scenario [he] had already treated presumptively for meningococcal sepsis and meningitis".

209. Dr Chambers advised that "[e]mpiric treatment for sepsis (which would also cover an early meningococcal infection) was correctly administered by [Dr C] which is highly likely to have saved [Miss A's] life". In my view, the clinical treatment provided by Dr C to Miss A was consistent with accepted standards of care.

Decision to discharge — No breach

210. Miss A experienced a hypotensive episode at 4.52am on 23 August, at which time it was noted that her blood pressure had dropped to 75/35mmHg. This triggered Dr C to undertake a further review of Miss A's condition. Dr C noted in the clinical record that Miss A's blood results were "consistent with moderate infection/viral illness" but that she could not be discharged safely with her blood pressure at such a level. He further noted that Miss A was "feeling improved" and was "clinically well" despite her hypotension.

211. Miss A remained borderline hypotensive during her ED admission.[46] At 7.27am, it was documented that Miss A's blood pressure had risen to 96/74mmHg. On review, Dr C noted that he would "estimate this to be within normal limits for [Miss A] given [her] age/body habitus". Dr C further noted that Miss A's "other symptoms [had]

[45] Australasian College of Emergency Medicine.
[46] Miss A's blood pressure was recorded as 88/42mmHg at 5.57am, 87/41mmHg at 6.39am and 76/35mmHg at 7.05am.

settled, tachycardia has completely resolved", her blood results were "okay", and that Miss A reported feeling "improved" although her throat remained "sore+".

212. Dr C told HDC that he offered Miss A admission to the SSU because of her earlier hypotensive episode, initial symptoms and meningococcal contact. However, Miss A declined that offer in favour of being discharged home. Dr C recalls that he agreed that discharge home was an acceptable option given that he had treated Miss A presumptively with ceftriaxone and seen a clinical improvement in her condition, Miss A had the capacity to return to the ED if required, and he was aware that there was a call-back system in place for positive blood cultures. The clinical record also notes that Miss A was advised of the low threshold for return to ED given her hypotension.

213. Dr Chambers advised that "[a]lthough [Miss A] had to return for further care her condition on initial discharge did seem improved. Her blood pressure although still low was within acceptable parameters for the patient's age and size. Her treatment by [Dr C] was of an acceptable standard." In my view, the decision to discharge Miss A on the morning of 23 August 2012 was appropriate in the circumstances.

Failure to discuss Miss A's case with an SMO — Adverse comment

214. Dr C told HDC that he does not recall discussing Miss A with an SMO, and that it is likely that Miss A had left the ED at the time of handover. I note Dr C's comment that, given his level of experience at the time, there was no expectation that he would discuss all cases discharged overnight with an SMO (although the option was available whenever needed). I also note Dr C's submission that this was an issue with the work culture in the ED at the time, which he has taken steps to address since becoming an SMO himself.

215. Dr Chambers advised:

> "Unexplained abnormal vital signs are a significant 'red flag' when assessing patients in an emergency. Doctors must make a clinical judgment on the relevance of abnormal findings in any clinical situation. In a major emergency department it would be expected that a junior doctor would have the opportunity [to] discuss unexplained abnormalities with a senior colleague before making a decision on whether the patient can be safely discharged. On this occasion the registrar [Dr C] was at the very end of his training and it could be argued [that] the necessity [of] discussion of every case with a senior colleague was less paramount. However it is good habit and discipline to discuss patients who have been discharged, as a team, at handover times, no matter who the treating doctor has been."

216. As stated above, I consider that the decision to discharge Miss A home was appropriate in the circumstances. I am also aware that Dr C was the most senior doctor on site at the time, with 10 years' experience in emergency medicine. However, I remain of the view that it would have been preferable, as a matter of good practice, for Dr C to discuss Miss A's discharge with an SMO at handover.

217. I acknowledge that Dr C has advised that he believes he has lowered his threshold for discussion of difficult cases with senior colleagues since this incident, and is currently involved in establishing a system to ensure that all overnight discharges are reviewed by an SMO.

Recommendations

218. I recommend that RN B:

- Review her practice and provide HDC with a report outlining her learning about the Code and from this complaint, within one month from the date of this report.

219. CCDHB has agreed to:

- Apologise in writing to Miss A for its breach of the Code. The apology is to be provided to HDC within three weeks of this decision being issued, for forwarding to Miss A.
- Review its triage policy and the need for a triage assessment nurse to be allocated to the waiting room, and report the findings to HDC.
- Provide HDC with an audit of the effectiveness of its revised ED staffing levels.
- Provide HDC with an audit of its triage categorisation process (including anonymised examples).
- Provide HDC with an audit of the effectiveness of its "Minor Care Zone" and Escalation Policy.
- Assess the changes made since this incident and report the findings to HDC.

220. These recommendations are to be completed within three months from the date of issue of this report.

221. CCDHB told HDC that an audit of the effectiveness of the Sepsis Pathway protocol would be done as part of its on-going roll-out and maintenance, and that the audit results would not be available within three months of this report being issued. I recommend that CCDHB report to HDC regarding progress of this audit within three months of this report being issued, and provide HDC with the results as soon as the audit is completed.

Follow-up actions

222. - A copy of this report with details identifying the parties removed, except the experts who advised on this case and CCDHB, will be sent to the New Zealand Nursing Council, and it will be advised of RN B's name.

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

- A copy of this report with details identifying the parties removed, except the experts who advised on this case and CCDHB, will be sent to the New Zealand Faculty of the Australasian College for Emergency Medicine, for educational purposes.

- A copy of this report with details identifying the parties removed, except the experts who advised on this case and CCDHB, will be sent to the Director-General of Health (Ministry of Health), DHB Shared Services and placed on the Health and Disability Commissioner website, www.hdc.org.nz, for educational purposes.

Appendix A — Independent clinical advice to the Commissioner

The following expert advice was obtained from HDC's in-house clinical advisor, Dr David Maplesden, on 15 April 2013:

> "1. Thank you for the request that I provide clinical advice in relation to the complaint from [Miss A] about the care provided to her by [a medical clinic] and Capital & Coast DHB. In preparing the advice on this case to the best of my knowledge I have no personal or professional conflict of interest. I have examined the documentation on file: complaint from [Miss A]; response and consultation notes from [the medical clinic]; response from CCDHB; [Hospital 1] clinical notes; [Hospital 2] clinical notes.
>
> 2. [Miss A] attended [the medical clinic] about 1030hrs on 22 August 2012. [Medical clinic] notes include [Miss A's] history of *onset aches, unwell cough, fever yesterday. Did have a sore throat for a few days prior to this. Fever and sweats last night. OE Looks unwell, T 37.0. chest clear, Throat ess N, small cervical glands, aches ++. A: likely is flu. TS to check as said had strep throat in past.* [Miss A] was also invited to have a pernasal influenza swab done as part of flu study [the medical clinic] was participating in. She agreed and was sent to the practice nurse to have both sets of swabs taken. The practice nurse states [Miss A] appeared alert and discussed her current involvement with [her personal interests] and also instigated a discussion on contraception. Both of these factors are documented in the contemporaneous nurse notes. The influenza swab was negative and nurse has recorded *Discussed self care re throat. Given handouts. Await TS* [strep throat swab]. GP [Dr I] has appended the negative flu swab result and supplied a 'use if required (backpocket)' prescription for pencillin. Both [Dr I] and the practice nurse state [Miss A] did not mention contact with a meningitis sufferer at any stage of their respective consultations. Throat swab result returned on 23 August 2012 and was positive for Group A strep and a message was left for [Miss A] (who was in hospital by this stage) informing her of the result and the need to take her antibiotics.
>
> 3. As a basis for comments regarding primary care management of [Miss A's] symptoms on 22 August 2012 I have used the New Zealand sore throat management guidelines[47]. Using the criteria in these guidelines [Miss A] was at low risk of strep throat and neither throat swab nor antibiotics were indicated. However, if the past history of strep throat infection is taken into account, I think it was reasonable to have taken the swab and to have given [Miss A] a prescription for penicillin to use if the swab returned as positive for strep. There were no symptoms particularly suggestive of meningococcal disease (no complaint of headache, neck stiffness, rash) and [Miss A] was afebrile at the time of the assessment. The history of possible meningococcal contact was not conveyed to the GP or practice nurse. The clinical picture was most consistent with a mild viral

[47] Available at: http://www.heartfoundation.org.nz/uploads/Algorithm_4_A_Guide_for_Sore_Throat_Management.PDF

infection at this stage and the primary care management was appropriate to this diagnosis. I note from the GP response that [Miss A's] case was discussed with relevant clinical staff and peers as some of [Miss A's] contacts at [her school] were presenting to [the medical clinic] with respiratory symptoms. Discussions were initiated with [Hospital 1] ED to formulate an appropriate management plan for these contacts. The management of [Miss A] by [the medical clinic's] clinical staff was consistent with expected standards, and proactive and conscientious with respect to subsequent management of [Miss A's] contacts.

4. [Miss A] deteriorated during the day of 22 August 2012 and presented to [Hospital 1] ED with her partner at 2305hrs and was triaged at 2325hrs. Nurse notes (student nurse) include [Miss A's] history of recent contact with a colleague who was diagnosed with meningitis, her attendance that morning at the GP with swabs taken, and general deterioration since that time with development of generalized myalgia, neck stiffness and vomiting. Pain score was 6/10. Additional nurse triage notes confirm the symptom history including *c/o headache, vomiting, stiff neck and general body aches.* Recorded vital signs include P 156 (? correct), GCS 15 and oxygen saturations 98% on room air. I could not see a blood pressure or temperature recording on the 'Initial Observation' sheet or in the student nurse notes. Assigned triage Code was ATS category 3 (potentially life threatening or situational urgency — assessment and treatment start within 30 minutes). However, [Miss A] was not seen by a doctor until 0131rs on 23 August 2012 — a waiting time of over two hours since her triage and two and a half hours since her arrival. Despite requesting full ED notes for the presentation in question I have not been provided with any record of observations undertaken on [Miss A] in the two hours between her initial triage and when she was seen by a doctor and am therefore assuming no observations were taken. I am concerned at this apparent lack of observation, and possible inadequate initial assessment (no recorded blood pressure or temperature in a patient presenting as [Miss A] did, particularly given her recorded tachycardia) during the longer than optimum wait for her to have a medical review. **I recommend the DHB be asked to confirm the absence of such recordings, or to provide them, before this file is sent for expert review (see below). A copy of blood results for this attendance should also be obtained** (perhaps by telephone to expedite the process).

5. The ED registrar reviewed [Miss A] at 0131hrs 23 August 2012 (notes written at 0250hrs). The notes provided additional history of the negative flu swab that morning, absence of rash and otherwise confirmed the symptoms recorded in the nursing triage. The meningitis contact history was not reiterated. Assessment findings included *alert, non distressed, not acutely unwell, HR 120, febrile, BP 90/44, chest clear … throat erythema, no exudate, tender cervical nodes, no meningism, FROM neck, no rash. Imp ?strep throat — SIRS, appears relatively well despite hypotension, anticipate will respond to fluids, analgesia, antibiotics. Plan: iv fluids, analgesia, ceftriaxone, bloods, dexamethasone for throat pain, r/v with results, ?d/c later this am if improves.* An IV line was inserted at 0337hrs and bloods, including cultures, were taken. Prescribed treatment was administered as per the documented plan. Systolic blood pressure was 90 at 0410hrs and 75/36 at

0453hrs. Nursing notes state the blood results were reviewed and were *satisfactory* (the blood results do not appear to be on file but the DHB response states they included an elevated CRP of 84 and elevated neutrophils although total white cell count was normal (depressed lymphocyte and monocyte count). Registrar notes at 0605hrs include *hypotension noted, clinically well despite this. Bloods consistent with moderate infection/viral illness. Patient feels improved. Can't d/c safely with this level of hypotension = further fluids.* Nursing notes at 0737 state [Miss A] was *tired but well* and at 0735 *Remains pale, bp remains low but may be normal for her PLAN: Drs review and ?home.* [Miss A] was discharged home with her partner at 0756hrs and the registrar has noted *BP now 90 systolic — I would estimate this to within normal limits for [Miss A] given age/body habitus, Feels improved — throat sore + but other symptoms settled, tachycardia has resolved completely, bloods okay, offered SSU earlier for further hydration etc but preferred d/c once able. Home with antibiotics* [penicillin], *analgesia and GP f/u tomorrow, advised of low threshold for return given hypotension.*

6. The DHB response accurately summarises [Miss A's] subsequent re-presentation to [Hospital 1] ED at 2011hrs on 23 August 2012 (a little over 12 hours since her discharge) having developed a petechial rash. She was otherwise stable and was given a triage category level 2. Blood culture results were obtained and supported a diagnosis of meningococcal [infection]. With respect to [Miss A's] management in [Hospital 1] following her admission on 23 August 2012, I feel management was consistent with expected standards and this has been well explained [in a report] dated 12 November 2012. In essence, [Miss A] received timely and appropriate investigation of, and antibiotic treatment for, both her confirmed meningococcal and her streptococcal infections. The diagnosis of rheumatic fever is quite possible but does not appear to be unequivocal at this point, and echocardiogram at [Hospital 2] did not show any evidence of rheumatic heart disease. As stated [in the report], the persistent symptoms [Miss A] was suffering prior to discharge from [Hospital 1] on 27 August 2012 (erythema nodosum-like rash, polyarthralgia) were quite consistent with an immunological response to either of her confirmed bacterial infections, and these infections had been managed appropriately. [Miss A] was not in the classic 'high-risk' group for development of rheumatic fever. Discharge instructions included advice to complete a further five days of oral penicillin and prescriptions were supplied for this and simple and anti-inflammatory analgesia. Advice was given to see a GP in one week for review or before then if there was any deterioration in symptoms and [Miss A] followed this advice. The diagnosis of rheumatic [fever] is somewhat complex (a number of major and minor clinical criteria needing to be satisfied before diagnosis) and it may be helpful for [Miss A] to discuss this together with the general pathophysiology of her symptoms, and rationale for the clinical management undertaken, with her [Hospital 1] providers.

7. I query whether the standard of observation of [Miss A] on her presentation to [Hospital 1] ED on 22 August 2012 was consistent with expected standards, and whether it was reasonable to discharge her home on the morning of 23 August

2012 when she had required IV fluids but remained hypotensive and without a clear diagnosis to explain this. I acknowledge she had improved symptomatically and the most concerning symptoms of headache and neck stiffness had apparently resolved. However, I suggest a brief opinion be obtained from an **ED specialist** to comment on [Miss A's] management in ED at her initial presentation there late on the evening of 22 August 2012. In addition to comment on her overall management over this period, please address the following issues:

(i) given the nature of [Miss A's] presenting history and symptoms, including her recent contact with a case of meningitis, was the nurse triage assessment consistent with expected standards (noting absence of blood pressure or temperature records) and was the categorization code appropriate?

(ii) given the nature of [Miss A's] presenting history and symptoms and her initial triage recordings, was a wait of two hours to be seen by a clinician an acceptable situation? Please comment on the standard of her monitoring over the period of this wait.

(iii) was the ED registrar's management of [Miss A] consistent with clinical standards taking into account all aspects of her presentation including the knowledge of her meningitis contact and negative influenza swab, her blood results, her presenting symptoms and signs and her response to treatment?"

Appendix B — Independent nursing advice to the Commissioner

The following expert advice was obtained from HDC's in-house nursing advisor, RN Dawn Carey, on 23 October 2013:

"1. Thank you for the request that I provide clinical advice in relation to the complaint from [Miss A] about the care provided to her by [RN B]. In preparing the advice on this case to the best of my knowledge I have no personal or professional conflict of interest. I have read and agree to follow the Commissioner's Guidelines for Independent Advisors.

2. I have read and reviewed the documentation on file: complaint from [Miss A]; response from [RN B], responses from CCDHB including [Miss A's] [Hospital 1] clinical notes; expert advice.

   For the purpose of brevity I have not repeated [Miss A's] complaint, [RN B's] response or the CCDHB response in my clinical advice.

3. As a RN peer, I have been asked to provide clinical advice about the standard of nursing care provided to [Miss A] when she attended the Emergency Department at [Hospital 1] on 22 and 23 August 2012. I have been asked to comment on the following:

   - Was the triage assessment undertaken by [RN B] consistent with expected standards and was the categorisation appropriate?
   - Was the monitoring of [Miss A] by [RN B] consistent with expected standards?

4. **Review of clinical records and commentary**

   (i) [Miss A] presented to [Hospital 1's] ED on 22 August 2012 and was triaged as category 3 at 11.08pm. The recorded triage assessment on the Triage Record (TR) is: *A patent, B reg, non distressed SAO2 985 [sic] on RA, C warm and pale appearance, HR 156, D GCS 15 alert, looks washed out, Full ROM of neck.*

   (ii) ACEM Policy[48] reports that triage categorisation is in response to the question: 'This patient should wait for medical assessment and treatment no longer than …'. In relation to this case, [RN B] clinically assessed [Miss A] — triage category 3 — as requiring further assessment/treatment by 11.38pm.

   (iii) The vital sign recorded — HR 156 — on the TR, fulfils a clinical descriptor of triage category 2. This is also acknowledged in the responses from [RN B] and CCDHB. Whilst I agree with the

[48] Australasian College for Emergency Medicine (ACEM), *Policy on the Australasian Triage Scale*, Policy Nr: P06 (Victoria, Australia: ACEM, 2013). Retrieved from http://www.acem.org.au/media/P06_Policy_on_ATS_v4__Jul-13_.pdf

Providers' responses that the ACEM guidelines[49] include that vital signs are not required to be part of the triage assessment, and that the triage assessment should take no more than 2–5 minutes, I am of the opinion that if vital signs are assessed then they should be used to inform the clinical decision making of the Triage RN. I note that [RN B] reports that she intended to reassess [Miss A's] heart rate again but remained too busy to do so. In my opinion, [RN B] responded appropriately to [Miss A's] complaint of *stiff neck.* There are no further symptoms suggestive of meningitis recorded in the Triage Assessment. [RN B] reports no recollection of being informed that [Miss A] had recent exposure to meningitis. I note that this is disputed by [Miss A].

(iv) The first set of complete vital signs are recorded as being taken at 2.38am; *T38.2, Pulse 123, resp rate 26, lying BP 90/44, 98% O2 RA.* [RN B] reports that she was not the treating nurse at this time. The clinical notes entry at 2.39am is assigned to a student nurse, and reports [Miss A's] pain score as 6/10 and that she had recent exposure to meningitis via a classmate. Nursing care that is delegated to non registered staff, such as a student, is subject to clinical supervision and oversight[50]. Following the recording of vital signs and [Miss A's] exposure to meningitis, I would have expected the student nurse to promptly report [Miss A's] pain score, temperature and exposure status to the precepting RN. Under the principles of direction and delegation, the RN retains responsibility for monitoring and evaluating the outcomes of all care that is delegated to a non RN. I note that [Miss A] received analgesia at 2am, following the examination by the ED Registrar. It is not obvious how long a time lag there was between nursing assessments and completing the computerised notes.

5. **Clinical advice**

(i) Was the triage assessment undertaken by [RN B] consistent with expected standards?

I consider the triage assessment as undertaken by [RN B] to be appropriate. I agree that the assessment should not be delayed for the assessment of vital signs.

(ii) Was the triage assessment categorisation appropriate?

Based on the recorded vital sign — HR 156 — the triage score allocated to [Miss A] should have been category 2 rather than 3. [RN B's] response offers that she attributed [Miss A's] tachycardia to her emotional state upon presentation and intended to re-assess. Whilst I

[49] Australasian College for Emergency Medicine (ACEM), *Guidelines on the implementation of the Australasian Triage Scale in Emergency Departments,* Guideline Nr: G24, (Victoria, Australia: ACEM, 2005). Retrieved from http://www.acem.org.au/media/policies_and_guidelines/G24_Implementation__ATS.pdf

[50] Nursing Council of New Zealand (NCNZ), *Guideline: direction and delegation* (Wellington: NCNZ, 2008).

can concede the allocation of category 3 rather than 2, I am critical of the failure to re-assess [Miss A].

(iii) Was the monitoring of [Miss A] by [RN B] consistent with expected standards?

No. I consider the monitoring of [Miss A] to be suboptimal and a moderate departure from the expected standards of nursing care.

ACEM guidelines[51] state that *implicit in the descriptors of Categories 1 to 4 is the assumption that the clinical outcome may be affected by delays to assessment and treatment beyond the recommended times.* Having been triaged as category 3, the maximum time that [Miss A] should have had to wait before assessment/treatment should have been 30 minutes. In the context of this complaint, I do not consider [RN B's] ability to see [Miss A] in the waiting room to reflect an adequate level of monitoring.

I draw attention to ACEM Policy[52] 3.1 … *There should be a process and staffing in place to ensure continuous re-assessment of patients who remain waiting, and, if the clinical features change, re-triage of patients accordingly* ... I am unsure to what extent [RN B] 'flagged' [Miss A's] lack of assessment, treatment or monitoring while she waited in the ED. Ideally as the sole Triage RN in a busy ED, [RN B] should not have been responsible for the ongoing monitoring of waiting patients. However, as the RN who assigned triage category 3 to [Miss A], I am of the opinion that she was responsible for communicating her assessment of [Miss A's] clinical needs — needing assessment or initiation of treatment within 30 minutes — or to ensure that [Miss A's] vital signs and condition [were] adequately monitored. I note that following the triage assessment, [Miss A] was next reviewed at 2.38am. In my opinion this was too long a delay.

6. **Comments**

Triage Categories are based on objective assessment by a skilled practitioner. Therefore a considerable deviation from the guidelines and in re assessing the patient's condition will always necessitate a moderate or severe departure from the expected standards of expected care. Whilst I can appreciate 'busy' shifts I am of the opinion that their presence cannot excuse such delays.

I agree with the Providers that the changes that have occurred — sepsis pathway, increasing staffing levels — will benefit patients who present to [Hospital 1] ED.

[51] Australasian College for Emergency Medicine (ACEM), *Guidelines on the implementation of the Australasian Triage Scale in Emergency Departments,* Guideline Nr: G24, (Victoria, Australia: ACEM, 2005). Retrieved from http://www.acem.org.au/media/policies_and_guidelines/G24_Implementation__ATS.pdf

[52] Australasian College for Emergency Medicine (ACEM), *Policy on the Australasian Triage Scale,* Policy Nr: P06 (Victoria, Australia: ACEM, 2013). Retrieved from http://www.acem.org.au/media/P06_Policy_on_ATS_v4__Jul-13_.pdf

Dawn Carey (RN PG Dip)
Nursing Advisor

Health and Disability Commissioner, Auckland."
Further advice was obtained from RN Carey on 4 March 2014 as follows:

"1. Thank you for the request that I provide additional clinical advice in relation to the complaint from [Miss A] about the care provided to her by [RN B]. In preparing the advice on this case to the best of my knowledge I have no personal or professional conflict of interest. I have read and agree to follow the Commissioner's Guidelines for Independent Advisors. This advice is to be read in conjunction with my previous offered advice.

2. As part of this advice I have been asked to:
   (i) Provide advice that considers both perspectives of the factual dispute — [RN B] was/was not advised of [Miss A's] recent exposure to meningitis
   (ii) Clarify my comment, 'can concede the allocation of category 3 rather than 2'
   (iii) Respond to the additional response from [RN B]
   (iv) Specify the aspects of [Miss A's] care that I consider to be departures

3. I have read and reviewed my previous advice in light of the additional response from [RN B], dated 20 January 2014. I have also re-familiarised myself with the other information available including [RN B] and CCDHB other responses and [Miss A's] clinical notes from [Hospital 1].

   I note that the CCDHB responses report that [Miss A] arrived at [Hospital 1's] ED at 11.08pm and was triaged at 11.25pm, whilst [RN B's] response reports assessment and triage occurring at 11.08pm. I will attempt to address both times within my advice.

4. **Additional advice**

   (i) [RN B] was informed that [Miss A] had been exposed to meningitis
   ACEM guidelines[53] report the clinical indicator *suspected meningococcaemia* under ATS Category 2, which is *assessment and treatment within 10 minutes*. This means that if [RN B] was informed at triage of [Miss A's] recent exposure to meningitis she should have allocated her ATS Category 2. Appreciating that meningitis can rapidly overwhelm a body system, I am of the opinion that [RN B] should have acted on this information even though [Miss A] did not have the classical signs/symptoms of meningococcaemia at triage presentation.

[53] Australasian College for Emergency Medicine (ACEM), *Guidelines on the implementation of the Australasian Triage Scale in Emergency Departments*, Guideline Nr: G24, (Victoria, Australia: ACEM, 2005). Retrieved from
http://www.acem.org.au/media/policies_and_guidelines/G24_Implementation__ATS.pdf

In my opinion, the failure to do so would demonstrate a moderate departure from the expected standards.

[RN B] was not informed that [Miss A] had been exposed to meningitis

[RN B] reports that she attributed [Miss A's] elevated heart rate — 156 bpm — to be in response to her emotional state, which is why she allocated her ATS Category 3 rather than 2. Triage Categories are based on an objective assessment by a skilled practitioner and need to be promptly allocated. I also note that [RN B] assessed [Miss A] for photophobia and neck stiffness, which was appropriate. In my opinion, it was acceptable for [RN B] to allocate ATS Category 3 to [Miss A] if she was unaware of the recent exposure to meningitis.

(ii) Clarify my comment, 'can concede the allocation of category 3 rather than 2'

ACEM guidelines[54] include that vital signs are not required to be part of the triage assessment, and that the triage assessment should take no more than 2–5 minutes. Whilst [Miss A's] elevated heart rate is part of the ATS Category 2 clinical indicators, the process of the triage assessment involves evaluating the patient's presentation, determining clinical urgency and allocating them a category. Completing such an assessment within the required time frame requires skill and experience, and completion of the College of Emergency Nurses of New Zealand (CEENZ) Triage course. I accept [RN B's] contemporaneous assessment and evaluation that [Miss A's] heightened emotional state contributed to her elevated heart rate, which is why she did not allocate ATS Category 2 to [Miss A]. In my opinion, the triage assessment categorisation of [Miss A] was reasonable but I would recommend that behaviours that skew noted vital signs are documented e.g. resps 65 (baby crying).

(iii) Respond to the additional response from [RN B] and advise whether this further response causes me to confirm, change, amend, add to, qualify or depart from the opinions expressed in my previous advice.

[Information removed that is not relevant to this investigation.]

In my opinion, [RN B] was responsible for alerting the Associate Charge Nurse Manager (ACNM) to the fact that [Miss A] still required re-assessment ... *planned to reassess her shortly however due to the workload and a busy waiting room this did not happen* ... and treatment. I note that whilst the CCDHB 'Triage of patients presenting

[54] Australasian College for Emergency Medicine (ACEM), *Guidelines on the implementation of the Australasian Triage Scale in Emergency Departments*, Guideline Nr: G24, (Victoria, Australia: ACEM, 2005). Retrieved from http://www.acem.org.au/media/policies_and_guidelines/G24_Implementation__ATS.pdf

to the Emergency Department' (Triage) Policy refers to the role of a second RN, — Triage Assessment RN — there is no reference to this RN in any of the responses. According to the policy the Triage Assessment RN is allocated the *... specific role in assessments and on-going management of patients in the waiting area of the emergency department ...*

In her additional response, [RN B] reports discussing [Miss A] with the duty ACNM and [Dr E]. Whilst [RN B] cannot recall the specifics of her conversation with the ACNM that evening, she reports that typically such a conversation includes identifying patients she is concerned about so that a plan can be agreed with the ACNM. I note that [RN B] also reports updating the Emergency Department Information System (EDIS) to include 'room please', pointing out that the ACNM has constant access to the EDIS screen, which also shows the patient's triage code. I note that since this complaint, [RN B] reports changing her practice so that all relevant clinical conversations with team members are documented in the patient's clinical notes. I agree that this is appropriate.

[RN B] also reports speaking with [Dr E] about [Miss A]. She reports giving a basic account of [Miss A's] presenting complaint; reporting her concerns of dehydration, tachycardia, pain and nausea, and reporting that [Miss A] needed to come through to the department and probably required intravenous fluids. In response to this [Dr E] prescribed an anti-emetic medication which [RN B] administered at 00.50am reporting *... I only had time for a visual check of the patient when I gave her medication ...*.

Based on [RN B's] triage assessment, [Miss A] required further assessment/treatment by 11.38pm (based on [RN B's] reported time of triage) or at 11.55pm (based on CCDHB reported time of triage). Whilst I acknowledge that within the ACEM Policy there is an allowance for less than 100% compliance with 'time to treat' guidelines, I am strongly of the opinion that this should not be interpreted as supporting delays in reassessing the patient and completing a full set of their vital signs. I note that there are discrepancies between [Dr C's] timeline — [Miss A] was transferred to a cubicle and assessed/treated by him between 2–2.30am — and CCDHB's response — transferred to a cubicle at 12.50am. The transfer of [Miss A] to a cubicle is a significant time as it indicates the transfer of care from [RN B] and the Triage Assessment RN to other nurses in the ED.

In my opinion, the free text on EDIS — room please — does not convey any urgency or clinical concern. Whilst I appreciate that the duty ACNM could perhaps determine that [Miss A] had still not

received treatment as per her allocated ATS triage category, this is reliant on the ACNM reviewing the EDIS for these issues rather than the triage RN effectively escalating clinical concerns. [RN B] was aware that [Miss A] presented with an elevated heart rate and required further assessment and as such the onus was on [RN B] to communicate such outstanding clinical concerns in an effective manner. In my opinion, [RN B] retained responsibility to 'flag' with the ACNM [Miss A's] need for re-assessment/treatment or that the workload was exceeding the ability of the Triage Assessment RN to keep up. I also note that the Triage Policy (page 46) also refers to the need for such information flow.

Following a review of [RN B's] additional response, I have determined no cause to amend my criticism of the standard of monitoring of [Miss A]. I remain of the opinion that the monitoring was suboptimal and a moderate departure from expected standards.

(v) Specify the aspects of [Miss A's] care that I consider have departed from the expected standards of nursing care

In my opinion, there was a moderate departure from the expected standards of monitoring [Miss A] due to the significant delay in re-assessing her vital sign.

Dawn Carey (RN PG Dip)
Nursing Advisor
Health and Disability Commissioner
Auckland."

Appendix C — Independent clinical advice to the Commissioner

Independent clinical advice was obtained from emergency medicine specialist Dr John Chambers on 5 June 2013:

> "I have been asked to provide an opinion to the Commissioner on case number C12HDC01172 and have prepared my report having read and agreed to follow the Commissioner's Guidelines for Independent Advisors.
>
> I am Dr. John A. Chambers MBChB 1978 (Glasgow) FRCS 1984 (Edinburgh) PACEM (1996). I have been employed as a specialist in Emergency Medicine in Dunedin Hospital since 1993 and continue to work as a full time specialist in the Emergency Department. I held the position as Head of Department/Director from 1993 till 2011. I regularly supervise and take part in the care of emergency patients who present to a general Emergency Department. During my time as an Emergency Department doctor I have looked after many patients with septicaemia including meningococcal disease.
>
> The opinion and advice provided is with regard to the care of [Miss A].
>
> The purpose of this advice is to enable the Commissioner to determine whether, from the information available, there are concerns about the care provided by [Hospital 1's] Emergency Department (Capital and Coast DHB).
>
> The specific issues I have been asked to consider and comment on are detailed in the correspondence I have received from the office of the HDC:
>
> - Whether, given the nature of [Miss A's] presenting history and symptoms, including her recent contact with a case of meningitis, the nurse's triage assessment of August 2012 was consistent with expected standards (noting the absence of blood pressure or temperature records) and whether her categorization code was appropriate?
> - Whether, given the nature of [Miss A's] presenting history and symptoms and her initial triage recordings, a wait of two hours to be seen by a clinician is an acceptable situation? (Please also) comment on the standard of her monitoring over the period of this wait.
> - Whether the Emergency Department registrar's management of [Miss A] was consistent with clinical standards, taking into account all aspects of her presentation, including knowledge of her meningitis contact and negative influenza swab, her blood results, her presenting symptoms and signs, and her response to treatment.
> - If there were any departures from expected standards of treatment.
> - Whether any departures from expected standards would rank as mild, moderate or severe?
>
> The information supplied to me by the office of the Commissioner for review consisted of photocopies of the following.
>
> - Typed complaint form [Miss A] dated […].
> - First response to HDC from CCDHB and clinical notes from CCDHB.

- Second response to HDC from CCDHB and further clinical notes from CCDHB.
- Response to HDC from [DHB2] and clinical notes.

Brief Factual Summary

[Miss A] presented to the Triage Desk of [Hospital 1's] Emergency department at 23.08 on Wednesday 22 August [with] headache vomiting stiff neck and general body aches.

She had been seen earlier that day at [the medical clinic] and had swabs taken for a suspected streptococcal throat infection. She was aware that a young woman working in the same place as her the previous week had contracted meningitis.

She was assessed to have a triage category T3 priority for treatment (to be seen by a doctor within 30 minutes) and placed in the waiting room.

[Miss A] was seen by [a] treating nurse in a treatment cubicle at 02.38 on 23 August and had notes typed by an ED doctor (registrar) at 02.59 hrs. She was diagnosed as showing signs of a SIRS (systemic inflammatory response syndrome) likely secondary to a throat infection. She was prescribed intravenous fluids and antibiotics and received an intravenous dose of Ceftriaxone at 03.10 hrs.

It was noted that she had a low recorded blood pressure of 90 systolic and she received 3 litres of intravenous saline overnight. Her blood pressure remained low. Otherwise she seemed to be responding to treatments and she was discharged at 07.50 with written instructions to return if there was any deterioration.

She felt unwell at home and developed a rash later that day. She returned to ED at 20.11 hrs. She was noted to have a widespread 'petechial' rash and triaged as category T2 patients (to be seen by a doctor within 10 minutes). Her vital signs recorded at that time were within normal range. She was seen by a doctor at 2051 hrs. It is documented at 21.31 that she had had a positive blood culture result from the specimen sent at the previous presentation reported by the lab.

[Miss A] was admitted under the care of the medical team and was treated with further antibiotics and IV fluids. She subsequently developed joint pains and erythema nodosum. Despite prolonged treatment with intravenous and oral antibiotics [Miss A] was subsequently diagnosed as suffering from Rheumatic fever secondary to a coincidental proven streptococcal throat infection and was admitted to [Hospital 2] from 1–4th September.

Objective findings from my review of the documentation supplied

I will now list a number of points from my examination of the material provided which are in my opinion of relevance to my opinion on the issues of concern.

1. [Miss A] states in her letter of complaint that her partner reported concern that she had had connection to a case of meningitis. This is not documented at Triage but is documented in the nursing notes at 02.39hrs.

2. The triage note includes the typed entry 'C Warm and pale appearance HR 156'.

3. [Miss A] was Triaged as a category 3 priority.

4. It is stated in a letter of response from CCDHB that she was seen by a doctor at 01.31 hrs. I am unable to corroborate this with any documentation. This is 2 hrs and 23 minutes after triage time.

5. At 02.38 her vital signs are documented as Temp 38.2 pulse 125 BP 90 systolic.

6. Her medical notes were typed at 02.50 hrs.

7. She was treated for SIRS with IV fluids and IV Ceftriaxone at 03.10 hrs. This is 4 hours and 2 minutes after Triage.

8. It is documented that her blood pressure was 75/36 at 04.35 hrs and further IV fluids were charted.

9. The emergency registrar recorded that her blood pressure was 90 systolic at 07.56 'within normal limits given age/body habitus'.

10. It is recorded 'Feels improved. Throat sore+ but other symptoms settled. Tachycardia resolved completely'.

11. I have not visualized a chart of her observations overnight during her first attendance. Some vital signs are recorded in her typed medical and nursing notes.

12. There is no documented evidence as to whether her case was discussed with an Emergency Medicine consultant prior to discharge.

13. There is no documentation as to whether her case was discussed at the morning handover process in the ED either prior to or after her discharge.

14. At her second attendance she was triaged as a priority T2 patient at 20.11 and seen by a doctor at 20.51. This was 40 minutes after Triage.

I have read the subsequent detailed clinical notes regarding [Miss A's] care in [Hospital 1] and later in [Hospital 2] and can find no further matters of relevance with regard to the issues I have been asked to comment on. I note that in a reply to the HDC from CCDHB it is commented that her wait to be seen at the first attendance was 'due to the acuity and volume of patients attending ED at that time. I have not viewed any information to confirm or refute that the ED was exceptionally busy or overloaded at the time of [Miss A's] presentations. I have not viewed any information regarding the medical and nursing staffing establishment at the time of [Miss A's] presentations to ED. I have not seen any data regarding the overall performance of the ED in [Hospital 1] with regard to treatment and waiting times in August 2012.

Discussion regarding the conditions concerned

[Miss A] has survived meningococcal septicaemia and meningitis despite some significant delays in her initial treatment. She has developed rheumatic fever as a complication of a co-incidental streptococcal throat infection despite diagnosis and antibiotic treatment.

Meningococcal disease can present in many ways and there is considerable experience of managing this condition in New Zealand.

There have been tragic cases where the diagnosis has been missed with fatal outcome and these have received considerable publicity and been the subject of review and discussion in the medical profession and wider community.

One expert in New Zealand reviewed those who had died despite presenting to a health facility earlier in their illness and found a common pattern of abnormality in vital signs, specifically a pulse rate greater than 120 in young previously healthy adults (personal communication).

The guidelines for using the Australasian Triage scale (ATS) specify 'pale' and 'tachycardia' as specific reasons during the assessment of circulation to attribute a triage priority of T2. In an addendum they include specific diagnoses of concern such as 'meningococcal septicaemia' as a reason to 'up triage' patients who present.

Triage is designed as a process to try and ensure that patients are given appropriate priority in the ED when multiple patients present with a wide variety of diseases and conditions.

Healthy young women can have normal systolic blood pressure readings as low as 90 systolic but it would be unexpected that this would fall to a level of 75 systolic while receiving intravenous fluids.

It is recommended that patients with SIRS attributed to a likely infective cause are given intravenous antibiotics after taking of blood cultures preferably within 3 hours of presentation to ED.

Comments regarding the specific issues raised by the complaints assessor of the HDC

I have highlighted my comments with regard to the questions asked by the Office of the Commissioner.

- Whether, given the nature of [Miss A's] presenting history and symptoms, including her recent contact with a case of meningitis, the nurse's triage assessment of August 2012 was consistent with expected standards (noting the absence of blood pressure or temperature records) and whether her categorization code was appropriate?

In regard to the first visit to the ED, [Miss A] was triaged as a category T3 priority despite a documented significant tachycardia and reported concern about meningitis. It is my opinion she should have been triaged as a T2 priority. Her categorization was not appropriate.

- Whether, given the nature of [Miss A's] presenting history and symptoms and her initial triage recordings, a wait of two hours to be seen by a clinician is an acceptable situation? (Please also) comment on the standard of her monitoring over the period of this wait.

Following both presentations to ED [Miss A] exceeded recommended waiting times to be seen by a doctor by significant time frames for a patient with her acuity. This was not acceptable and needs further explanation by the DHB. It may reflect staffing and/or other resource constraints at that time which have not been clarified. There are no standard recommendations for monitoring patients while waiting in the ED waiting room following triage.

- Whether the Emergency Department registrar's management of [Miss A] was consistent with clinical standard, taking into account all aspects of her presentation, including knowledge of her meningitis contact and negative influenza swab, her blood results, her presenting symptoms and signs, and her response to treatment.

There were significant time delays in administering antibiotics to a patient with a SIRS and a suspected infective cause. Hypotension unresponsive to intravenous fluids was incorrectly judged to be related to body habitus rather than the effects of septicaemia. Her care is not documented as having been reviewed by a senior doctor at morning handover. These aspects are in my opinion not consistent with current clinical standards.

- If there were any departures from expected standards of treatment.

As above

- Whether any departures from expected standards would rank as mild, moderate or severe?

Despite the severity of the condition [Miss A] received treatment and survived her illness. I would rank the delays in care and treatment as a moderate departure from expected standards.

Concluding Remarks

An Emergency Department is a busy environment where patients present with a myriad of emergency conditions and at all times.

Triage is designed to prioritise patients to ensure that the sickest patients are seen soonest. Inappropriate triage can place the patient at considerable risk.

Unexplained abnormal vital signs are a significant 'red flag' when assessing patients in an emergency. Doctors must make a clinical judgement on the relevance of abnormal findings in any clinical situation. In a major emergency department it would be expected that a junior doctor would have the opportunity [to] discuss unexplained abnormalities with a senior colleague before making a decision on whether the patient can be safely discharged.

Giving verbal plus written advice to the patient is recommended as well as written or electronic communication with the patient's GP to prevent any misunderstandings and ensure appropriate follow up when patients are discharged. On this occasion the written and verbal advice given was followed and [Miss A] returned when her condition deteriorated. At her second visit her wait to be seen by a doctor also exceeded that recommended for a patient of her acuity.

Dr John A, Chambers, Medical Advisor to HDC"

Further expert advice was obtained from Dr Chambers on 10 October 2013 as follows:

"I was asked to provide an opinion to the Commissioner on case number C12HDC01172 and prepared a report having read and agreed to follow the Commissioner's Guidelines for Independent Advisors.

In the light of further inquiries and reports from involved parties and the CCDHB I have been asked whether I would review or revise my original advice. I have incorporated some adjustments in my advice in this further report.

I am Dr John A. Chambers MBChB 1978 (Glasgow), FRCS 1984 (Edinburgh) FACEM (1996). I have been employed as a specialist in Emergency Medicine in Dunedin Hospital since 1993 and continue to work as a full time specialist in the Emergency Department. I held the position as Head of Department/Director from 1993 till 2011. I regularly supervise and take part in the care of emergency patients who present to a general Emergency Department. During my time as an Emergency Department doctor I have looked after many patients with septicaemia including meningococcal disease.

The opinion and advice provided is with regard to the care of [Miss A].

The purpose of this advice is to enable the Commissioner to determine whether, from the information available, there are concerns about the care provided by [Hospital 1's] Emergency Department (Capital and Coast DHB).

The initial issues I was asked to consider in a preliminary report and comment on were detailed in the correspondence I received from the office of the HDC:

- Whether, given the nature of [Miss A's] presenting history and symptoms, including her recent contact with a case of meningitis, the nurse's triage assessment of August 2012 was consistent with expected standards (noting the absence of blood pressure or temperature records) and whether her categorization code was appropriate?
- Whether, given the nature of [Miss A's] presenting history and symptoms and her initial triage recordings, a wait of two hours to be seen by a clinician is an acceptable situation? (Please also) comment on the standard of her monitoring over the period of this wait.
- Whether the Emergency Department registrar's management of [Miss A] was consistent with clinical standards, taking into account all aspects of her presentation, including knowledge of her meningitis contact and negative influenza swab, her blood results, her presenting symptoms and signs, and her response to treatment.
- If there were any departures from expected standards of treatment.
- Whether any departures from expected standards would rank as mild, moderate or severe?

The information supplied to me by the office of the Commissioner for review consisted of photocopies of the following.

- Typed complaint from [Miss A] dated […].
- First response to HDC from CCDHB and clinical notes from CCDHB.
- Second response to HDC from CCDHB and further clinical notes from CCDHB.
- Response to HDC from [DHB2] and clinical notes.
- HDC notification letters dated 30 July 2013.
- [RN B's] response to notification dated […].
- CCDHB's response to notification dated […] and supporting documentation.
- Dr C's response to notification and supporting documentation.

Brief Factual Summary

[Miss A] presented to the Triage Desk of [Hospital 1's] Emergency Department at 23.08 on Wednesday 22nd August [with] headache vomiting stiff neck and general body aches.

She had been seen earlier that day at [a medical clinic] and had swabs taken for a suspected streptococcal throat infection. She was aware that a young woman working in the same place as her the previous week had contracted meningitis.

She was assessed as have a triage category T3 priority for treatment (to be seen by a doctor within 30 minutes) and placed in the waiting room.

[Miss A] was seen by [a] treating nurse in a treatment cubicle at 02.38 on 23rd August and had notes by an ED doctor (registrar) at 02.59 hrs.

She was diagnosed as showing signs of a SIRS (systemic inflammatory response syndrome) likely secondary to a throat infection. She was prescribed Intravenous fluids and antibiotics and received an intravenous dose of Ceftriaxone at 03.10 hrs.

It was noted that she had a low recorded blood pressure of 90 systolic and she received 3 litres of intravenous saline overnight. Her blood pressure remained low. Otherwise she seemed to be responding to treatments and she was discharged at 07.50 with written instructions to return if there was any deterioration.

She felt unwell at home and developed a rash later that day. She returned to ED at 20.11 hrs. She was noted to have a widespread 'petechial' rash and triaged as category T2 (patients to be seen by a doctor within 10 minutes). Her vital signs recorded at that time were within normal range. She was seen by a doctor at 20.51 hrs. It is documented at 20.31 that she had had a positive blood culture result from the specimen sent at the previous presentation reported by the lab.

[Miss A] was admitted under the care of the medical team and was treated with further antibiotics and IV fluids. She subsequently developed joint pains and

erythema nodosum. Despite prolonged treatment with intravenous and oral antibiotics [Miss A] was subsequently diagnosed as suffering from Rheumatic fever secondary to a co-incidental proven streptococcal throat infection and was admitted to [Hospital 2] from 1–4th September.

Further specialist assessment suggests that the diagnosis of Rheumatic fever was not established and her cardiac valve appearances are now normal.

Objective Findings From My Review Of The Documentation Supplied

I will now list a number of points from my examination of the material provided which are in my opinion of relevance to my opinion on the issues of concern.

1. [Miss A] states in her letter of complaint that her partner reported concern that she had had connection to a case of meningitis. This is not documented at Triage but is documented in the nursing notes at 02.39hrs.
2. The triage note includes the typed entry 'C Warm and pale appearance HR 156'.
3. [Miss A] was Triaged as a category 3 priority.
4. It is stated in a letter of response from CCDHB that she was seen by a doctor at 01.31 hrs. I am unable to corroborate this with any documentation. This is 2 hrs and 23 minutes after triage.
5. At 02.38 her vital signs are documented as Temp 38.2 pulse 125 BP 90 systolic.
6. Her medical notes were typed at 02.50 hrs.
7. She was treated for SIRS with IV fluids and IV Ceftriaxone at 03.10 hrs. This is 4 hours and 2 minutes after Triage.
8. It is documented that her blood pressure was 75/36 at 04.35 hrs and further IV fluids were charted.
9. The emergency registrar recorded that her blood pressure was at 07.56 'within normal limits given age/body habitus.'
10. It is recorded 'Feels improved. Throat sore+ but other symptoms settled. Tachycardia resolved completely'.
11. I have not visualized a chart of her observations overnight during her first attendance. Some vital signs are recorded in her typed medical and nursing note.
12. Further evidence submitted now suggests that her blood pressure was recorded as 96/74 at 7.20 am prior to discharge.
13. There is no documented evidence as to whether her case was discussed with an Emergency Medicine consultant prior to discharge.
14. There is no documentation as to whether her case was discussed at the morning handover process in the ED either prior to or after her discharge.
15. At her second attendance she was triaged as a priority T2 patient at 20.11 and seen by a doctor at 20.51. This was 40 minutes after Triage.

I have read the subsequent detailed clinical notes regarding [Miss A's] care in [Hospital 1] and later in [Hospital 2] and can find no further matters of relevance with regard to the issues I have been asked to comment on.

I note that in a reply to the HDC from CCDHB it is commented that her wait to be seen at the first attendance was 'due to the acuity and volume of patients attending ED at that time'. Further information confirms that the ED was exceptionally busy or overloaded at the time of [Miss A's] presentations.

Discussion Regarding the Conditions Concerned

[Miss A] has survived meningococcal septicaemia and meningitis despite some significant delays in her initial treatment. She developed suspected rheumatic fever as a complication of a co-incidental streptococcal throat infection despite diagnosis and antibiotic treatment. This second serious illness has not been confirmed in subsequent examinations.

Meningococcal disease can present in many ways and there is considerable experience of managing this condition in New Zealand.

There have been tragic cases where the diagnosis has been missed with fatal outcome and these have received considerable publicity and been the subject of review and discussion in the medical profession and wider community.

One expert in New Zealand reviewed those who had died despite presenting to a health facility earlier in their illness and found a common pattern of abnormality in vital signs, specifically a pulse rate greater than 120 in young previously healthy adults (personal communication).

The guidelines for using the Australasian Triage scale (ATS) specify 'pale' and 'tachycardia' as specific reasons during the assessment of circulation to attribute a triage priority of T2. In an addendum they include specific diagnoses of concern such as 'meningococcal septicaemia' as a reason to 'up triage' patients who present.

Triage is designed as a process to try and ensure that patients are given appropriate priority in the ED when multiple patients present with a wide variety of diseases and conditions.

Healthy young women can have normal systolic blood pressure readings as low as 90 systolic but it would be unexpected that this would fall to a level of 75 systolic while receiving intravenous fluids.

It is recommended that patients with SIRS attributed to a likely infective cause are given intravenous antibiotics after taking of blood cultures preferably within 3 hours of presentation to ED.

Comments Regarding the Specific Issues Raised by the Complaints Assessor of the HDC

I have highlighted my comments with regard to the questions asked by the Office of the Commissioner.

- Whether, given the nature of [Miss A's] presenting history and symptoms, including her recent contact with a case of meningitis, the nurse's triage assessment of August 2012 was consistent with expected standards (noting the absence of blood pressure or temperature records) and whether her categorization code was appropriate?
  In regard to the first visit to the ED, [Miss A] was Triaged as a category T3 priority despite a documented significant tachycardia and reported concern about meningitis. It is my opinion she should have been triaged as a T2 priority. Her categorization was not appropriate.

- Whether, given the nature of [Miss A's] presenting history and symptoms and her initial triage recordings, a wait of two hours to be seen by a clinician is an acceptable situation? (Please also) comment on the standard of her monitoring over the period of this wait.
  Following both presentations to ED [Miss A] exceeded recommended waiting times to be seen by a doctor by significant time frames for a patient with her acuity. On each occasion she exceeded the recommended waiting time by a factor of x4. This was an unacceptable delay especially in the context of suspicion of significant sepsis both initially and on re-presentation.

- Whether the Emergency Department registrar's management of [Miss A] was consistent with clinical standards, taking into account all aspects of her presentation, including knowledge of her meningitis contact and negative influenza swab, her blood results, her presenting symptoms and signs, and her response to treatment.
  Empiric treatment for sepsis (which would also cover an early meningococcal infection) was correctly administered by the treating registrar which is highly likely to have saved the patient's life. Although the patient had to return for further care her condition on initial discharge did seem improved. Her blood pressure although still low was within acceptable parameters for the patient's age and size. Her care by the treating registrar was of an acceptable standard.

- If there were any departures from expected standards of treatment.
  There is no record that the patient was discussed with the consultant on duty at the morning handover process. It is usual practice in many EDs that patients discharged overnight are discussed at this time.

- Whether any departures from expected standards would rank as mild, moderate or severe?

Despite the severity of the condition [Miss A] received treatment and survived her illness. I would rank the delays in care and treatment as a moderate departure from expected standards.

Concluding remarks

An Emergency Department is a busy environment where patients present with a myriad of emergency conditions and at all times.

Triage is designed to prioritise patients to ensure that the sickest patients are seen soonest. Inappropriate triage can place the individual patient at considerable risk.

A percentage of patients will wait longer than the suggested triage period, and this is acceptable in terms of ACEM guidelines for the performance of the Department as a whole. However exceeding the time frame by a factor of x4 on successive visits suggests a lack of sufficient resources at that time and again places that individual patient at some risk.

Unexplained abnormal vital signs are a significant 'red flag' when assessing patients in an emergency. Doctors must make a clinical judgement on the relevance of abnormal findings in any clinical situation. In a major emergency department it would be expected that a junior doctor would have the opportunity [to] discuss unexplained abnormalities with a senior colleague before making a decision on whether the patient can be safely discharged.

On this occasion the registrar was at the very end of his training and it could be argued the necessity [of] discussion of every case with a senior colleague was less paramount. However it is good habit and discipline to discuss patients who have been discharged, as a team, at handover times, no matter who the treating doctor has been.

Giving verbal plus written advice to the patient is recommended [as] well as written or electronic communication with the patient's GP to prevent any misunderstandings and ensure appropriate follow up when patients are discharged. On this occasion the written and verbal advice given was followed and [Miss A] returned when her condition deteriorated — but again her care and treatments were subject to some delay.

There is every indication from the information supplied by the Triage Nurse, treating registrar and Medical Director of CCDHB that this case has contributed to subsequent discussions and developments in the management of patients with suspected sepsis presenting to CCDHB.

The delays experienced by this individual patient have been taken into account in considering the staffing and resources of the department. There is every suggestion that as a result of these inquiries there should be improvement in the quality of care for patients presenting with similar and other emergency conditions in the future.

Dr John A, Chambers
Medical Advisor to HDC

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10th October 2013"