Hutt Valley District Health Board

A Report by the
Health and Disability Commissioner

(Case 19HDC02034)

Health and Disability Commissioner
Te Toihau Hauora, Hauātanga

Contents

Executive summary

1. This report relates to the care provided to a teenage girl who presented to an Emergency Department (ED) with increasing knee pain on three occasions across a period of three days. The Commissioner comments on the need for ED staff to think critically, having regard to the wider clinical picture, and to consider alternative explanations when someone presents to ED multiple times with increasing pain.

2. The girl, who participated in sport, presented to ED twice on 17 September 2019 (in the morning and again in the evening) with pain in her right knee. At the first presentation, she was diagnosed with a knee strain/sprain; at the second presentation (when she had increased pain, for which she was given morphine in ED), she was diagnosed with a knee injury. The girl returned to ED three days later (having been seen by two GPs in the meantime), at which stage the pain had spread to her left knee. An X-ray was performed and she was diagnosed with Osgood-Schlatter disease (an overuse injury that often occurs in growing children and adolescents). On 23 September 2019, the girl returned to ED. At this stage, she was significantly unwell and was diagnosed with a bacterial joint infection (septic arthritis) in both knees.

Findings

3. The Commissioner acknowledged that the illness the girl had developed was rare, and accepted that the signs and symptoms of the diagnosis may have been subtle. However, the Commissioner considered that there were a number of shortcomings in the care the girl received across the three ED presentations — at the first presentation, the key symptoms were not documented at triage; at the second presentation, the possibility of more serious pathology was not recognised; and at the third presentation, more critical thinking was needed, having regard to the wider clinical picture.

4. The Commissioner considered that, ultimately, HVDHB was responsible for the inadequacies in the services provided. She found that HVDHB failed to provide services to the girl with reasonable care and skill and, accordingly, breached Right 4(1) of the Code.

Recommendations

5. The Commissioner recommended that HVDHB provide training to clinical staff on the importance of carrying out vital signs with certain clinical indications, and of considering possible serious pathologies, using the anonymised report as a case study; perform a random audit of 30 ED presentations to assess the recording of vital signs, discharge instructions given, and whether SMO reviews were completed as appropriate; consider whether a review of its ED staffing levels is warranted; and provide a written apology to the girl and her family.

Complaint and investigation

6. The Health and Disability Commissioner (HDC) received a complaint from Mrs B about the services provided to her niece, Miss A,[1] by Hutt Valley District Health Board (HVDHB). The following issue was identified for investigation:

- *Whether Hutt Valley District Health Board provided Miss A with an appropriate standard of care in September 2019.*

7. The parties directly involved in the investigation were:

Mrs B	Complainant/consumer's aunt
Mrs A	Consumer's mother
Mr A	Consumer's father
HVDHB	Provider

8. Further information was received from:

RN C	Registered nurse
RN D	Registered nurse
RN E	Registered nurse
Dr F	Senior medical officer (SMO)
Dr G	Registrar
RN H	Registered nurse
DHB2	
Medical centre	
After-hours medical centre	
Telehealth service	

9. Also mentioned in this report:

Dr I	Registrar

10. Independent expert advice was obtained from an emergency medicine specialist, Dr Tom Jerram (Appendix A).

[1] Miss A's parents support the complaint.

Information gathered during investigation

Introduction

11. This complaint relates to the care provided to Miss A (in her teens at the time of events) when she presented to the HVDHB Emergency Department (ED) with knee pain multiple times over a period of one week.

Background

12. Miss A participates in sport. On 16 September 2019, she complained to her parents of severe pain in her right knee and leg. Her parents gave her Panadol and ibuprofen but she continued to have pain. Miss A had not experienced an injury in the lead-up to developing this pain.

13. On 16 September 2019, Miss A was seen by a general practitioner (GP). The GP documented that Miss A had been experiencing bilateral leg pain in her right knee and left shin for a week. The GP's plan was to refer Miss A to physiotherapy.

17 September 2019 — first ED presentation

14. On the morning of 17 September 2019, Miss A presented to the ED with her mother. In her complaint, Mrs B (Miss A's aunt) told HDC that Miss A was experiencing intense pain, was unable to sleep or bear weight on her right knee, and was also experiencing chills and vomiting.

Triage assessment

15. Mrs A (Miss A's mother) told HDC that her daughter had nausea and chills (she was a bit shaky and her teeth were chattering). In the complaint, it was stated that Mrs A told the ED triage nurse, RN D, about these symptoms, but the triage nurse was "very dismissive". Mrs A also said among other things: "[The nurse/receptionist] said her son had a similar [sporting] injury and told me not to worry."

16. RN D recorded the following triage notes:

> "[Patient seen] with Mother. R knee pain. Increasing knee pain post exercise on weekend. [On arrival] Alert, limping, nil obvious swelling [good range of motion], reports pain on waking has had own analgesia."

17. RN D recorded Miss A's pain level as 2/10[2] but did not record anything about nausea or chills. RN D told HDC that she assigned a triage code of 5[3] for knee pain "due to [Miss A's] history of experiencing pain post exercise". RN D stated that she did not record Miss A's vital signs at triage because, at the time, vital signs were not required for all ED presentations. In

[2] A pain rating out of ten is often used to gauge the severity of pain a person is experiencing. Generally, 0/10 is considered no pain, 1–3/10 is mild pain, 4–6/10 is moderate pain, and 7–10/10 is severe pain.
[3] According to the Australasian Triage Scale, a triage code 5 is the least urgent code, and stipulates that the patient should be assessed and treated within 120 minutes.

addition, RN D said that because Miss A's presentation appeared to be exercise related, she did not record a temperature or heart rate.

Review by clinical nurse specialist

18. Miss A was then seen by Clinical Nurse Specialist (CNS) RN C. RN C recorded that Miss A had had a sudden onset of knee pain four days earlier after training. RN C noted that Miss A did not think she had injured or twisted her knee. RN C also documented: "Nil other concern verbalised." She told HDC that her usual practice is to listen to the patient's chief concern and then ask an open-ended question about whether the patient has any other concerns. She said that she would have expected such a question to have resulted in her being told about other concerns such as a fever or nausea. Mrs A does not recall mentioning other symptoms to RN C, as the key concern was knee pain.

19. RN C also examined Miss A's leg, and knee and hip joints, and documented her impression of "[m]uscle strain vs fracture". RN C requested an X-ray.

20. A right knee X-ray was performed at 10.30am that day. The reporting radiologist concluded that the X-ray did not demonstrate any bony injury.

21. RN C viewed the X-ray and recorded a diagnosis of knee sprain/strain. She wrote in the notes that she had given Miss A and her mother advice about caring for soft tissue injuries (the RICE method, which refers to Rest, Ice, Compression, and Elevation). RN C's documented discharge plan included a compression dressing for the knee, simple analgesia for pain, and follow-up with the GP if required. However, RN C did not record any criteria for Miss A to return to ED.

22. Miss A and her mother then returned home.

17 September 2019 — second ED presentation

23. Mrs A told HDC that the pain in Miss A's right knee increased the same evening and spread to her shin, despite pain relief and following the RICE method. They decided to return to ED. Mrs A stated: "Pain was a 10/10 she could barely walk (weight bear) into ED I had to assist her, she howled in pain till she got inside."

Review by triage nurse

24. RN E, one of two triage nurses working in ED that night, saw Miss A and her parents at approximately 9.45pm. RN E documented in the notes that Miss A had been experiencing increasing pain after she was seen in ED earlier that day, was experiencing moderate distress with the pain, and was "unable to manage at home". RN E stated that she asked Miss A about her pain, and documented a moderate pain score of 7/10. Based on this, she assigned a triage code of 3.[4]

25. Mrs A does not recall informing RN E of any other symptoms. RN E stated that it is unlikely that she would have enquired about infective symptoms, given Miss A's presentation, but

[4] Potentially life-threatening, potential adverse outcomes from delay > 30 minutes, or severe discomfort or distress; patient should be assessed and treated within 30 minutes.

she would have asked Miss A how she was feeling in herself. RN E commented that she would have expected Miss A to tell her if she had a fever or felt nauseous.

26. RN E said that because of Miss A's moderate pain, and that she had already taken paracetamol and ibuprofen at home, she spoke with Dr F (who was working as the supervising SMO that evening) to alert him of Miss A's presentation and pain, and to discuss further analgesia. Dr F stated that when a patient requires additional analgesia, his usual practice is to skip codeine and tramadol, because of the variable effects of these medications depending on the patient's enzyme systems, and instead go straight to morphine.

27. Dr F prescribed 8mg of morphine, which RN E administered to Miss A at 10.02pm.

Review by registrar

28. Miss A was seen by ED registrar Dr G at around 11.15pm. Mrs A told HDC: "[Miss A] was feeling relief [from the morphine] by the time the doctor examined her and was very drowsy from the morphine [and] lack of sleep." In response to the provisional opinion, Mr and Mrs A told HDC that Miss A's drowsiness meant that she could not participate in the assessment.

29. Dr G told HDC that he reviewed the notes of Miss A's presentation earlier that morning, including the X-ray. He documented this history, and also wrote: "Since discharge, using paracetamol and ibuprofen (1 tablet each). Pain became more severe this evening." He told HDC that he was aware that the pain was more severe when Miss A was weight bearing. Mrs A does not recall mentioning any other symptoms to Dr G.

30. Dr G stated that on examination, he noted that Miss A had a full range of motion in her knee, and her knee was not hot, swollen, or tender, although she did have some pain when the knee was extended fully.

31. Dr G also told HDC that because ED was overloaded at the time, he had to assess Miss A in the plaster room. The plaster room did not have the equipment for measuring vital signs, and was not staffed by a nurse. Dr G said that he did not go out to get the instruments for recording vital signs, which is a mistake that he accepts and regrets very much. He also stated that he was aware that Miss A had received pain relief in the waiting room, although he was unaware that it was morphine and had assumed she had been given codeine (notwithstanding that morphine was recorded in the medication chart and the notes).

32. Ultimately, Dr G recorded a diagnosis of "meniscal injury" and provided a knee brace and crutches for support, a prescription for paracetamol and ibuprofen, and advice to attend a physiotherapist if Miss A's pain did not settle. Dr G stated that in accordance with his usual practice, he would have informed Dr F (as the on-duty SMO) of his intention to discharge Miss A, although he does not recall the specifics of that conversation. However, Dr F told HDC that he did not have a conversation with Dr G about Miss A's presentation. Dr G added that his usual practice is to give verbal advice about returning to ED if there is increasing pain or new concerning symptoms, but acknowledged that he did not record this. In

response to the provisional opinion, Mr and Mrs A told HDC: "[T]here was no advice of what to do once discharged and were things to get worse."

19 September 2019 — visit to After Hours Medical Centre

33. Mrs A told HDC that Miss A was in "terrible pain" on the afternoon of 19 September 2019. Mrs A said that she rang ED and asked what to do, but "they weren't helpful and said it was up to me or I could call [the telehealth service]". Mrs A said that she decided to take Miss A to an after-hours medical centre.

34. They arrived at the medical centre at 5.41pm and were seen by a GP. The GP recorded Miss A's history, including that she had developed increasing pain in her left upper shin following the ED visits. He also noted that she was in a wheelchair and "distressed" with the pain but did not have a fever.

35. The GP examined both knees, noting that the area just below Miss A's left knee[5] was very tender but not swollen, and in the right knee all movements were reduced and painful, but it also was not swollen. The GP diagnosed a possible stress fracture. He spoke with the orthopaedic registrar at the public hospital, who advised that it was not an appropriate orthopaedic referral, and instead advised that Miss A return to ED for left knee and tibial X-rays. The GP provided a referral letter for ED.

20 September 2019 — third presentation to ED

36. The following morning, Miss A and her father, Mr A, returned to the ED.

37. RN H was working as the triage nurse. RN H noted that Miss A was presenting with left knee pain and was in a wheelchair. RN H also noted Miss A's previous two ED presentations for right knee pain. RN H recorded Miss A's heart rate (95 beats per minute), temperature (36.2°C), and respiratory rate (15 breaths per minute), all of which were within normal range. She also recorded Miss A's level of pain (7/10) and consciousness (alert). RN H assigned a triage code of 3.

Review by registrar

38. Miss A was then reviewed by registrar Dr I.[6] Dr I documented Miss A's history, including her two previous ED presentations, her GP's referral to physiotherapy, and the consultation the previous evening at the medical centre. Dr I also noted that Miss A's overnight pain had increased, such that she was unable to sleep, and that it was most painful when weight bearing. He noted that she had been taking regular pain medication but her symptoms remained.

39. Mr A cannot recall telling Dr I about any other symptoms like nausea or chills, but thought it unlikely, as the main concern was the severe pain. Mr A also told HDC that Dr I read the referral letter from the medical centre GP briefly and appeared to dismiss it.

[5] Specifically, the tibial tubercle and medial tibial condyle areas.
[6] HVDHB advised HDC that Dr I has left New Zealand, and HDC has been unable to contact him to provide input into the investigation.

40. On examination, Dr I noted that the left knee was swollen around the kneecap (patella) and that there was limited movement in the knee owing to the pain. He also documented, "No cellulitic features" (cellulitis is a bacterial skin infection). Dr I's impression was that Miss A's presentation was "[n]ot suggestive of infection", and he recorded a provisional diagnosis of bilateral Osgood-Schlatter disease (an overuse injury that often occurs in growing children and adolescents). Dr I's plan was for a left knee X-ray, further pain medication, possibly a left knee splint, and discussion with Orthopaedics.

41. HVDHB told HDC that Dr I did consider infection but felt that it was unlikely because Miss A did not have a fever in ED, and it is very unusual to have two joint infections at the same time. HVDHB acknowledged, however, that "[i]n retrospect, the increasing pain now involving the second knee were features of infection that [staff] did not appreciate at the time".

Discussion with Dr F

42. Dr I discussed Miss A with Dr F, who was again the supervising SMO that day. Dr F said that Dr I presented Miss A as "a young woman who had injured her right knee recently while [training] and was now presenting with left knee pain, likely due to 'favouring' the good knee while the other was injured". Dr F also stated that Dr I told him that he was not concerned about infection, and that the orthopaedic registrar had declined a request to review Miss A the previous evening. Dr F said that he was not told that Miss A was unable to weight bear or that she had been having systemic symptoms. Dr F added that if infective symptoms were present as well as bilateral pain, this would have prompted at the very least a set of blood tests, but more likely also SMO assessment. However, Dr F relied on the information verbally provided by Dr I, and therefore did not examine Miss A himself.

43. Dr F telephoned a sports medicine physician at another hospital and organised for a review of Miss A early the following week.

X-ray

44. The left knee X-ray was performed at 9.24am. The findings showed no fracture or significant fluid (effusion) on the joint, and no obvious evidence to suggest Osgood-Schlatter disease.

Discharge home

45. Dr I documented having advised Miss A and Mr A that Miss A was to take regular pain medication, rest and elevate the leg, and to return to ED if the symptoms worsened. Dr I also gave them information about Osgood-Schlatter disease and provided prescriptions for pain medication. Miss A was then discharged home. Mrs A told HDC: "[W]e were all very distressed, sleep deprived and discouraged by this stage."

Calls to the telehealth service

22 September 2019

46. Mrs A told HDC that she had wanted to take Miss A back to ED on Saturday, 21 September, but she thought that they would say the same things to her and send them home again, and make her feel like a hypochondriac. Mrs A said that instead she took notes about Miss A's

condition and, on Sunday 22 September, she rang the telehealth service because she was "extremely worried".

47. Mrs A told the telehealth service nurse that Miss A's left knee had become "really swollen, tight, and hot to touch". Mrs A also mentioned that Miss A had been sweaty, slightly breathless when mobilising with her crutches, and was not eating a lot. The nurse advised Mrs A to take Miss A to their GP the following day.

23 September 2019

48. On 23 September, Mrs A rang the telehealth service again. She told the nurse that the swelling had become worse, and she could no longer fit the splint on Miss A's leg. The nurse advised Mrs A to take Miss A back to ED.

23 September 2019 — fourth presentation to ED

49. Later that day, Miss A and her mother arrived at ED via ambulance. On arrival, Miss A was noted to have red swollen knees, chest pain, an abnormally rapid heart rate (150 bpm), and decreased oxygen saturations (85%). Her care was escalated rapidly because of concerns that she had a severe bacterial infection (necrotising fasciitis) and sepsis.

50. Bodily samples tested positive for bacterial infection, and Miss A was taken to surgery to drain her knees. After surgery, she was transferred to the Intensive Care Unit. She was diagnosed with bacterial joint infection (septic arthritis) in both knees.[7] Miss A was reviewed by the Infectious Diseases team, who concluded that her tests showed "markers of severe infection, [and that she] likely had had the bacteraemia [bacteria in the bloodstream] for [a] long duration". She was also diagnosed with infection in both lungs (bilateral pneumonia).[8]

51. Miss A was transferred to another DHB (DHB2) for further care. While at DHB2, she underwent multiple further operations on her knees, and her forearms, after it was discovered that the infection had spread. She received intravenous antibiotics and remained in hospital for several months, and needed ongoing rehabilitation.

Further information

Mrs B

52. Mrs B told HDC that the impact of Miss A's illness on the family has been catastrophic. She said that Miss A's parents were unable to work for a period of time, and that Miss A's mother continued to care for Miss A full time during her rehabilitation. Mrs B also stated:

> "[Miss A's] [sporting] future is now unclear, as due to the damage already sustained, it is difficult to predict how much function she will get back to both her lungs and legs."

[7] *Staphlococcus aureus* infection.
[8] Most likely Staphylococcal infection.

HVDHB

53. HVDHB apologised to Miss A and her family "for the immense pain, stress, and uncertainty that they had to endure", and acknowledged "the magnitude of the impact this illness has had". HVDHB also stated:

> "In retrospect, the significance of the severity of [Miss A's] pain was underappreciated. [Miss A] did not show the usual signs of an infection and other information in her history and physical examinations did not appear to suggest how ill [Miss A] was."

ED staffing levels and patient acuity

54. HVDHB provided HDC with information on the nursing and medical staffing levels and patient acuity at the time of Miss A's first three presentations to ED (on the morning and the evening of 17 September 2019, and on the morning of 20 September). This information shows that the ED was busy[9] and staff resources were relatively stretched.[10]

Responses to provisional opinion

55. Mrs B and Mr and Mrs A, and HVDHB were all given the opportunity to respond to relevant parts of my provisional opinion. Where appropriate, their comments have been incorporated into this report.

56. In addition, HVDHB told HDC that it acknowledged and accepted the proposed findings, recommendations, and follow-up actions.

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[9] There were 143 presentations to ED on 17 September 2019. Between 7am and 9am, there were 15 presentations: three were triaged as code 2; three as code 3; three as code 4; and six as code 5. Between 9pm and 10pm, there were 13 presentations: two were triaged as code 2; eight as code 3; and three as code 4. There were 141 presentations to ED on 20 September 2019. Between 8am and 9am, there were seven presentations: three triaged as code 3; three as code 4; and one as code 5.

[10] On the morning of 17 September 2019 (first ED presentation), there were two SMOs and two RMOs working the AM shift (and two "straddle" RMOs working across the AM-PM shifts), alongside nine nurses (comprising one charge nurse, six registered nurses, and two extra nurses), one healthcare assistant, and one clinical nurse specialist. On the evening of 17 September 2019 (second ED presentation), there were two SMOs and three RMOs working the PM shift (as well as the two "straddle" RMOs), alongside twelve nurses (one charge nurse, nine registered nurses, and two extra nurses who left at 6pm), one healthcare assistant, and one clinical nurse specialist. On 20 September 2019 (third ED presentation), one SMO and two RMOs were working the AM shift (as well as two "straddle" RMOs), alongside nine nurses (one charge nurse, five registered nurses, and three extra nurses), one nurse practitioner, and one clinical nurse specialist working the "straddle" shift. There were also three student nurses, one nurse orientating to ED, and another nurse returning to work following an injury.

Opinion: Hutt Valley District Health Board — breach

Introduction

57. District health boards are responsible for the operation of the clinical services they provide. In addition, they have a responsibility for the actions of their staff, and an organisational duty to ensure that consumers receive timely and appropriate assessment, investigation, and treatment, even in circumstances in which workloads are high. My clinical advisor, emergency medicine specialist Dr Tom Jerram, stated:

> "It is important to note that systemic issues played a part in all 3 presentations. As always, most poor outcomes happen in the context of hardworking and diligent clinicians trying their best with the resources available."

58. Before the extent and nature of Miss A's disease was identified, she presented to ED three separate times and, each time, she was sent home from ED with a different incorrect diagnosis. The illness Miss A had developed was rare, and I accept that the signs and symptoms of this diagnosis may have been subtle. However, in my opinion, there were a number of shortcomings in the care Miss A received across these three ED presentations, for which ultimately HVDHB is responsible. I discuss these shortcomings in further detail below.

17 September 2019 — first ED presentation

59. On her first ED presentation, Miss A was seen first by triage nurse RN D, who was told about the nausea and chills that Miss A had been experiencing, but did not record this. RN D also did not record any vital signs. This is disappointing. These were important symptoms and signs that may have helped the clinicians subsequently involved in Miss A's care to determine the appropriate diagnosis and treatment.

60. Miss A was then seen by RN C, who does not recall being told about any symptoms such as fever and nausea. RN C diagnosed Miss A with a knee sprain/strain and gave soft tissue injury advice. Miss A was sent home.

61. Dr Jerram acknowledged that musculoskeletal pain in a teenager is a common presenting complaint to ED, and it is very rare for a serious occult (i.e., hidden or not detectable by clinical methods alone) infection to be the cause of such symptoms. Dr Jerram also advised:

> "However, part of the Emergency provider's role is to always consider serious underlying pathology for all presentations, especially those with an atraumatic onset of pain. I would expect enquiry about and documentation of infective symptoms (fevers, chills, malaise, night sweats, vomiting) to form part of the ED assessment in a case like this."

62. Dr Jerram noted that although RN C did not enquire specifically about infective symptoms, her usual practice is to ask an open-ended question about whether the patient has any further concerns. Dr Jerram considered that asking this question would be consistent with accepted practice, given that this was the first ED presentation for an apparently well

teenager. I accept Dr Jerram's advice and, notwithstanding that it would have been ideal for RN C to have enquired specifically about infective symptoms, in the circumstances I consider RN C's actions to have been reasonable.

63. Dr Jerram noted that RN C's discharge documentation did not specify any ED return criteria. He advised:

> "It is an expectation in Emergency Medicine that all discharged patients should be given clear time and action specific discharge advice. This should reflect the expected trajectory of the injury/illness, as well as allow for any unexpected deterioration."

64. Dr Jerram provided the following example of appropriate discharge advice in this case:

> "If you have increasing pain, redness in the knee, fever, or other concerning symptoms, please return to the Emergency Department immediately. Otherwise please see your GP in 48 hours for a review."

65. Dr Jerram considered that if such advice was not given to Miss A and her family, this would be a moderate departure from accepted standards. If the advice was given but not documented, then this would be a mild departure.

66. I acknowledge that RN C did document that Miss A should follow up with her GP if required. There is, however, a lack of more specific advice, which is of some concern.

67. Dr Jerram further advised:

> "The diagnosis of 'soft tissue sprain vs fracture' was probably reasonable, though given the absence of any specific trauma, neither of these diagnoses seem likely in a healthy [teenager]. An overuse injury (as was subsequently suspected) seems more plausible, especially with a completely normal documented ligamentous knee exam. Again, there was no mention of possible serious underlying cause, although without a history of infective symptoms I would judge this at most a minor departure from the standard of care."

68. Dr Jerram considered that there was no clear indication for further testing or escalation of Miss A's care to a more senior clinician during this presentation. I accept this advice.

17 September 2019 — second ED presentation

69. Miss A returned to ED with her parents on the night of 17 September 2019. She was first triaged by RN E, who did not record vital signs. While waiting to be seen by Dr G, Miss A was given morphine for her pain. Following his assessment, Dr G diagnosed a meniscal injury and sent Miss A home with written advice to see a physiotherapist if her pain did not settle. He did not document any ED return criteria.

70. Dr Jerram advised that Dr G's record of the history and examination was generally adequate, with the exception of seeking infective symptoms or vital signs. Dr Jerram considered that

there were a couple of red flags present for this presentation: a) Miss A was unable to weight bear; and b) Miss A had been given morphine.

71. Dr Jerram advised:

> "While these don't necessarily point to more significant pathology, they should have at least raised the suspicion of this, especially in a repeat presentation in a [teenager] at midnight. … I would have expected an Emergency Medicine doctor to specifically question for [infective symptoms] in this scenario given the re-presentation, requirement for morphine, inability to weight bear, and severe night pain."

72. Dr Jerram considered that, in this context, the failure to question for infective symptoms constituted a mild to moderate departure from accepted practice. I note that Dr G reviewed the notes but did not see that Miss A had been given morphine. His assumption that Miss A had received codeine was, as Dr Jerram pointed out, an error. Dr G was, however, aware that Miss A's pain had increased in severity that evening, particularly when weight-bearing. I accept my expert's advice that the red flag symptoms (repeat presentation and increased pain) should have prompted questioning for more serious underlying pathology, and in particular for infective symptoms.

73. Again, Dr Jerram noted that there was a lack of time- and action-specific safety-netting advice in the discharge plan (Dr Jerram's comments about this are set out in paragraph 63 above). I acknowledge that Dr G's usual practice is to advise patients verbally to return if pain increases or new concerning symptoms develop. However, I note that in response to the provisional opinion, Mr and Mrs A stated that they were not given this advice. If Dr G had given such advice, it would have been appropriate for him to document accordingly.

74. Finally, I note Dr Jerram's comment:

> "[T]here was no clear indication to escalate the case to a more senior doctor (although a senior doctor may have appreciated the significance of the severe night pain and need for opiate pain relief, which would be unusual in a mild knee sprain)."

75. The later change introduced by HVDHB — that all patients who re-present within 48 hours of discharge are reviewed by an SMO — is appropriate to address this issue.

20 September 2019 — third ED presentation

76. After being seen at the medical centre, Miss A returned to ED for the third time. This time, Miss A's observations were recorded by the triage nurse, and they were all within normal range. Miss A was seen by Dr I, who diagnosed Osgood-Schlatter disease, and Miss A was discharged from ED with a sports medicine referral.

77. Dr Jerram commented that Dr I wrote a "thorough history of [the] presenting complaint, except for specifically seeking any systemic infective symptoms", and documented his examination "reasonably well". However, Dr Jerram further advised that the inability to sleep with pain despite taking analgesics would generally be a red flag in this context.

78. Dr Jerram considered that at this stage, "an infective diagnosis should probably have been at least entertained". He noted that there was no indication in the clinical notes that Dr I had been aware of the vital signs recorded by the triage nurse, or had actively sought signs and symptoms consistent with infection. Dr Jerram acknowledged that the recording of "[n]o cellulitic features" and that Miss A's presentation was "[n]ot suggestive of infection" implies that Dr I was specifically looking for signs of infection. However, Dr Jerram commented that there was "no evidence given elsewhere in the note to support this reasoning".

79. Dr Jerram further stated:

> "… I don't think this was sufficient in a 3rd presentation of severe knee pain. A documentation of positive/negative infectious symptoms would be expected at this stage (for example 'no fevers, chills, or malaise' or similar). [Dr I] did document a focal area of swelling and tenderness, with reduced range of motion due to pain. However this is entirely consistent with osteomyelitis/deep space infection as well as overuse injury."

80. Dr Jerram advised that if Dr I did seriously consider infection and noted the vital signs but failed to document this, he would consider it a mild departure from the standard of care. However, if Dr I did not consider infective signs and symptoms, Dr Jerram would consider it a moderate departure from the standard of care. Unfortunately, without any input from Dr I,[11] I am unable to reach a conclusion on the extent to which infective signs and symptoms were actively sought.

81. Dr Jerram also considered that the provisional diagnosis of bilateral Osgood-Schlatter disease was not unreasonable, but further noted:

> "Osgood-Schlatter disease, while common, would be very unlikely to cause recurrent presentations to the ED (including night presentations with severe pain). Although severe pain like [Miss A's] due to Osgood-Schlatter disease is possible, I haven't seen it in over 15 years of Emergency Medicine."

82. In addition, I note that the X-ray performed at this ED presentation did not find any obvious evidence to suggest Osgood-Schlatter disease.

83. I agree with Dr Jerram that at this stage, serious consideration should have been given to a possible infection. Even if infection was considered, in my opinion more critical thinking needed to be brought to bear having regard to the wider clinical picture: a previously healthy teenager; atraumatic presentation; developing symptoms (increased pain, and pain now in both knees); inability to weight bear (such that Miss A was either in a wheelchair or had to be carried); receiving strong analgesia; the third ED presentation in three days and the fifth

[11] As noted above, HVDHB advised HDC that Dr I has left New Zealand, and HDC has been unable to contact him to provide input into the investigation.

presentation to health professionals in the same timeframe; and that the X-ray and level of pain did not support a presumed diagnosis of Osgood-Schlatter disease.

84. Dr Jerram also considered that it would have been ideal for Dr F to have reviewed Miss A physically, given that it was her third ED presentation, but acknowledged that this was not standard practice. In Dr Jerram's view, when Dr I discussed Miss A's care with Dr F, it was reasonable for Dr F to rely on the information given to him by Dr I, given Dr I's level of experience. Dr F was therefore unaware of, in particular, the "red flag" that Miss A was unable to sleep because of the pain, despite taking analgesics, and was unable to weight bear. Dr Jerram therefore considered that Dr F not considering infection was not a departure from the standard of care.

85. I accept Dr Jerram's advice. I agree with Dr Jerram that it would have been ideal for Dr F to have reviewed Miss A in person. Had he done so, Miss A's serious illness may have been recognised and treated earlier. However, I accept that this was not standard practice. In any event, I again note and commend HVDHB's systemic change such that all patients who re-present to ED within 48 hours of discharge are reviewed by an SMO.

Conclusion

86. There were a number of deficiencies in the care that Miss A received when she presented three times to ED with significant atraumatic leg pain from 17–23 September 2019. Specifically:

- At the first ED presentation:
  - Miss A's nausea and chills, which were mentioned to the ED triage nurse, were not documented.
  - No ED return criteria was given.
- At the second ED presentation:
  - It was assumed that Miss A had been given codeine in ED, when she had actually been given morphine (notwithstanding that the administration of morphine was recorded in the medication chart and the notes).
  - There was a lack of recognition of the possibility of more serious pathology, in light of the increase in severity of Miss A's pain at night, and in particular when weight bearing.
- Vital signs were not taken at either of the first two ED presentations.
- At the third presentation:
  - There was no documentation of positive/negative infectious symptoms.
  - More critical thinking was needed, having regard to the wider clinical picture.
  - The SMO was not advised that Miss A was unable to sleep with pain despite taking analgesics (a red flag symptom) and could not weight bear.

87. While I acknowledge that my expert has identified a series of mild and mild-to-moderate departures from accepted practice, I consider that cumulatively they present a pattern of poor care by a number of HVDHB staff members. There were missed opportunities, particularly at the second and third consultations, to have considered alternative explanations for Miss A's repeated presentations with increasing pain.

88. In my opinion, ultimately HVDHB is responsible for the inadequacies in the services provided. I find that HVDHB failed to provide services to Miss A with reasonable care and skill and, accordingly, breached Right 4(1) of the Code of Health and Disability Services Consumers' Rights (the Code).[12]

ED staffing levels and patient acuity — other comment

89. Dr Jerram also reviewed the patient acuity and ED staffing levels for each of Miss A's three presentations. Dr Jerram noted that across the three presentations, "patient acuity [was] high with more than half the presentations triage 1–3". He further advised:

> "This means each practitioner would need to see 10–11 patients per shift. If the FACEM [ED SMO] in charge of each shift had no patient load and was thus free to adequately supervise the junior staff/nurse practitioners, this would mean the other practitioners would need to average 12–13 patients per shift. Given the acuity of the department I think this is an unreasonable patient load to provide high quality emergency care.
>
> This is highly likely to mean that the supervising FACEM would have to take a significant patient load, thus impacting on their ability to supervise junior staff. I think this is highly likely to be a contributing factor in this case. I would note that in my experience this staffing level would not be unusual in a regional ED in New Zealand."

90. I agree with Dr Jerram that the pressure on staff, in light of the high patient acuity and staffing levels, likely impacted on the quality of services that Miss A received. However, I also acknowledge Dr Jerram's comment that these staffing levels would not be unusual for other regional EDs in New Zealand. In any case, it is pleasing to see that HVDHB has taken steps to address this by rostering a third nurse to assist with triage assessments.

Changes made

91. HVDHB told HDC that, at the time, there was no system for automatic SMO review for patients with multiple re-presentations, but Miss A's case highlighted the need for such a system. HVDHB also acknowledged: "Our triage processes were not as robust as they could have been at the time of this event." HVDHB has made the following changes since these events:

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

- Observations are undertaken at triage for all presentations, regardless of triage category.
- A third triage nurse has been rostered on to facilitate observations for all presentations. HVDHB told HDC that this role was introduced to support the ED response during the COVID-19 pandemic, with the aim of identifying the deteriorating patient.
- All patients who re-present within 48 hours of discharge are reviewed by an SMO.

92. In addition, in response to the provisional opinion, HVDHB told HDC that RN C is developing a discharge pamphlet that includes advice around thresholds for returning to ED or seeking alternative medical attention. It added that the following initiatives are also being undertaken:

- A new triage policy, to supplement the Australasian Triage Scale training provided to triage nurses, is being developed to further guide and support triage nursing staff.
- The registrar orientation package has been updated to reiterate the importance of providing specific instructions, including time- and action-specific recommendations, to every patient discharged from ED.

Recommendations

93. Bearing in mind the above changes made by HVDHB, I recommend that HVDHB:

a) Provide training to clinical staff on the importance of carrying out vital signs routinely on ED presentations unless it is clearly not clinically indicated, and of considering possible serious pathologies, particularly in the context of atraumatic pain, using an anonymised version of this report as a case study. Evidence of this training is to be provided to HDC within three months of the date of this report.

b) Perform a random audit of 30 ED presentations to confirm whether:

   i. vital signs were performed for all presentations where it was clinically indicated to do so;

   ii. discharge instructions included ED return criteria; and/or

   iii. for any of those ED presentations that had presented to the ED previously during the preceding 48 hours, they were reviewed in person by the SMO.

   HVDHB is to report back to HDC with the results of the audit. If there is less than 100% compliance, HVDHB is also to report back on any changes that it intends to make, including whether any further training has been identified as necessary, within six months of the date of this report.

c) Consider, in light of Dr Jerram's comments about ED staffing levels and patient acuity (referred to in paragraph 89 above), whether a review of its ED staffing levels is warranted. HVDHB is to report back on the results of its consideration, including

whether any review or further action is to be taken (and if not, why not), within three months of the date of this report.

d) Provide a written apology to Miss A and her family for the issues identified in this report. The apology is to be sent to HDC, for forwarding to Miss A's family, within three weeks of the date of this report.

Follow-up actions

94. A copy of this report with details identifying the parties removed, except HVDHB and the expert who advised on this case, will be sent to the Australasian College for Emergency Medicine, the Medical Council of New Zealand, and the Health Quality & Safety Commission, 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 emergency medicine specialist Dr Tom Jerram:

"Complaint: Hutt Valley District Health Board

Ref 19HDC02034

Thank you for your request to review the above complaint.

In doing so I have reviewed the documents sent to me including:

1. Letter of complaint dated 22 October 2019.
2. Hutt Valley DHB's response dated 17 December 2019.
3. Relevant clinical records from Hutt Valley DHB.
4. Clinical records from [Miss A's] GP consultation of 16 September 2019.
5. Clinical records from [Miss A's] visit to [the after-hours medical centre] on 19 September 2019.

I am currently a Fellow of the Australasian College for Emergency Medicine (since 2011) and work full time as an Emergency Medicine Specialist at Nelson Hospital Emergency Department. I am also a Senior Clinical Lecturer with the Otago University Christchurch School of Medicine. I have been an HDC expert advisor since 2013. I have read the HDC guidelines for expert advisors. I have reviewed the persons and entities in this case, and can see no conflicts of interest.

Referral instructions

I have been asked by the Commissioner to give an opinion on whether the care provided to [Miss A] at [HVDHB] was reasonable in the circumstances, and why. In particular, I have been asked to comment on:

1. [Miss A's] management by ED clinicians on 17 September 2019 and 20 September 2019.

Further, I have been asked to comment specifically on:

1. The adequacy of the recorded history and physical assessments at each presentation to ED.
2. The complaint refers to [Miss A] being unable to weight bear and experiencing symptoms of chills and vomiting on 17 September 2019 but these presenting features are not apparent in the clinical notes from this date.

I have been asked to consider the following in my comments:

   a. Whether the management of [Miss A's] condition was appropriate if these symptoms were/were not presented to clinicians;

b. The adequacy of the clinical documentation if these symptoms were/were not presented to clinicians.

3. Whether the diagnoses made and management provided at each presentation to ED were appropriate given the history and assessment findings, and the presentation pattern.
4. The appropriateness of each discharge and whether adequate 'safety-netting' advice was provided on each occasion [Miss A] visited the ED.
5. Whether there were clinical indications to consider a broader differential diagnosis and/or further investigation by way of blood tests or acute orthopaedic referral at any presentation prior to 23 September 2019.
6. Whether there was appropriate escalation of clinical concern by the junior doctors and the adequacy of involvement by senior clinicians given [Miss A's] presentation pattern and symptoms.

Case summary

[Miss A] first presented to the Hutt Valley Hospital Emergency Department on Tuesday 17 September 2019. She complained of severe Right leg pain of 4 days duration. She was accompanied by her parents, and presumably arrived by private car.

She was triaged, with a triage note stating

> 'SP with Mother. R knee pain. Increasing knee pain post exercise on weekend. O/a Alert, limping, nil obvious swelling gd ROM, reports pain on waking has had own analgesia'.

There is no mention of chills or vomiting.

In the complaint letter, the patient advocate [Mrs B] states 'she was unable to sleep or weight bare (sic) and was also experiencing chills and vomiting. The triage desk nurse was very dismissive and made comments such as "you can see your GP about the chills and vomiting or do you want to be seen for the leg?"'

She was seen at 10:19 am by RN C, a Clinical Nurse specialist. RN C documented:

> 'HPC: Recently started — 2/52 [sports training]. Noted sudden onset of pain 4/7. Does not think injured the knee/or twisted. able to walk with pain. Nil other concern verbalised'

RN C then documented the following examination findings

> 'Walked in the department, seen with mother present
>
> R knee
>
> Nil obvious swelling, bruise, deformity noted.

Pain only on movement — superior knee when extending the leg

and posterior knee when flexing the knee

Non tender to palpate hip joint, knee joint, proximal fib and tibia tuberosity, shin and ankle Joint.

FROM — hip and knee joint.

WB

NVI

MCL, LCL, ACL and PCL — nil production of the pain and laxity noted.

Patient able to SLR and flex knee past 90 degree'

RN C then documented an impression of muscle strain vs fracture. An X-ray was interpreted as normal, and she was discharged with the following advice:

'Tubi-grip

Soft tissue injury advi[c]e

Simple analgesia for pain

Follow up with GP if requires'

No vital signs or temperature appear to have been documented.

[Miss A] continued to have pain in the knee, and attended the ED again that evening. She was seen at 23:38 By [Dr G], an ED registrar with the following assessment

'[Teenager] re-attends w/ R knee pain. Seen earlier today, ?soft tissue injury, no obvious ligamentous injury. Since discharge, using paracetamol and ibuprofen (1 tablet each).

Pain became more severe this evening.'

He then documented a full range of movement in the knee with no joint effusion, heat or joint line tenderness. Ligament stability was documented as normal. He made a diagnosis of ? meniscal injury, and placed [Miss A] in a knee splint, gave crutches, and made a plan for private physiotherapist follow-up, presumably to be organised by the patient. [Miss A] was given morphine pain relief in the waiting room, however this was not noted by [Dr G]. Her advocate also documents that she was unable to weight bear, which is not commented on in the clinical note. No vital signs or temperature are documented.

[Miss A] continued to have pain at home, and was reviewed by [a GP] at [the] after hours medical centre on 19 September. He documented pain in the upper Left tibia, with focal tenderness there, as well as the R knee pain. He also documented that [Miss A] was in a wheelchair, and was distressed with pain. He was concerned about the possibility of a stress #, and attempted to refer to the on call orthopaedic registrar. The

registrar felt it was not an appropriate acute referral, and suggested that she was sent to Hutt Valley ED again, for X rays of the Left knee and tibia.

She presented to the ED the next morning with the letter (20 September) at 0944, where she was seen By [Dr I], an ED registrar.

He documented the following history:

'[Teenager presenting with] b/l knee pain

Presented on 17/9/19 x2 for R knee pain — NR knee XR ->

crutches R knee splint

Ref to physio on system by GP 17/9/19 — 1/52 hx b/l

anteromedial knee/shin pain — avid [sportsperson] — started/incr [physical training].

Since being on crutches and R knee splint has incr pain and swelling on L knee

Went to [after-hours medical centre] last night due to incr L knee — dw ortho — ref declined.

Overnight pain incr — pt unable to sleep pain worst with weight bearing

Has taken regular analgesics and sx still ongoing'

[Dr I] documented the examination as following

'OE looks in pain

Tender swollen L infrapatellar/pretibial area

Limited flexion/ext due to pain in ant knee.

No joint laxity ant/post/lat

No medial/lat joint space pain

No cellulitic features

Able to move ankle freely'

His documented impression was

'B/l knee pain

??? B/L osgood schlater disease

Not suggestive of infection

5th presentation to GP/ED/AHMC for this problem

P

XR L knee

Analgesics'

No temperature or heart rate was documented, and there is no mention of systemic symptoms.

He discussed the case with an ED SMO, [Dr F], and documented the following plan:

'XR shows irreg over tibial tuberosity L

(on prev XR seems more noticeable on R knee XR)

Dw EDSMO [Dr F] has Dw sports physician in [main centre]

— will send a ref by email for her to be seen by them

Dw father and pt

— take reg analgesics

— rest elevate

— minimize use of splint and can switch it to L knee if needed

— to return if sx worsens

— given pt info about Osgood schlater disease

— details about sport phsycian (*sic) team in [main centre] given to pt/family'

[Miss A] was again discharged with the follow up plan as documented.

[Miss A] deteriorated over the weekend, becoming more unwell, with increasing bilateral leg pain and shortness of breath.

She presented to Hutt ED again on the morning of 23 September. This time she presented by ambulance, and was immediately recognised as being seriously unwell. She was febrile, tachycardic, tachypnoeic, and hypoxic.

She was resuscitated in the ED, and admitted under the care of the orthopaedic team. Unfortunately, [Miss A] was subsequently diagnosed with bilateral knee septic arthritis, as well as multiple septic pulmonary emboli (clots in the lung due to bacterial infection elsewhere in the body). She became critically unwell and endured a prolonged hospital stay and faces a lengthy recovery and the possibility of permanent disability as a result of this illness.

In answer to your specific questions

1. The adequacy of the recorded history and physical assessments at each presentation to ED.
2. The complaint refers to [Miss A] being unable to weight bear and experiencing symptoms of chills and vomiting on 17 September 2019 but these presenting features are not apparent in the clinical notes from this date.

I have been asked to consider the following in my comments:

a. Whether the management of [Miss A's] condition was appropriate if these symptoms were/were not presented to clinicians;

b. The adequacy of the clinical documentation if these symptoms were/were not presented to clinicians.

3. Whether the diagnoses made and management provided at each presentation to ED were appropriate given the history and assessment findings, and the presentation pattern.

4. The appropriateness of each discharge and whether adequate 'safety-netting' advice was provided on each occasion [Miss A] visited the ED.

5. Whether there were clinical indications to consider a broader differential diagnosis and/or further investigation by way of blood tests or acute orthopaedic referral at any presentation prior to 23 September 2019.

6. Whether there was appropriate escalation of clinical concern by the junior doctors and the adequacy of involvement by senior clinicians given [Miss A's] presentation pattern and symptoms.

I will answer these 6 questions together for the first presentation, then answer question 1, 3, 4, 5 and 6 for each of the subsequent ED presentations.

Presentation 1–17 September 2019

[RN C] documents an adequate history and examination for the presenting complaint, with the exception of mentioning infective symptoms such as fevers and chills, and the absence of a temperature or other vital signs. Musculoskeletal pain in a teenager is a common presenting complaint to the Emergency Department, while a serious occult infection as the cause of those symptoms is very rare. However, part of the Emergency provider's role is to always consider serious underlying pathology for all presentations, especially those with an atraumatic onset of pain. I would expect enquiry about and documentation of infective symptoms (fevers, chills, malaise, night sweats, vomiting) to form part of the ED assessment in a case like this. It appears that [Miss A] and her family relayed some of these symptoms to the triage nurse, and they were not documented or relayed to [RN C]. If this is the case, and [RN C] simply omitted to ask these questions, I would consider it a minor departure from the standard of care, given this was the first presentation in an apparently well occurring teenager. If this information was relayed by the patient, family, or triage nurse, and subsequently disregarded by [RN C], I would consider it a significant departure from the standard of care. Similarly, failure to take and record a temperature in a first presentation of apparent overuse injury in a well appearing patient is probably within the standard of care, but if there was any mention of systemic infective symptoms by the patient or her family, I would consider this omission a departure from the standard of care.

The diagnosis of 'soft tissue sprain vs fracture' was probably reasonable, though given the absence of any specific trauma, neither of these diagnoses seem likely in a healthy [teenager]. An overuse injury (as was subsequently suspected) seems more plausible, especially with a completely normal documented ligamentous knee exam. Again, there was no mention of possible serious underlying cause, although without a history of infective symptoms I would judge this at most a minor departure from the standard of care.

The discharge and follow up advice were reasonable in the context, though there was no mention of ED return criteria. I don't believe further testing was clearly indicated at this point, although a C reactive protein would have been indicated if [RN C] had elicited or been made aware of the history of chills and vomiting apparently given at triage.

There was no clear indication to escalate to a more senior clinician during this presentation.

Presentation 2–17 September 2019 at 23:38h

There is a generally adequate history and examination documented by [Dr G], again with the exception of seeking infective symptoms or vital signs measurement. There are a couple of red flags in this presentation, which appear to have been given insufficient weight or ignored. The first is [Miss A's] inability to weight bear on the knee (according to the advocate statement), and the second is the fact that she had been given morphine prior to his assessment. While these don't necessarily point to more significant pathology, they should have at least raised the suspicion of this, especially in a repeat presentation in a [teenage] girl at midnight. While there is no claim in the complaint letter that infective symptoms were volunteered at this presentation, I would have expected an Emergency Medicine doctor to specifically question for them in this scenario given the re-presentation, requirement for morphine, inability to weight bear, and severe night pain. I would consider failure to do so a mild–moderate departure from the standard of care. There appears again to be a lack of time and action specific safety netting, which I would consider a mild departure from the standard of care. At this point [Dr G] could have considered a C reactive protein to screen for occult infection, however I do not believe failure to do so constitutes a breach of the standard of care in this case. Given the information elicited, there was no clear indication to escalate the case to a more senior doctor (although a senior doctor may have appreciated the significance of the severe night pain and need for opiate pain relief, which would be unusual in a mild knee sprain).

Presentation 3–20 September 2019 09:44h

[Dr I] documents a thorough history of the presenting complaint, with the exception of specifically seeking any systemic infective symptoms. In particular he makes note of inability to sleep with pain despite taking analgesics, which would generally be a red flag in this context.

The examination is also reasonably well documented, with swelling just below the left knee, and limited movement secondary to pain. There is no mention of examining the right knee (although he later mentions bilateral knee pain in his impression). He does specifically mention no cellulitic (skin infection) features and in his impression mentions 'not suggestive of infection'. He notes that this is the 5th acute healthcare presentation for this problem.

[Dr I] makes a provisional diagnosis of bilateral Osgood-Schlatter disease. This is a tibial tubercle apophysitis, where the growth plate attaching the patella tendon to the tibia becomes inflamed. It typically occurs in active teenagers who are involved in jumping sports/increasing their training volume. While this was not an unreasonable diagnosis given the history and examination findings, at this point an infective diagnosis should probably have been at least entertained. He mentions that the examination is 'not suggestive of infection', but again there is no temperature or other vital signs taken, and there is no documented history of relevant negatives (i.e. systemic features of infection). I acknowledge that bilateral osteomyelitis/septic arthritis in this age group is even rarer than single joint involvement, and that as well as the focal tibial tubercle swelling and tenderness pushed [Dr I] towards the Osgood-Schlatter diagnosis.

But at this point he has described a [teenage] girl on her 5th presentation in 3 days with severe pain. I think the lack of vital signs and history focused on infective signs represents a departure from the standard of care at this point.

[Dr I] did discuss this case with a senior emergency clinician — [Dr F]. [Dr F] discussed the case with a sports physician and organised follow-up. It is unclear if he physically reviewed [Miss A], although it appears not, as the notes state 'D/W' (shorthand for discussed with).

It is also unclear how much information regarding the case was related to [Dr F]. If this were presented as an active [teenager] with bilateral tibial tuberosity pain and swelling following an increase in activity, Osgood-Schlatter disease would be a reasonable diagnosis. If however this was presented as a [teenage] girl on her 3rd ED visit in a week atraumatic bilateral knee pain, severe night pain requiring opiates, difficulty weight bearing, and some systemic symptoms prior to the first presentation, it is likely [Dr F] would have considered occult infection, and reviewed [Miss A], considered blood tests such as CRP, and depending on the results of these considered orthopaedic opinion. It is always hard to judge a senior doctor on an opinion given without knowing how complete their information from the junior was. If [Dr F] had all this information, I would consider failure to consider infection a departure from the standard of care. If [Dr F] did not receive some of this crucial information from [Dr I], I would not consider this a departure from the standard of care.

It is important to note that systemic issues played a part in all 3 presentations. As always, most poor outcomes happen in the context of hardworking and diligent clinicians trying their best with the resources available. It is my opinion that all presentations to an Emergency Department should have a set of vital signs. Once

exceptions (such as minor trauma) are made, then cases such as this one can be missed because of ambiguities around the precipitation of pain. If vital sign measurement was made mandatory for ED patients, it would offload the cognitive burden on overworked clinicians. Unfortunately, mandatory vital signs are not currently seen as a standard of care in New Zealand Emergency Departments, which is likely to lead to occasional missed opportunity to diagnose serious illness (as happened in this case).

I would also note that Osgood-Schlatter disease, while common, would be very unlikely to cause recurrent presentations to the ED (including night presentations with severe pain). Although severe pain like [Miss A's] due to Osgood-Schlatter disease is possible, I haven't seen it in over 15 years of Emergency Medicine.

Please let me know if I can be of further assistance in this matter.

Ngā Mihi Nui

Dr Tom Jerram MBChB FACEM Senior Clinical Lecturer
Nelson Hospital Emergency Department"

The following further advice was obtained from Dr Jerram:

"*First presentation to ED:* The failure to take and record the consumer's temperature by the CNS (if the consumer or her family had mentioned any systemic infective symptoms) (page 9 of [the] report).

If the consumer or her family had mentioned any systemic symptoms to the CNS, I would consider the failure to take a temperature a moderate departure from the standard of care. If they did not mention any systemic symptoms, I would consider it at worst a mild departure.

Third presentation to ED: The lack of vital signs and history focussed on infective signs by the ED registrar (page 11 of [the] report).

Given this was a 3rd presentation with severe atraumatic pain, with unremitting night pain, I would consider this a moderate departure from the standard of care.

Third presentation to ED: The failure to consider infection by the ED specialist (if the ED specialist had been aware that the consumer was a [teenage] girl on her third ED visit in a week with atraumatic bilateral knee pain, severe night pain requiring opiate pain relief, difficulty weight bearing, and some systemic symptoms prior to the first presentation (page 11 of [the] report).

If the ED specialist had been aware of all the factors mentioned above, I would consider this a moderate departure from the standard of care. If he had not been made aware of these factors, I would not consider it a breach of the standard of care."

The following further advice was obtained from Dr Jerram:

> "Thank you for your request to again review the above complaint in light of HVDHB's response to my initial opinion.
>
> I am currently a Fellow of the Australasian College for Emergency Medicine (since 2011) and work full time as an Emergency Medicine Specialist at Nelson Hospital Emergency Department. I am also a Senior Clinical Lecturer with the Otago University Christchurch School of Medicine. I have been an HDC expert advisor since 2013. I have read the HDC guidelines for expert advisors. I have reviewed the persons and entities in this case, and can see no conflicts of interest.
>
> **Referral instructions**
>
> I have been asked by the Commissioner to review the response by Hutt Valley DHB to my initial opinion, and to advise whether it causes me to amend the conclusions drawn in my original opinion dated 29 May 2020.
>
> I will structure this opinion by responding individually to each response point in the HVDHB document.
>
> 1. Regarding the first presentation on 17 September 2019
>
> The statement from [RN D] explains her reasons for not doing vital signs at triage. This was not the standard of care for all ED presentations at the time, especially those which appeared overuse related. I think this is reasonable, and falls within the standard of care. There is also a genuine apology for her perceived manner, and a statement that she has reflected on this.
>
> [RN C] writes a thorough statement which gives detailed and reasonable explanations for her decision making. They explain that there was no suggestion of systemic symptoms such as fevers, chills, vomiting, sweating, or headache relayed by either the triage nurse or [Miss A] and her family. [RN C] relayed that they had documented 'no other concerns', and that their usual practice is to ask an open ended question 'do you have any other concern that you haven't brought up?'. Although it is impossible to ascertain if this happened in this case, a standard practice which is reliably repeated would form a good argument that it probably did. As discussed in my initial opinion, I think that the care provided by [RN C] falls within the standard of care.
>
> 2. Regarding the second presentation on 17 September 2019
>
> The response notes that it is [the] ED's usual practice to get a set of vital signs in triage 3 patients and that they could not explain why this wasn't done, but that it was likely due to the volume of patients presenting at the time. I believe that departmental workload must be taken into account when assessing a case such as this in which there were significant errors of omission. It is common for New Zealand Emergency Departments to have periods where demand outstrips available resources, and it is not

reasonable to hold clinicians wholly responsible for errors in this context. I would be interested to know the staffing and patient presentations/acuity for this period.

[Dr G] states that he did not recall asking about symptoms of infection, and did not document any symptoms suggestive of infection. He also states that he was unaware [Miss A] had been prescribed morphine at triage, but that he was aware that she had been prescribed some further analgesia, which he assumed was codeine. I think the decision to prescribe morphine by [Dr F] was entirely reasonable, but that it constitutes an error that [Dr G] didn't recognise this had occurred. As stated in my original opinion, severe night pain requiring morphine analgesia in a [teenager] would be considered a red flag for more serious pathology, and should have triggered a consideration of serious pathology in this case.

I would also note that [Dr G's] letter shows significant insight and self-reflection. He has clearly thought hard about this case and learned from it. All doctors who have spent time working in Emergency Medicine will have made at least one significant error, and the good ones will reflect deeply and learn from them. There will always be gaps in the knowledge and experience of a junior doctor (Registrar or house officer) in the Emergency Department. While it is ideal for all patients to be reviewed by a specialist, with the current system and resourcing in New Zealand it is very difficult or impossible for a senior doctor to physically review every patient, and many patients in New Zealand Emergency Departments are seen by a junior doctor only. Although serious adverse events due to error are rare, they are also inevitable. It would likely be very expensive to resource a system that would enable physical review of every ED patient by a specialist.

3. Regarding the third presentation on 20 September 2019

I agree that the documented physical finding of 'no cellulitic features' implies that he was specifically looking for signs of infection during his ([Dr I's]) physical exam. However, I don't think this was sufficient in a 3rd presentation of severe knee pain. A documentation of positive/negative infectious symptoms would be expected at this stage (for example 'no fevers, chills, or malaise' or similar). He did document a focal area of swelling and tenderness, with reduced range of motion due to pain. However this is entirely consistent with osteomyelitis/deep space infection as well as overuse injury.

[Dr I] has not been able to be contacted to provide his perspective. The response states 'the documentation of [Dr I] was entered into the electronic medical record (and therefore available for [Dr F] to review). It would not be standard practice for an Emergency medicine specialist to review the notes on all patients they are asked to review. [Dr I] stated that he was not concerned for infection' — I think it was reasonable in the circumstances for [Dr F] to have taken this at face value and not rechecked this aspect of the history. In addition [Dr F] does not believe he was told that [Miss A] had been suffering from night pain, had been using opiates, had systemic symptoms, and was unable to weight-bear. Again, [Dr I] was a relatively senior registrar, and it would be standard practice for an Emergency Specialist to take much of the history and exam

from this level of doctor at face value. I believe it would have been ideal for [Dr F] to physically review [Miss A] (given it was a 3rd presentation), although this is not the standard of care. I note that HVDHB has now changed policy to mandate SMO review on all patients re-presenting within 48h.

4. The fact that there has been no internal investigation or review in relation to this complaint

I think that this is disappointing. HVDHB has clearly made significant changes following this case, with the institution of compulsory SMO review for re-presents within 48h, and instituting vital sign measurement in all ATS 3 and above patients. However, I believe a full investigation looking at the systematic issues which contributed to this case would be helpful. In particular, I would like to see such a review focus on staffing in relation to acuity & volumes of presentations, ability for FACEMs to supervise RMOs adequately, and improving communication between triage clinicians and the clinicians caring for a patient. A case like this presents a learning opportunity for an organisation, and I believe that the lack of an investigation represents a failure to grasp this opportunity.

5. Whether HVDHB has considered making any further changes to the service it provides following this incident, and if so, what?

I believe I have covered this in my reply to point 4 above.

Please let me know if I can be of further assistance in this matter.

Ngā Mihi Nui

Dr Tom Jerram MBChB FACEM Senior Clinical Lecturer
Nelson Hospital Emergency Department"

Dr Jerram clarified his further advice in respect of the first ED presentation on 17 September 2019 as follows:

"To clarify this — [RN C] states in her reply that she was not made aware of any infective symptoms that the family had relayed to the triage nurse. I believe this should be taken at face value, and thus there is no **significant** breach of the standard of care.

From my revised opinion — '[RN C] writes a thorough statement which gives detailed and reasonable explanations for her decision making. They explain that there was no suggestion of systemic symptoms such as fevers, chills, vomiting, sweating, or headache relayed by either the triage nurse or [Miss A] and her family. [RN C] relayed that they had documented "no other concerns", and that their usual practice is to ask an open ended question "do you have any other concern that you haven't brought up?" Although it is impossible to ascertain if this happened in this case, a standard practice which is reliably repeated would form a good argument that it probably did.'

> If this specific questioning by [RN C] did occur, there is no departure from the standard of care. If it did not occur, I would consider it a minor departure from the standard of care."

The following further advice was received from Dr Jerram:

> "I have reviewed the staffing information provided, many thanks.
>
> It doesn't cause me to change my opinion in any substantial manner.
>
> Assuming there are 3 Overnight RMOs, thus gives [the public hospital] 12–13 doctors plus a nurse practitioner per 24h period. The patient presentations per 24h period were around 140. The acuity is high with more than half the presentations triage 1–3.
>
> This means each practitioner would need to see 10–11 patients per shift. If the FACEM in charge of each shift had no patient load and was thus free to adequately supervise the junior staff/nurse practitioners, this would mean the other practitioners would need to average 12–13 patients per shift. Given the acuity of the department I think this is an unreasonable patient load to provide high quality emergency care.
>
> This is highly likely to mean that the supervising FACEM would have to take a significant patient load, thus impacting on their ability to supervise junior staff. I think this is highly likely to be a contributing factor in this case. I would note that in my experience this staffing level would not be unusual in a regional ED in New Zealand."

The following further advice was received from Dr Jerram:

> "My comments [with respect to the third ED presentation on 20 September 2019] referred to the treating doctor's assessment — there was no indication in the clinical notes that they had been aware of the vital signs, or actively sought signs and symptoms consistent with infection. There was a brief line 'Not suggestive of infection' near the end of the clinical note, but no evidence given elsewhere in the note to support this reasoning. If [Dr I] did seriously consider infection, and took note of the vital signs but failed to document this, I would consider this a mild departure from the standard of care. If there was no consideration of infective signs and symptoms, I would continue to regard this as a moderate departure from the standard of care
>
> …
>
> [With respect to the lack of ED return criteria and time and action specific safety netting for the first and second ED presentations respectively on 17 September 2019.] It is an expectation in Emergency Medicine that all discharged patients should be given clear time and action specific discharge advice. This should reflect the expected trajectory of the injury/illness, as well as allow for any unexpected deterioration. This is a crucial aspect of Emergency care. In this case, there was advice given for a knee sprain, but no mention of the possibility of deterioration/diagnostic uncertainty. It is possible that such advice was given but not documented. If this was the case I would consider it a

mild departure from the standard of care. If there was no such advice, I would consider it a moderate departure from the standard of care.

In this case, an example of appropriate time and action specific discharge advice might have looked as follows

> 'If you have increasing pain, redness in the knee, fever, or other concerning symptoms, please return to the Emergency Department immediately. Otherwise please see your GP in 48 hours for a review'."