Waikato District Health Board
Emergency Department Doctor, Dr B

A Report by the
Health and Disability Commissioner

(Case 16HDC01594)

Health and Disability Commissioner
Te Toihau Hauora, Hauātanga

Contents

Executive summary

1. On 29 November 2015, Ms A took her six-month-old son, Baby A, to the Emergency Department (ED) at Hospital 1. Baby A had flu-like symptoms. He was triaged by a registered nurse, and the observations taken were outside the normal limits for his age. He was seen by a doctor, who noted that his temperature was reducing. The doctor diagnosed a viral illness and Baby A was discharged.

2. On 1 December 2015, Ms A returned to the ED with Baby A. Baby A had an elevated temperature and he had developed a bleeding nose and a rash. A nurse recorded some of Baby A's vital signs, and he was seen by a doctor, who diagnosed viral exanthema.[1] A full set of observations was not undertaken, and no observations were repeated. Baby A was discharged.

3. On 4 December 2015, Ms A took Baby A to a GP, who referred Baby A to the ED. Baby A had an ongoing fever and had developed new symptoms. Baby A's vital signs were recorded, and were outside the normal limits for his age. He was reviewed by Dr B, who diagnosed a viral infection. Baby A was prescribed amoxicillin and discharged following repeat observations.

4. On 5 December 2015, at 2am, Ms A returned to the ED with Baby A. Baby A had developed further symptoms. A doctor examined Baby A and discussed her concerns with a paediatrican at Hospital 2. The doctors agreed to transfer Baby A to the Paediatric Service at Hospital 2. At 3am, Ms A drove Baby A to Hospital 2.

Findings

5. Baby A presented at the ED on four occasions and was seen by a number of staff. At one presentation, a full set of observations was not undertaken, and on two occasions, repeat observations were not undertaken. The Child Emergency Assessment Chart was not used by staff appropriately. Staff did not consult with the Paediatric Service at Hospital 2 until Baby A's fourth presentation. Waikato DHB failed to provide services to Baby A with reasonable care and skill and, accordingly, breached Right 4(1)[2] of the Code.[3]

6. Adverse comment was made about Waikato DHB's communication with Ms A regarding the transport of Baby A to Hospital 2 at 3am. Other comment was made about the manner in which a nurse in ED communicated with Ms A.

7. Baby A was significantly unwell when he presented at ED on 4 December 2015. Dr B did not refer Baby A for specialist paediatric assessment, and therefore breached Right 4(1) of the Code.

[1] Rash.
[2] Right 4(1) of the Code of Health and Disability Services Consumers' Rights states: "Every consumer has the right to have services provided with reasonable care and skill."
[3] Code of Health and Disability Services Consumers' Rights.

Recommendations

8. The Commissioner recommended that Waikato DHB undertake an audit of staff compliance with the Child Emergency Assessment Chart. He also recommended that Waikato DHB provide staff with training on making referrals to the Paediatric Service at Hospital 2, and on taking and documenting observations for paediatric patients.

9. The Commissioner recommended that both Waikato DHB and Dr B provide a written apology to Baby A's parents for the breaches of the Code identified in this report.

10. The Commissioner also recommended that should Dr B return to medical practice, his competence should be reviewed by the Medical Council of New Zealand.

Complaint and investigation

11. The Health and Disability Commissioner (HDC) received a complaint from Ms A about the services provided by Waikato District Health Board (Waikato DHB) to her baby, Baby A, at Hospital 1. The following issue was identified for investigation:

- *Whether Hospital 1 provided Baby A with an appropriate standard of care between 29 November 2015 and 5 December 2015.*

12. The investigation was subsequently extended to include the following issue:

- *Whether Dr B provided Baby A with an appropriate standard of care on 4 December 2015.*

13. The parties directly involved in the investigation were:

Baby A	Consumer
Ms A	Complainant
Waikato DHB	Provider
Dr B	Provider

14. Information was also reviewed from:

RN C	Registered nurse/provider
RN D	Registered nurse/provider
RN E	Registered nurse/provider
RN F	Registered nurse/provider
RN G	Registered nurse/provider
Dr H	Provider
Dr I	Provider
Dr J	Provider
Dr K	Provider
Dr L	Provider

15. Independent expert advice was obtained from a specialist in rural health medicine, Dr Scott Wilson, and is included as **Appendix A**.

Information gathered during investigation

16. At the time of these events, Baby A was aged six months. His mother, Ms A, stated that on 27 November 2015, Baby A knocked his head against his cot and cut the left-hand side of his lip. She said that on 29 November 2015, Baby A's temperature was elevated and did not reduce throughout the day despite Baby A being administered regular paracetamol.

Child Emergency Assessment Chart[4]

17. Waikato DHB told HDC that it uses the Child Emergency Assessment Chart for all emergency paediatric attendances at Hospital 1. The chart includes vital signs ranges and a full-page vital signs observation chart. Waikato DHB said that the decision to use this chart was the result of extensive internal discussion between the ED and paediatric staff, and that a conscious decision was made not to use another chart, ie, the Paediatric Early Warning Score (PEWS) observation chart.

18. Waikato DHB said that the PEWS chart was not adopted because it is designed for inpatient use, and there is no inpatient facility at Hospital 1.

Hospital 1, 29 November 2015

19. On 29 November 2015, Ms A took Baby A to the ED at Hospital 1. She told HDC that after a three-hour wait he was seen by a doctor, who diagnosed "flu", advised her to continue with Pamol (paracetamol), and told her that Baby A's temperature would settle within a few days.

20. Registered Nurse (RN) RN D told HDC that on 29 November 2015, she worked an afternoon shift at Hospital 1 from 3pm to 11.30pm. She stated that the shift was "significantly busy", with a steady flow of patients being triaged. RN D said that she was the triage nurse on that shift and she also spent some time in ED when her workload would allow, or to cover for meal breaks.

21. The Child Emergency Assessment Chart states that Baby A arrived at 4.00pm. RN D said that when Ms A brought Baby A into the ED, she (RN D) obtained a brief history from Ms A and took recordings of Baby A's vital signs and weight. RN D stated that Baby A was "grizzly" and, as his observations were above normal parameters, she gave him an ATS[5] score of Code 3, which required him to be seen by a doctor within 30 minutes.

[4] Document reference 4089 dated 1 May 2015.

[5] The Australasian Triage Scale (ATS) is a clinical tool used to establish the maximum waiting time for medical assessment and treatment of a patient. The ATS aims to ensure that patients presenting to emergency departments (EDs) are treated in the order of their clinical urgency and allocated to the most appropriate assessment and treatment area.

22. Baby A's temperature is recorded in the Child Emergency Assessment Chart as 38.6°C,[6] his pulse as 176 beats per minute (bpm),[7] his respiration rate as 64 breaths per minute,[8] and his oxygen saturation by oximetry as 96%.[9] The Child Emergency Assessment Chart records that RN D placed a urine catchment bag on Baby A at 4.20pm.

23. The records state that by 5.20pm Baby A had been seen by Dr I (time not recorded). Dr I told HDC that he was aware that Baby A's triage observations were not within the normal ranges, but that Baby A looked well and his fever was improving. Baby A's temperature had reduced to 38°C.

24. At 5.25pm, an RN administered 135mg paracetamol. No further observations were taken. The discharge summary completed by Dr I notes "hydration", with an impression that Baby A had a viral illness, and that he was to have paracetamol as required, and to come back to the ED if he was unwell, his breathing was fast, or he developed breathing difficulties.

25. Dr I told HDC: "[I]n the history, there was no hint about neck or face and the child didn't have signs [of] neck cellulitis at that stage." Dr I said that his assessment was that Baby A was not very sick or septic. Dr I stated: "I think I did [a] standard [ED] assessment and management with safety netting …"

Hospital 1, 1 December 2015

26. Ms A stated that on 1 December 2015, she woke to find that Baby A had a bleeding nose and an elevated temperature. She said that by that evening he had a rash and the right-hand side of his gum was bleeding, so she took him back to the Hospital 1 ED. She stated that after waiting for two hours, during which Baby A cried constantly, she approached a nurse, who said that she needed to be patient because EDs are for life-threatening illness/injuries. Ms A stated that Baby A was seen an hour later, and again she was told that he would improve over the next couple of days.

27. Hospital 1 acknowledged Ms A's concerns about the way in which she was spoken to in the waiting room. Waikato DHB said: "[Ms A's] communication with staff was compromised as they were not listening to her needs and did not support her in a manner which [was] professional and appropriate."

28. The Child Emergency Assessment Chart states that Baby A presented at 6.36pm with diarrhoea, and that he was irritable and felt hot. It is noted that it was his second presentation, and that he was a well-looking child who was breast-feeding well. Baby A's temperature is recorded as 36.5°C, his pulse as 141bpm, and his oxygen saturation as 100%. His respiration rate is not recorded. RN E triaged Baby A as 4 (to be seen within 60 minutes). She stated that she was not alerted by any "red flags" at the time of triage.

[6] In a baby, a fever is an oral temperature above 37.5°C, a rectal temperature above 38.0°C, or an axillary (under the arm) temperature above 37.2°C.
[7] Normal pulse is 80–140bpm.
[8] For babies aged 1–12 months, normal respiratory rate is 20–30 breaths per minute.
[9] Oxygen saturation (SpO_2) is lower in the immediate newborn period. Beyond this period, an SpO_2 of <92% should be a cause of concern.

29. Dr H, the Clinical Leader at Hospital 1 ED, stated that she saw Baby A at 8.55pm on 1 December 2015. She noted that he had had a fever for two days, a bleeding nose and gum earlier in the day, and he had diarrhoea and had been unsettled and crying throughout the day, but he was still feeding and had passed urine that evening.

30. Dr H told HDC that Baby A was asleep on examination, but he was easy to rouse and became upset when woken. He had good skin turgor,[10] and a blanching[11] macular rash[12] on his face and trunk. Dr H stated:

> "My clinical assessment was that of a viral exanthema[13] with diarrhoea. He appeared well hydrated and was still feeding. Ibuprofen was prescribed for analgesia[14] and antipyresis.[15]"

31. No further observations were undertaken, and Baby A was discharged home at 9.16pm. RN E told HDC that she is not sure why a second set of observations was not performed.

Hospital 1, 4 December 2015

32. Ms A stated that on the afternoon of 4 December 2015 she received a call from her mother advising her that Baby A's temperature was still elevated and his face was swollen. Ms A said that she took Baby A to her general practitioner (GP), who sent her to the Hospital 1 ED. Ms A stated that blood tests were performed and she was given antibiotics for that night and a prescription to be filled the following day, and that again they were sent home.

33. The GP's referral states that Baby A had a fever, was irritable, had had a rash for five days, and was not improving. The referral notes that he had been seen twice at the hospital and was thought to have a viral illness. It states that Baby A was unsettled, was taking only small amounts at feeds, was not sleeping, and was crying all night.

34. The referral notes that Baby A's temperature was 40.2°C, he was covered with a fine papular[16] rash, he was pale, and his throat was inflamed. The referral states that other pathology needed to be excluded, and queries whether Baby A had a viral infection, a UTI,[17] or Kawasaki disease.[18]

[10] Skin turgor refers to how quickly the skin returns to its normal position after being pinched. It is often used to check for dehydration in children.
[11] A rash that disappears when pressed.
[12] A maculopapular rash is characterised by a flat, red area on the skin that is covered with small confluent bumps.
[13] A skin rash accompanying a disease or fever.
[14] Treatment of pain.
[15] Treatment of fever.
[16] Papules are small raised bumps.
[17] Urinary tract infection.
[18] Kawasaki disease causes inflammation in the walls of medium-sized arteries throughout the body. It primarily affects children. The inflammation tends to affect the coronary arteries, which supply blood to the heart muscle. Kawasaki disease is sometimes called mucocutaneous lymph node syndrome because it also affects lymph nodes, skin, and the mucous membranes inside the mouth, nose, and throat. Signs of Kawasaki disease include a high fever and peeling skin.

35. Baby A presented at the Hospital 1 ED at 3.57pm. The Child Emergency Assessment Chart completed at 4.10pm by an RN notes that the GP had given Baby A Panadol, that Baby A had a widespread rash and was flushed from head to toe, and that his raised temperature of 39.7°C had not been relieved by Panadol. RN C gave him an ATS triage score of 3. The triage observations were documented as a respiratory rate of 60 breaths per minute with increased breathing effort but no signs of airway obstruction, he was alert and well perfused, and he had a moderate pain score.

36. RN C stated that she was concerned for Baby A because his clinical observations were outside the normal limits for his age range, he had a widespread rash, and his mother could not console him. RN C stated that she reported her concerns to Dr B.[19]

37. RN C said that she applied Ametop gel[20] at 4.25pm in case Baby A required intravenous (IV) antibiotics or blood sampling. She recorded that she administered ibuprofen at 4.35pm, but that Baby A vomited immediately. She then administered ondansetron (an anti-nausea medication) and applied a urine bag to obtain a urine specimen.

38. RN C said that when she was giving Baby A the ibuprofen she noticed that he had a laceration and mild swelling on the left-hand side of his bottom lip, and puffiness to both cheeks. She asked Ms A when and where the laceration had occurred, and recorded that Baby A had hit his face the previous night (3 December 2015).

39. RN C stated that Dr B instructed her that Baby A was to be given further ibuprofen once the anti-nausea medication took effect. She said that Baby A did not vomit again, and by 5.40pm his clinical observations were improving and he had settled to sleep. He continued to have a widespread rash and puffiness to his cheeks, but no worsening of his symptoms.

Blood test results

40. Dr B reviewed Baby A, and stated that his clinical impression was that Baby A was suffering from a viral infection. The blood test results[21] showed that Baby A's CRP[22] was mildly elevated at 25mg/L,[23] his white blood cell (WBC) count was 15.7,[24] and his neutrophil count was elevated at 13.1. The laboratory report states: "Neutrophils appear mildly increased in number with mildly toxic changes. [Emphasis in original.]"

41. Dr B stated that although he was aware that the mild changes could represent a bacterial infection, he did not feel that in the context of Baby A's clinical picture as a whole, the changes were strong enough to refute his strong clinical suspicion of a viral illness.

[19] Dr B has relinquished his practising certificate.
[20] A local anaesthesia to numb the skin and avoid pain when a needle is inserted into a vein (for example, when giving an intravenous injection, inserting a cannula, or taking a blood sample).
[21] The blood test was taken at 5.15pm.
[22] A measurement of C-reactive protein (CRP) in the blood is used as a marker to check for the presence of acute inflammation or infection in the body.
[23] A level of greater than 10mg/L is abnormal.
[24] The normal WBC for children under two years of age is 6.2 to 17.

Decision not to refer to Hospital 2 Paediatric Service

42. The "Management of Paediatric Presentation at Hospital 1 Emergency Department" policy[25] outlines the circumstances in which a child must be referred to the Hospital 2 Paediatric Service. The policy includes situations where a child has abnormal vital signs and does not improve or respond to treatment as expected, and where a child looks sick but has normal observations. The policy does not address the situation where a child has re-presented on more than one occasion with similar symptoms.

43. Dr B stated that he did not consider that Baby A's presentation fulfilled the criteria to indicate that Baby A should be referred to the Hospital 2 Paediatric Service, and that a main factor in this decision was that Baby A improved between arrival and discharge. Dr B said that although Baby A had been referred by his GP, that was not unusual as the GP surgery is next to the hospital. Dr B stated that nothing in Baby A's presentation was out of the ordinary for a viral infection, and that the GP did not refer to facial cellulitis[26]/swelling in the referral, and the swelling was not observed by the nurses who triaged Baby A. Dr B said that he did not notice facial swelling when he examined Baby A, but that swelling to Baby A's lip and mild puffiness of his cheeks are noted in the clinical records. With regard to the rash, Dr B stated: "Rash is very common with viral infection and in most cases it doesn't reflect the severity of the illness. Likewise it is not unusual for a viral infection to last several days."

44. Amoxicillin was administered to Baby A at 6.45pm. Dr B told HDC that he prescribed amoxicillin because Baby A had a lip laceration and, although the wound did not appear to be contaminated, he thought there was a possibility of Baby A contracting a bacterial infection. Dr B said that he did not prescribe the antibiotic to treat the working diagnosis of a viral infection or to treat facial cellulitis, as that was not present at that time. However, he did consider there to be a possibility that Baby A had an early secondary bacterial infection.

45. Dr B stated that amoxicillin was not his first choice, but he concluded that his preferred antibiotic, Augmentin, was likely to worsen Baby A's diarrhoea and "complicate the situation".

46. Dr B stated that he did not consider that Baby A was significantly unwell, and that had he done so he would have referred Baby A to the Hospital 2 Paediatric Service. Dr B said that when he assessed Baby A initially he looked unwell and unsettled, he had a high fever, and his heart and respiratory rates were above normal limits. However, there were no other signs of severe illness, and there was nothing of concern in Baby A's history.

47. Dr B stated that Baby A's temperature, heart rate, and respiratory rate came down to normal limits with treatment, so he decided that Baby A was well enough to be discharged. Dr B said that he talked with Ms A and explained that he thought that Baby A most likely had a viral infection, but that if Baby A's symptoms worsened or he was

[25] Document reference 4089 dated 1 May 2015.

[26] Cellulitis is a bacterial skin infection. It may first appear as a red, swollen area that feels hot and tender to the touch.

unsettled, or she was concerned for any reason, she should bring him back to ED immediately. Ms A was given ibuprofen to take home, and enough amoxicillin for the night, and a prescription to collect in the morning. Baby A was discharged at 6.48pm. Dr B said that Ms A was happy with the plan, and did not appear to have ongoing concerns.

Hospital 1, 5 December 2015

48. Ms A stated that at 1.30am on 5 December 2015 she woke Baby A to give him the prescribed antibiotics. His face was more swollen, so she took him back to Hospital 1 ED.

49. Baby A presented at 2am, and the triage nurse noted that he was unsettled and had facial swelling. Waikato DHB told HDC that Ms A showed the triage nurse photos of Baby A taken when his face was first swollen, and the triage nurse could see that by that stage the swelling was worse. The triage nurse handed over Baby A to RN D.

50. Dr J was informed of the triage details and saw Baby A within 20 minutes of triage. Dr J stated that the nurse told her that Baby A had been seen at the ED several times previously, so she reviewed the available records. Baby A was crying inconsolably and refusing food. Ms A reported that the swelling of his lip had worsened throughout the day.

51. Baby A's temperature was 36.8°C, his pulse was 134bpm, and his oxygen saturation was 100%. Dr J said she considered that Baby A appeared ill, had swelling and induration[27] of the submental area[28] without discrete adenopathy,[29] and he held his neck extended but without any rigidity. She said that Baby A had a fine diffuse maculopapular rash. She discussed Baby A with the Hospital 2 Paediatric Service, who accepted a referral, so she discharged Baby A to Hospital 2.

52. Ms A stated that the doctor on duty told her that Baby A needed to be taken to Hospital 2, and that he would need to be taken by car as the ambulance was not available. Ms A said that she was upset at having to drive Baby A to Hospital 2 at night, as she was unfamiliar with the route.

53. Dr J stated that she cannot recall whether she or the nurse spoke to Ms A about the transfer, but that "[i]t is more common for a nurse to discuss transport arrangements with the family". Dr J told HDC that she does not remember the specific details of her conversation with Baby A's parents, and she is uncertain how familiar she was with the system for transfers at that time. She said that Baby A appeared stable and safe for transfer in the care of his parents, and added: "If I had understood that the parents were reluctant I would have certainly offered transfer by ambulance on the morning transfer."

54. Dr J stated that her usual practice is to offer an ambulance but recommend transfer by car. However, in hindsight she realises that Ms A was very distressed and that it would have been more appropriate to keep Baby A in the ED until daylight and decide at that time the best way to transfer him to Hospital 2.

[27] Localised hardening of soft tissue. The area becomes firm, but not as hard as bone.
[28] The area below the chin.
[29] Swelling of glandular tissue or lymph nodes.

55. Baby A was discharged at 3am.

Hospital 2

56. Specialist paediatrician Dr L stated that Baby A presented to the Hospital 2 ED at 5.45am. The night paediatric registrar assessed him at 6.40am and noted that he had had a fever since 29 November 2015 and had obvious swelling to his right cheek and jaw. Dr L stated that there is no record of antibiotics being given between his arrival and his transfer to the ward.

57. At 10am Baby A was seen by the paediatric surgical registrar, who wrote: "[G]rossly swollen right side of face … no localised collection, plan — intravenous antibiotics." At 10.40am Baby A was seen by Dr L, whose impression was that Baby A had cheek cellulitis. Dr L said that Ms A was extremely unhappy and commented about Baby A's multiple visits to Hospital 1 ED.

58. At 7.45pm, the laboratory confirmed that the blood culture resembled *Staphyloccocus aureus*.[30] By that time, Baby A was on the maximum dose of the antibiotic flucloxacillin administered intravenously. The following morning, a long line[31] was inserted to enable long-term administration of antibiotics. Baby A's airway was considered to be compromised by swelling, and he was intubated, ventilated, and transferred to the intensive care unit.

59. Blood cultures grew multi-resistant MRSA[32] sensitive to vancomycin, so on 6 December 2015 flucloxacillin was stopped and vancomycin was started.

60. On 7 December 2015, Baby A was transferred to Hospital 3. Paediatric surgeon Dr K stated that the transfer was required because Baby A's ventilation was likely to last for more than 48 hours.

61. Hospital 3's clinic letter states that Baby A presented with severe sepsis with associated Ludwig's angina,[33] and he required a prolonged course of vancomycin for four weeks under the direction of the infectious diseases team.

62. Baby A was discharged from Hospital 3 on 5 January 2016. At that time, his ongoing issues were partial paralysis or weakness of his right marginal mandibular facial nerve,[34] and an area of exposed bone in his mouth.

[30] *Staphyloccocus aureus* is part of the normal human flora (bacteria that normally reside in or on humans, most commonly in the nose), and it does not usually cause infection.
[31] A "long line" is a thin catheter inserted into one of the large veins in the baby's arm or leg.
[32] MRSA (methicillin-resistant *Staphylococcus aureus*) is a drug-resistant strain of Staphyloccocus bacteria.
[33] Ludwig's angina is a type of severe cellulitis involving the floor of the mouth. Early on, the floor of the mouth is raised, causing difficulty in swallowing saliva. As the condition worsens, the airway may be compromised, with hardening of the spaces on both sides of the tongue.
[34] Isolated paralysis of the marginal mandibular branch of the facial nerve results in an asymmetrical smile, with elevation of the lower lip on the affected side.

63. Ms A stated that the effect is that although Baby A is a good-looking boy, he looks crooked when he cries or smiles, and nothing can be done to remedy the condition until he is about 10 years old.

Further information from Waikato DHB

64. Waikato DHB has implemented a policy that children are discussed with the Hospital 2 Paediatric Service at the second ED visit.

65. In addition, Waikato DHB has updated the Child Emergency Assessment Chart to include a section on "red flags" on the triage page. An elevated respiratory rate is included as a "red flag". The chart also outlines the normal ranges for paediatric vital signs, and advises staff who are completing the form to highlight the relevant ranges for observations. Sections have been added indicating that it is mandatory for all children to have a set of observations documented within the hour prior to discharge.

66. Waikato DHB told HDC that there was inadequate documentation of Baby A's care and observations. Waikato DHB stated that the Child Emergency Assessment Chart has been improved, and that the amended chart will address the deficiencies. The chart requires the regular recording of vital signs. It reinforces the need for observations at key intervals, and clearly shows when deterioration is occurring.

67. Waikato DHB has undertaken two audits of the use of the Child Emergency Assessment Chart, and stated that the rate for completion of documentation has improved. A champion for documentation improvements has also been appointed.

Responses to provisional opinion

Ms A

68. Ms A was given an opportunity to comment on the "information gathered" section of the provisional opinion.

69. Ms A provided submissions and a series of photos which showed minor swelling to Baby A's face in some photos through to very noticeable swelling to Baby A's face in other photos. Ms A told HDC that these photos were taken between 29 November 2015 and 4 December 2015.

70. Ms A stated that English is not her first language and she expressed her concern that she was not listened to at Hospital 1 and that, as a consequence, Baby A's condition was not taken seriously enough.

71. In addition, Ms A reiterated the impact these events had on Baby A and his family.

Dr B

72. Dr B was given the opportunity to comment on the provisional opinion as it relates to him. He advised HDC that he did not wish to make any comment.

Waikato DHB

73. Waikato DHB was given an opportunity to comment on the provisional opinion. Where relevant, its response has been incorporated into the "information gathered" section above.

Opinion: Waikato District Health Board — breach

Introduction

74. Baby A's mother, Ms A, took him to the Hospital 1 ED on four occasions within six days. On the first three occasions, Baby A was triaged, assessed by a doctor, and discharged. Baby A continued to be unwell, and subsequently he was diagnosed with Ludwig's angina. He required a prolonged course of vancomycin at Hospital 3.

75. Baby A now has partial paralysis of his facial nerve, and an area of exposed bone in his mouth. It is not my role to make findings in relation to the cause of Baby A's current condition, and I do not do so in this report. In assessing the care provided to Baby A, my focus must be on the standard of care provided at the time the events occurred, based on the information available to clinicians at that time. Independent expert advice on the care provided to Baby A was obtained from a specialist in rural hospital medicine, Dr Scott Wilson.

Date of cot accident

76. Ms A stated that on 27 November 2015 Baby A knocked his head against his cot and cut the left-hand side of his lip. The first mention in the Hospital 1 clinical records of Baby A having hit his face is on 4 December 2015, when RN C recorded that Ms A said that Baby A had hit his face (although RN C records that it occurred on the night of 3 December 2015). The clinical records on 1 December 2015 note that Baby A had had a bleeding nose and gum earlier that day, and by 4 December he had a laceration and swelling to the left-hand side of his bottom lip, and puffiness to both cheeks.

77. I am unable to make a finding as to when the injury occurred, and it is not necessary for me to do so in order to comment on the standard of care provided. As stated above, I will consider the standard of care provided at the time based on the information available to clinicians at that time.

29 November 2015

78. At 4.00pm on 29 November 2015, Ms A took Baby A to the Hospital 1 ED. RN D triaged him as Code 3.[35] She took a brief history and noted that Baby A's observations were above normal parameters. At 4.20pm, she placed a urine catchment bag on Baby A. By 5.20pm,

[35] Dr Wilson advised: "This triage code indicates that 70% of cases such as Baby A's should be seen, and treatment commenced within 30 minutes (Australasian College for Emergency Medicine, 2013)."

Baby A had been seen by Dr I, although the time at which Dr I assessed Baby A is not recorded. Baby A's temperature had reduced, and no further observations were taken.

79. Dr Wilson advised:

> "In my opinion [Baby A] was seen in a reasonable time period given the information provided. He was triaged at 1600, had a urine bag placed 20 minutes later, and had been seen, treated, and discharged within 1 hr and 45 minutes."

80. Dr Wilson considers Dr I's assessment to have been brief but adequate, and Dr I's impression of a viral illness to have been reasonable. However, Dr Wilson noted that staff appeared to rely more on Baby A's general appearance, rather than on clinical observations.

81. Dr Wilson stated:

> "The observations would typically be taken by the nursing staff, however the doctor when examining a child such as [Baby A] would normally count the respiratory rate and pulse, and examine for capillary refill and signs of reduced GCS."

82. Dr Wilson also advised:

> "[Baby A's] triage observations were significantly abnormal with elevations in heart rate and respiratory rate. I believe my peers would view the decision not to perform regular observations during [Baby A's] stay in the emergency department to be a moderate deviation from the standard of practice."

83. Baby A's observations taken at triage were abnormal, and should have been repeated during his time in the Emergency Department, to ascertain the severity of his illness and his response to treatment. I agree with Dr Wilson's comment: "Making a medical assessment and concluding the patient was safe to be discharged home without demonstrating improvement in the vital signs is a deviation from best practice." I am critical that further observations were not undertaken.

84. Dr Wilson also noted that although Dr I advised Ms A to keep up Baby A's hydration, there is no comment as to what Baby A was actually drinking or other markers of hydration. There is also no documentation of Baby A's respiratory rate on discharge, despite it having been considerably elevated on presentation.

1 December 2015

85. On 1 December 2015, Ms A brought Baby A to the Hospital 1 ED for a second time. She stated that he had a bleeding nose and elevated temperature, a rash, and bleeding on the right-hand side of his gum.

86. Baby A presented at 6.30pm. RN E triaged Baby A as Code 4.[36] He was seen by Dr H at 8.55pm and discharged at 9.16pm.

87. The clinical record documents that Baby A was a well-looking baby who was breastfeeding well but had diarrhoea. His temperature was 36.5°C, his pulse 141bpm, and his oxygen saturation 100%. His respiration rate is not recorded. No observations were repeated.

88. Dr H found that Baby A had good skin turgor but he had a rash on his face and trunk. Dr H's clinical impression was a viral exanthema with diarrhoea.

89. Dr Wilson advised me that Dr H's conclusion appears reasonable. However, Dr Wilson noted:

> "[Baby A] did not receive a full set of observations at any stage during this presentation. His respiratory rate is not recorded. … I believe my peers would view the decision not to at least complete one full set of observations to be a mild deviation from the standard of practice."

90. Dr Wilson considers that although Baby A's vital signs had improved compared with those noted two days earlier, it was a moderate deviation from best practice not to have repeated the triage observations, particularly as Baby A was in the ED for over three hours. Dr Wilson advised:

> "A single set of observations can be misleading so it is important to demonstrate a trend towards clinical improvement or deterioration. The observations would typically be taken by the nursing staff however the doctor when examining a child such as [Baby A] would normally count the respiratory rate and pulse, and examine for capilliary refill and signs of reduced GCS."

91. Dr Wilson said that in rural hospitals, if a child presents for a second time, it is "common practice" for the child to be observed and/or the presentation to be discussed with Paediatrics. He advised:

> "Some rural facilities may offer overnight admission however [Hospital 1] [doesn't] admit paediatric patients, so would need to transfer to [Hospital 2] for admission. There are no hard and fast rules regarding how long to observe, so there is no standard as such. This practice is normally to provide reassurance to the clinical team and to the concerned parent who has been struggling at home, so observation is for as long as it takes to ensure this reassurance is achieved. From triage to discharge [Baby A] was in the department for around 2 hrs 45 minutes, it is not documented how much of this was in the waiting room. From time of medical review to discharge was 25 minutes. There are no nursing notes recorded other than the brief triage note."

[36] Dr Wilson advised: "A triage code 4 indicates moderate severity and the College of Emergency Physicians indicate that Emergency Departments should see 70% of patients who are triage 4 within 60 minutes (Australasian College for Emergency Medicine, 2013)."

92. In Dr Wilson's opinion:

> "After two presentations of the same nature a child should be discussed with the paediatrician at [Hospital 2]. Even if transfer is not necessary a period of observation in hospital provides good peace of mind for patients and their family."

93. Baby A's observations at triage had improved since the previous day, but the rash and bleeding gum were new symptoms. In my view, the nursing and medical staff should have observed Baby A in the ED for a period of time and repeated his observations.

4 December 2015

94. On 4 December 2015, Ms A took Baby A to a GP because Baby A had ongoing fever and a swollen face. The GP referred Baby A back to the Hospital 1 ED. The referral notes that Baby A had a raised temperature at 40.2^{o}C.

95. At 3.57pm, RN C triaged Baby A as Code 3. She said that she was concerned about Baby A because his clinical observations were outside the normal limits for his age, he had a widespread rash, and he was inconsolable. She reported her concerns to Dr B. The triage observations documented that Baby A had a respiratory rate of 60bpm with increased breathing effort but no signs of airway obstruction, and that he was alert, well perfused, and had a moderate pain score.

96. On reviewing Baby A, Dr B's clinical impression was that Baby A was suffering from a viral infection. Baby A was treated with ibuprofen and ondansetron and monitored until his observations showed improvement. He was administered amoxicillin at 6.45pm. Ms A was given ibuprofen to take home, and enough amoxicillin for the night, and a prescription to collect in the morning. Baby A was discharged at 6.48pm.

97. Dr Wilson advised that this was Baby A's third presentation in six days, with no clear diagnosis and a high level of maternal anxiety. Baby A's observations were significantly deranged on presentation, and although they improved during his time in the ED, his observations indicated that he was considerably unwell. Dr Wilson noted that there were new findings of reduced oral intake, reduced wet nappies, and facial injuries/swelling.

98. Dr Wilson advised:

> "I believe my peers would view the decision not to refer [Baby A] to paediatrics in [Hospital 2] on his third visit as a moderate deviation from the standard practice in rural hospitals."

99. In my view, clinicians should consider repeated presentations and parental concerns as "red flags". Baby A's condition was worsening, and paediatric input was necessary. I am critical that Baby A's condition was not discussed with the Paediatric Service at Hospital 2.

100. There was no policy in place to direct ED staff to consult the Hospital 2 Paediatric Service when a paediatric patient re-presented at the Emergency Department. I note that Waikato DHB has updated its policy, and staff are now required to discuss with the Waikato

Paediatrics Service any child who has presented twice or more with the same complaint and is not improving.

5 December 2015

101. In the early hours of the morning on 5 December, Baby A's mother woke him to give him his antibiotics and found that his face was more swollen, so she took him back to the Hospital 1 ED. His triage observations showed no fever, a heart rate of 134bpm, and an oxygen saturation of 100%. No further observations were taken.

102. Dr J reviewed Baby A within 20 minutes and documented a history of inconsolable crying and refusing food. Dr J discussed Baby A's case with a paediatrician at Hospital 2, and he was accepted for assessment.

103. On this occasion, Baby A's observations were satisfactory and he did not have a raised temperature. However, the facial swelling had worsened, and he was holding his neck in extension, although moving it well.

104. Dr J determined that it was safe for Baby A to be transferred by private car to Hospital 2. Ms A said that she was unfamiliar with the route, and was very upset by this decision. Dr J told HDC that she was unaware of Ms A's concerns, and that had she been aware, she would have made alternative arrangements.

105. Dr Wilson advised that transferring by private vehicle is common with stable patients, but that it is dependent on the parents being comfortable with the decision and being in a fit state to drive. He said that from the information provided, Baby A was physically safe to travel in a private vehicle.

106. I agree with Dr Wilson's comments, but consider that the transfer of Baby A by private vehicle should have been discussed with his mother prior to the decision being made.

Frequency of observations

107. Dr Wilson stated that in most rural EDs it would be typical for observations to be repeated hourly at a minimum while a child is in the ED, and that if there is concern that a patient is unstable and likely to deteriorate, the frequency of observations would be increased. He noted that on three of Baby A's visits to the ED at Hospital 1, the only set of observations recorded were those taken at triage, and one set was incomplete. Dr Wilson considers it to have been a moderate departure from standard practice for the observations not to have been repeated on a regular basis during Baby A's time in the ED.

108. The ED at Hospital 1 used the Child Emergency Assessment Chart for all emergency paediatric attendances.

109. Dr Wilson advised:

> "The Child Emergency Assessment Chart … consists of several pages, there is a generic observation chart, reference ranges by age are on a separate page, and there are no recommendations for frequency of observations, clinical review, or escalation

> pathway if the observations are abnormal or deteriorating. Waikato [DHB] indicate that they have made a conscious decision to use this chart because the PEWS was designed for inpatient use, they have not given a reason why they feel this chart is more appropriate or superior to PEWS.
>
> …
>
> In most rural EDs it would be typical for observations to be repeated hourly at a minimum while in the department. This would increase in frequency if there was concern that the patient was unstable and likely to deteriorate."

110. Dr Wilson observed that the PEWS system would have mandated at least 15-minute observations for a child presenting with Baby A's recordings at triage on 29 November 2015.

111. Waikato DHB told HDC:

> "[I]t is clear that there was inadequate documentation of [Baby A's] care and observations. Full utilisation of the Child Emergency Assessment Chart would address the deficiencies in regular recording of vital signs, reinforce the need for observations at key intervals and would clearly show when deterioration is occurring."

112. I accept my expert's advice that observations should have been undertaken at least hourly, and I am critical that they were not. The abnormal observations taken at triage should have been sufficient to trigger repeat observations. In my view, incomplete and single sets of observations can be misleading, whereas repeat observations may demonstrate a trend towards clinical improvement or deterioration.

113. I note Dr Wilson's reservations about whether the Child Emergency Assessment Chart is the most appropriate tool for management of emergency paediatric patients. However, Dr Wilson accepts that this is the established local policy and the standard of practice for presentations to Hospital 1 ED. I note Waikato DHB's view that the chart itself was adequate, but that on two separate occasions it was not completed properly, and that full utilisation of the chart would address deficiencies in the recording of vital signs. I am critical that the DHB failed to ensure that its staff were using the Child Emergency Assessment Chart appropriately.

Discussion with paediatric specialists

114. There was no policy in place to direct ED staff to consult the Hospital 2 Paediatric Service when a paediatric patient re-presented at the Emergency Department.

115. Dr Wilson advised that in his opinion, after two presentations of the same nature, a child should be discussed with the paediatrician at Hospital 2. He stated: "Even if transfer is not necessary a period of observation in hospital provides good peace of mind for patients and their family."

116. I agree, and am critical that Baby A was not referred to Hospital 2 Paediatric Service on 4 December 2015. I note that Waikato DHB has updated its policy, and that staff are now required to discuss with the Hospital 2 Paediatric Service any child who has presented twice or more with the same complaint and is not improving.

Conclusions

117. In my view, repeated presentations of a baby at ED are a "red flag". Baby A presented at Hospital 1 ED on four occasions from 29 November 2015 to 5 December 2016, and he was seen by a number of different Emergency Department staff. At one presentation, ED staff failed to take a full set of observations, and at two of the presentations, repeat observations were not taken. The responsibility for ensuring that accurate and timely observations are taken rests with both the medical and the nursing staff in the Emergency Department.

118. In addition, Emergency Department staff did not consult the specialist paediatric service at Hospital 2 until Baby A's fourth presentation, despite Baby A having re-presented twice with similar symptoms.

119. Waikato DHB considers that if the Child Emergency Assessment Chart is utilised fully, this will address the deficiencies in the recording of vital signs, and reinforce the need for observations at key intervals. The DHB is responsible for ensuring that its staff are adequately trained to utilise tools such as the Child Emergency Assessment Chart, and I am critical that its staff were not using the chart appropriately. This represents a pattern of poor practice in respect of an essential aspect of care, and primary responsibility for the deficiencies in the care provided to Baby A at Hospital 1 on multiple occasions rests with Waikato DHB.

120. I consider that for the above reasons, Waikato DHB failed to provide services to Baby A with reasonable care and skill and, accordingly, breached Right 4(1) of the Code.

Changes made to policy — other comment

121. I note that since these events, Waikato DHB has updated the Child Emergency Assessment Chart to include a section on "red flags" on the triage page, and that an elevated respiratory rate is included as a "red flag". The chart also outlines the normal ranges for paediatric vital signs, and advises staff who are completing the form to highlight the relevant ranges for observations. Sections have been added indicating that it is mandatory for all children to have a set of observations documented within the hour prior to discharge. Dr Wilson advised me that the amended form is a considerable improvement on the previous version.

122. Waikato DHB has also implemented a policy to ensure that at a second ED visit, children are discussed with the Hospital 2 Paediatric Service.

Communication with nurse — other comment

123. Ms A told HDC that while she was in the waiting room on 1 December 2015, she was embarrassed by a nurse's comments. Waikato DHB acknowledged that Ms A was not communicated with in a professional and appropriate manner.

124. I encourage Waikato DHB and its staff to reflect on the way in which it communicates with its consumers in ED, and take steps to ensure that everyone is treated professionally and respectfully.

Self transport — adverse comment

125. Ms A said that at 3am she was directed to take Baby A to Hospital 2 in her own car. She was unfamiliar with the route, and was upset by the decision. Dr J was the doctor who discharged Baby A to Hospital 2. It is not clear whether she or the nurse spoke to Ms A about the transfer. Dr J stated that her usual practice is to offer an ambulance but recommend transfer by car. She stated that she was not aware that Baby A's parents were reluctant to make the journey. She said that had she been aware, she would have arranged for a transfer in the morning. However, in hindsight she realises that Ms A was very distressed, and that it would have been more appropriate to keep Baby A in the ED until daylight and decide at that time the best way to transfer him to Hospital 2.

126. Waikato DHB told HDC:

> "This arrangement was unsatisfactory and did not meet the need of [Baby A] and his family. Travelling at night with an unwell child to an unknown city would have been distressing and difficult."

127. Waikato DHB acknowledged that Baby A could have been managed in an observation bed or his transfer could have been delayed until the morning.

128. Dr Wilson advised:

> "Transferring by private vehicle is common in stable paediatric patients, with many children being transferred safely by family in their own child seat. This is however dependent on the parents being comfortable with the decision and in a fit state to drive … From the information provided it would appear as though [Baby A] was physically safe to travel in a private vehicle."

129. I am concerned that Ms A felt obliged to drive 100km at 3am with an unwell child. I encourage Waikato DHB and its staff to reflect on the appropriateness of self-transport, and how to communicate appropriately with consumers and their family about self transport.

Opinion: Dr B — breach

130. Dr B saw Baby A on 4 December 2015. He concluded that the test results indicated that Baby A had a viral illness, although he was aware that they could also represent a bacterial infection. He said that he did not consider that Baby A's presentation fulfilled the criteria for referral to the Hospital 2 Paediatric Service, and noted that Baby A improved between arrival and discharge.

131. Dr B stated that he prescribed amoxicillin because Baby A had a lip laceration and, although the wound did not appear to be contaminated, he thought there was a possibility of Baby A contracting a bacterial infection. Dr B said that he did not prescribe the antibiotic to treat the viral infection or to treat facial cellulitis, as that was not present at that time. He stated that he chose not to prescribe Augmentin because he considered that this was likely to worsen Baby A's diarrhoea and complicate the situation.

132. Dr Wilson advised me that at that time Baby A fulfilled the paediatric sepsis criteria. Dr Wilson noted that Baby A's CRP was mildly elevated, which was non-specific and could indicate either a viral or bacterial infection, or could just be related to the trauma Baby A had suffered. Dr Wilson said that in cases of severe sepsis it can take many hours or days for the CRP to climb to a high level.

133. Dr Wilson noted that the blood test reports showed that Baby A's total white cell count was at the upper level of normal. However, the proportion of neutrophils was considerably elevated and the lymphocytes were suppressed, and the report notes that there were mild toxic changes. Dr Wilson stated:

> "In my opinion these blood tests whilst not grossly abnormal should have created a higher degree of suspicion that [Baby A] may be developing sepsis, especially given the duration of symptoms, derangement in observations, and level of concern demonstrated by [Ms A] and [Baby A's] GP."

134. Dr Wilson does not believe that the blood test results were entirely reassuring, given the clinical context and working diagnosis of a viral infection. He considers that the results were more in keeping with a developing bacterial infection rather than an ongoing viral infection.

135. With regard to Dr B having prescribed amoxicillin as prophylaxis against oral organisms, Dr Wilson advised that it is not common practice to prescribe prophylaxis for an uncontaminated minor lip wound. Furthermore, he said that if there had been contamination of the wound, or a bacterial infection was considered to be possible, amoxicillin would be an unusual choice. Dr Wilson stated:

> "In my opinion the decision to prescribe Amoxicillin was a deviation from standard practice. If [Baby A] was felt to have a viral illness with reassuring blood tests and no infection of his lip, then no antibiotics were justified. Alternatively, if there was a

> suspicion of a bacterial infection of the lip, an alternative choice of antibiotic would have been more appropriate."

136. In Dr Wilson's opinion, Baby A was significantly unwell when he presented on 4 December 2015. However, Dr Wilson noted that clinical impressions are extremely important, and can be provided only by seeing the patient physically. He considers that factors that indicated that Baby A was significantly unwell include the concerns of his GP; Baby A having been unwell for five days and still exhibiting significant clinical signs; observations that were considerably abnormal; and dehydration with reduced urine output. Further factors were the nurse's impression that Baby A was in a moderate amount of pain, he was restless, and he had an increased temperature that had not been relieved with paracetamol.

137. Dr Wilson advised:

> "I believe my peers would view the decision not to refer [Baby A] to paediatrics [at Hospital 2] on his third visit as a moderate deviation from the standard practice in rural hospitals."

138. I agree with this advice, and consider that Dr B's treatment of Baby A was suboptimal. I find that Dr B failed to provide services to Baby A with reasonable care and skill and, accordingly, breached Right 4(1) of the Code.

Recommendations

139. I recommend that within six months of the date of this report, Waikato DHB carry out the following actions:

a) Audit the clinical records of 50 patients, to ascertain the effectiveness of, and staff compliance with, the Child Emergency Assessment Chart, and report the results of the audit to HDC. If the results do not reflect 100% compliance with the Child Emergency Assessment Chart, Waikato DHB should consider, and provide to HDC, further improvements that could be made to ensure compliance.

b) Provide training to ED staff at Hospital 1 on the circumstances in which consultation should take place with Hospital 2 paediatricians, and paediatric patients should be referred to Hospital 2, and provide evidence of that training to HDC.

c) Provide training on the frequency of observations required for paediatric patients, and the documentation of observations, and provide evidence of that training to HDC.

d) Use an anonymised version of this report for staff training at Hospital 1, focussing particularly on the deficiencies in care identified, and provide evidence of that training to HDC.

140. I also recommend that Waikato DHB provide a written apology to Baby A's parents for the breach of the Code identified in this report. The apology is to be sent to HDC within three weeks of the date of this report, for forwarding.

141. I recommend that should Dr B return to medical practice, the Medical Council of New Zealand undertake a review of his competence.

142. I recommend that Dr B provide a written apology to Baby A's parents for his breach of the Code. The apology is to be sent to HDC within three weeks of the date of this report, for forwarding.

Follow-up actions

143. A copy of this report with details identifying the parties removed, except the expert who advised on this case and Waikato DHB, will be sent to the Medical Council of New Zealand, and it will be advised of Dr B's name in covering correspondence.

144. A copy of this report with details identifying the parties removed, except the expert who advised on this case and Waikato DHB, will be sent to the Paediatric Society of New Zealand, HQSC, and Hospital 3, and will be placed on the Health and Disability Commissioner website, www.hdc.org.nz, for educational purposes.

Appendix A: Independent advice to the Commissioner

The following expert advice was obtained from Dr Scott Wilson:

"**REPORT FOR HEALTH AND DISABILITY COMMISSIONER**

Date: 10 May 2017
Ref: C16HDC01594

I have been asked to provide an opinion to the Commissioner on case number C16HDC01594. I have read and agree to follow the Commissioner's Guidelines for Independent Advisors.

My name is Dr Scott Wilson. I have been vocationally registered as a specialist with the Medical Council of New Zealand since 2011, reference number 33017. I have also completed a postgraduate diploma in rural and provincial hospital practice with distinction. I have worked at SMO level in Rural Hospital Medicine in New Zealand for the past 10 years, predominantly in Level 3 rural hospitals. I am currently working as a Rural Hospital Specialist in Dargaville and Ashburton Hospitals. I am an advanced paediatric life support (APLS) instructor.

I was Clinical Director of Ashburton and Rural Hospitals for Canterbury District Health Board from 2012 to 2015, and have been Clinical Leader for Dargaville Hospital since January 2016. I chair the New Zealand Rural Hospital Clinical Leaders Forum, and sit on the executive of the New Zealand Rural Hospital Network. I have been an elected member of the Board of Studies and Council for the New Zealand College of General Practice, Division of Rural Hospital Medicine since 2014, and have been deputy chair of the council since 2016.

The expert advice requested by the Commissioner is as follows:

To review the documents provided and advise on whether I consider the care provided to [Baby A] by [Hospital 1] was reasonable in the circumstances, and why; and any other matters I consider warrant comment.

Specifically:

a. What is the standard of care/accepted practice?

b. If there has been a departure from the standard of care or accepted practice, how significant a departure do I consider this to be?

c. How would it be viewed by my peers?

d. Recommendations for improvement that may help to prevent a similar occurrence in future.

Documents considered in compiling this report were:

- Letter of complaint to HDC

- Letter from Service manager [Hospital 1] to HDC — dated 23 November 2016
- Letter from Service manager [Hospital 1] to HDC — dated 20 February 2017
- Statement from [Dr J] — not dated
- Letter from [Dr L], Paediatrician [Hospital 2] — not dated
- Discharge summary and attached clinical records from presentation to [Hospital 1]
- Discharge summary and attached clinical records from presentation to [Hospital 1] Emergency Department 4 December 2015
- Discharge summary and attached clinical records from presentation to [Hospital 1] Emergency Department 5 December 2015

Background (direct copy of summary taken from HDC letter dated 13 April 2017)

[Ms A] complains about the delayed recognition of the seriousness of her son's condition at [Hospital 1].

On 27 November 2015, [Baby A], aged 6 months, knocked his head against his cot cutting the left side of his lip. On 29 November 2015, his temperature was elevated and remained so despite regular paracetamol being given to him. Concerned, [Ms A] brought [Baby A] to [Hospital 1] ED, where he was seen by [a doctor] and assessed as having a viral illness.

[Ms A] again brought [Baby A] to [Hospital 1] ED on 1 December and 4 December 2015. On both of these occasions, his symptoms were again assessed as being viral in origin. During the consultation on 4 December 2015, the small laceration on [Baby A's] lip was assessed as causing a soft tissue infection and he was commenced on oral antibiotic therapy. The next day, [Baby A's] mother remained concerned and again brought [Baby A] to [Hospital 1] ED. The treating physician was [Dr J] who, following a discussion with a paediatrician at [Hospital 2], advised [Ms A] to transport her son to [Hospital 2 ED] for assessment.

At [Hospital 2], [Baby A] was admitted to a general paediatric ward. Blood cultures indicated a staphylococcus aureus infection and a plan was made for central intravenous access to be obtained in the operating room. On 6 December 2015, in the operating room, the anaesthetist assessed [Baby A's] airway as being compromised due to significant facial and airway swelling. [Baby A] was intubated and transferred to the intensive care unit (ICU). On 7 December 2015, [Baby A's] blood cultures confirmed a multi resistant staphylococcus aureus (MRSA) infection sensitive only to vancomycin. [Baby A's] antibiotic therapy was changed and he was transferred to the paediatric ICU at [Hospital 3] for management of sepsis secondary to infection and to cater for his ongoing need for ventilation.

At [Hospital 3], [Baby A] was diagnosed as having Ludwig's angina with MRSA infection, which required surgical drainage and a long course of intravenous antibiotic therapy. [Baby A] was discharged home on 15 December 2015.

While [Baby A] has recovered from Ludwig's angina, he has an ongoing problem of right marginal mandibular facial nerve paresis.

My opinion

[Baby A] first presented with his mother [Ms A] to [Hospital 1] Emergency Department on 29th November 2015. The complaint letter indicates a wait of 3 hours to be advised [Baby A] had 'flu'. The Doctor recommended to continue paracetamol and [Baby A's] temperature would settle in a few days. Clinical records indicate that [Baby A] was triaged at 1600hrs, with a triage code of 3. This triage code indicates that 70% of cases such as [Baby A's] should be seen, and treatment commenced within 30 minutes (Australasian College for Emergency Medicine, 2013). A Urine bag was applied at 1620hrs to obtain a urine sample, and urinalysis was performed at 1722hrs which did not show evidence of a urine infection. The emergency nursing assessment contains pertinent information, but does not contain much detail. Clinical nursing records indicate that at 1720hrs the patient had been seen by the doctor, temperature was documented as 38.1 degrees, and [Baby A] was to be given a dose of paracetamol. This dose of paracetamol has been signed off on the drug chart at 1725hrs. Only 1 set of observations were taken, at the time of triage. These observations were quite abnormal for a child of [Baby A's] age with significant elevations documented in respiratory rate and heart rate, but no increase in respiratory effort or accessory muscle use. I believe my peers would see it as a moderate deviation from the expected standard for these not to be repeated, and clinical improvement documented. A paediatric early warning scoring system is in place in [Hospital 2], and [Baby A's] documented observations would have constituted a high paediatric early warning score (PEWS) (Health Quality and Safety Commission, 2014). These abnormal observations at triage should have triggered a full set of vital signs, and regular repeated observations. No comment is made about response to the treatment given with paracetamol. There is also no comment made on fluid intake, the only observation that was repeated was a temperature which had fallen from 38.6 to 38.1.

No statement has been received from [Dr I], his only documentation being a discharge summary. This letter is headed [another] Hospital, however after discussion it appears this is a computer template error. [Dr I] indicates in his discharge letter symptoms consistent with his impression of a viral illness, documenting the elevated heart and respiratory rates, but good perfusion. He indicated that the ears, nose, and throat were unremarkable, chest was clear and abdomen was soft. His conclusion of a likely viral illness is reasonable given the information provided, however failure to repeat observations and document improvement in the vital signs would be a moderate deviation from best practice. He administered paracetamol and advised [Baby A's] mother to keep up his hydration. There is no comment around how much [Baby A] was actually drinking, or other markers of hydration. [Ms A] was advised to re-present if [Baby A] became unwell, had fast breathing, or breathing difficulty developed. It is

not documented what the respiratory rate was on discharge, and as noted it was considerably elevated on presentation. The letter from the service manager at [Hospital 1] confirmed these details however indicated they were taken from the discharge summary as [Dr I] was unable to be contacted.

The complaint letter indicates that [Baby A] knocked his head on 27th November, 2 days prior to this initial assessment. There is no comment in the clinical records to indicate that any trauma was evident at that stage, no swelling, laceration, or bleeding noted. In later clinical records it is documented that [Baby A] hit his head on December 3rd, and trauma to the face was first documented on his visit on 4th December.

In my opinion [Baby A] was seen in a reasonable time period given the information provided. He was triaged at 1600, had a urine bag placed 20 minutes later, and had been seen, treated, and discharged within 1 hr and 45 minutes. I cannot identify exactly when [Dr I] reviewed [Baby A] within this timeframe. [Dr I's] assessment seemed brief but adequate, and his conclusion that it was a likely viral illness was reasonable. His advice was in line with standard practice. The decision not to perform regular observations during [Baby A's] stay in ED is a moderate deviation from best practice, staff appeared to rely more on the general appearance of the child as opposed to clinical observations.

2 days later [Baby A] and his mother presented to [Hospital 1] Emergency Department for a second time. The complaint letter indicates he was still running a fever, however also had a bleeding nose, and gum had been bleeding on the right side. [Baby A's] mother indicated that she waited 2 hours, during which time [Baby A] cried constantly. She approached a nurse who stated loudly she needed to be patient, and advised that the emergency department was for life threatening injuries and illnesses. Clinical records indicate that [Baby A] was triaged at 1806 as a code 4. A triage code 4 indicates moderate severity and the College of Emergency Physicians indicate that Emergency Departments should see 70% of patients who are triage 4 within 60 minutes (Australasian College for Emergency Medicine, 2013). The letter received from the [Hospital 1] Service Manager indicates that [Baby A] presented at 1836hrs. Triaging is documented as occurring 30 minutes prior to this which may have exacerbated the perceived time delay. [Baby A] was seen by [Dr H] at 2055, and discharged at 2116hrs. The clinical record documents that it was the second presentation, however well looking baby, diarrhoea x4, but breastfeeding well. Observations were documented as no temperature, heart rate 141, capillary refill <2, saturations 100%. The nursing assessment and history sections of the clinical record are empty, some triage vital signs have been completed, no other observations repeated or documented, observation chart in notes but not completed. Clinical notes were documented by [Dr H] at 2055hrs, these were adequate and documented the history of fever 2 days, bleeding nose and gum earlier in day, and diarrhoea. Still feeding and passing urine. Good skin turgor and blanching macular rash on face and trunk which was a new finding. Abdomen soft, ears nil of note, no cervical nodes. [Dr H's] conclusion of a viral exanthema with diarrhoea appears reasonable. She made an

assessment of hydration and felt it was adequate, and [Baby A] was continuing to breastfeed. [Dr H] indicated she prescribed ibuprofen for pain and fever, no medications were given in the emergency department. The complaint letter indicates tramadol was given, I am unable to find any clinical record of this. No comment was made about facial swelling, or laceration to the lip during this presentation.

In my opinion the care provided by [Hospital 1] on this second visit was reasonable. At this stage there were no suspicious features of the presentation. [Baby A] is documented as looking well, breastfeeding well, and vital signs were improved compared with 2 days earlier. There was no documentation of facial/lip injury. It is a moderate deviation from best practice not to repeat triage observations when [Baby A] was seen, more so given that he was in the department for over 3 hours. Most rural hospitals would observe children re-presenting with the same problem for a second time. This is not a hard and fast rule; however it does tend to provide peace of mind for anxious parents. From the time [Dr H] saw [Baby A] to the time of discharge was approximately 20 minutes, no treatment or repeat observations were done. In my opinion my peers would see this as a mild deviation from accepted practice.

On December 4th [Baby A] was taken to his general practitioner with ongoing fevers and a swollen face. This is the first time the facial swelling and laceration is documented in the clinical records. His general practitioner referred him back to [Hospital 1] Emergency Department for further review. The referral letter did not identify any concerns around lip/face, but did document a temperature of 40.2 degrees. He was triaged at 1557hrs as a code 3. The triaging nurse noted the rash, maternal concern, vomiting, and the previous emergency department visits. Triage observations were documented as respiratory rate 60 with increased breathing effort, alert, well perfused, no signs of airway obstruction, and a moderate pain score. [Baby A] was taken to one of the resuscitation rooms where an intravenous line was placed and bloods were taken including blood cultures. [Baby A] was reviewed by [Dr B] who felt the fever was likely viral in origin. He documented unwell for 5 days, seen in emergency department twice, but looked like a well child. He indicated a reduction in oral intake, and reduced wet nappies. He indicated that since the last review on December 1 [Baby A's] mother had been using paracetamol alone to control fever. [Dr B] noted the new finding of small laceration/contusion on [Baby A's] lip with surrounding erythema, indicating that he had hit his head the previous day, which conflicts with the complaint letter indicating the head knock occurred 8 days earlier. Chest is documented as clear, abdomen soft. He cites the general practitioner's examination of the ears, nose, and throat. This examination was unremarkable apart from some erythema of the throat, it does not appear the emergency doctor repeated this examination. Bloods were reviewed and the doctor felt that these were reassuring, although did not document the results in the clinical record or discharge summary. The results are documented in the letter from the [Hospital 1] Service Manager, they show an elevated white cell count with left shift, and a C-reactive protein of 25. Observations recorded in the discharge letter are temperature 39.5, heart rate 180, respiratory rate 60, generalised rash. Observation chart was completed and shows repeated observations demonstrating improvement during his

time in the department, and a discharge heart rate and temperature are recorded in the letter. He was treated with ibuprofen at 1620, ondansetron at 1635, and observed in hospital until observations showed improvement. Amoxicillin dose was given at 1845, and [Ms A] was provided with ibuprofen syrup to take home. [Baby A] was documented in the discharge summary as looking much more comfortable.

[Dr B] provided enough amoxicillin for the night and a prescription to collect in the morning. [Baby A's] mother was advised to use ibuprofen and paracetamol for control of fever, and return to the Emergency Department if concerned. [Baby A] was discharged home at 1848hrs.

This was the third presentation in 6 days with no clear diagnosis and a high level of maternal anxiety. Observations were significantly deranged on presentation and although they did improve throughout his time in the department it demonstrates that [Baby A] was considerably unwell. There are also now new findings of reduced oral intake, reduced wet nappies, and the facial injury/swelling. The decision to undertake blood tests and cultures was appropriate, however the results were not documented in the clinical record. In my opinion at this stage the case should have been discussed with the Paediatric team in [Hospital 2] and observed in hospital, the decision not to do so is a moderate deviation from best practice in rural hospitals. Most rural clinicians refer to the Starship Hospital clinical guidelines for advice on paediatric management. These guidelines advise that most children with facial cellulitis should be admitted, especially if there is a high degree of anxiety (Starship Children's Hospital, 2015).

This is the first time facial swelling or infection was noted and [Baby A] was commenced on antibiotics at this consultation. Amoxicillin is not one of the recommended agents in local guidelines for cellulitis in children (Starship Children's Hospital, 2015) (Waikato District Health Board, 2016), however does appear in some international recommendations (Johns Hopkins University, 2016) so is only a minor deviation from recommended practice.

In the early hours of the following morning [Baby A's] mother woke to give him his antibiotics and found his face to be more swollen so returned to [Hospital 1] Emergency Department. [Baby A] was triaged at 0201 as a code 4. Triage observations demonstrate no fever, heart rate 134, oxygen saturations 100%. The nurse was shown photos by [Baby A's] mother which demonstrated the swelling had worsened over the day. The letter from the [Hospital 1] Service Manager indicates that [Dr J] reviewed [Baby A] within 20 minutes, she has documented a history of inconsolable crying and food refusal, and also the details of the head knock in December 3rd. No temperature, heart rate 134, capillary refill <2 seconds, oxygen saturations 100%. Swelling and induration of the submental area without discrete adenopathy, and that [Baby A] held his neck extended without rigidity and moving well. Diffuse rash as noted previously. She has documented the blood results from the previous day, which differ from the results in the service manager's letter. White cell count of 13,200 with left shift and toxic granulation. She has documented a clear throat and ears, and a small injury to

the left lower lip, with swelling of the right lip also. Lungs were clear. [Dr J] indicates that she discussed the case with the Paediatrician in [Hospital 2] and he was accepted for assessment. [Dr J] felt [Baby A] was stable and safe for transfer by private car to [Hospital 2]. [Baby A's] mother indicates that she was upset by this decision, [Dr J] indicates that she was unaware of this concern and [Baby A] left the Emergency Department for [Hospital 2] at 0300.

[Baby A] was deemed to be appearing quite well on this occasion, receiving a lower triage code of 4. Observations were satisfactory and no temperature was documented. It was clear that the facial swelling had worsened, and [Dr J] had documented [Baby A] was holding his neck in extension, however was moving it well and no signs of airway obstruction were present. She had examined him and felt he needed a paediatric review, but that he was safe and stable to transfer by private car to [Hospital 2]. In my opinion the management on this presentation was reasonable, [Baby A] was assessed promptly and referred to Paediatrics in [Hospital 2]. [Dr J] indicates in her statement that it is often easier and faster to transfer children in private vehicle with their parents if appropriate. She indicates that she was unaware of the maternal concerns, and if so would have made alternative arrangements.

Transferring by private vehicle is common in stable paediatric patients, with many children being transferred safely by family in their own child seat. This is however dependent on the parents being comfortable with the decision and in a fit state to drive. It is unclear where the communication breakdown occurred, as there is also no comment in the nursing record about maternal concerns regarding the self-transfer. From the information provided it would appear as though [Baby A] was physically safe to travel in a private vehicle.

[Baby A] arrived in [Hospital 2] and was reviewed at 0545 on the 5th of December by the on call paediatric registrar according to the paediatrician's statement, 0640 in the paediatric surgeon's statement. The impression of the paediatric registrar was one of mild dehydration and a possible viral illness. She considers other diagnoses in her assessment however her initial impression is in line with the medical team in [Hospital 1]. A plan was made for a chest x-ray, urine sample, repeat blood tests, and intravenous antibiotics. The paediatric surgical registrar reviewed [Baby A] at 10am and noted facial swelling, fever, a small laceration on the lip, but no clinical evidence of abscess. The impression was a soft tissue infection and for antibiotics. First dose of intravenous antibiotics was not given until 1105hrs. The Paediatrician reviewed [Baby A] on ward round at 1040, he documented facial swelling which started the previous evening, and his impression was one of cheek cellulitis, with possible early abscess. [Dr L] recommended further surgical review and consideration of a facial ultrasound.

Blood cultures taken at [Hospital 1] the previous day became positive at 1945hrs on the 5th, and were suspicious for Staphylococcus aureus infection. I have only been asked to comment on the care provided at [Hospital 1], but I would note the initial assessments provided by the paediatric and paediatric surgical teams would appear to

concur with the assessments made by the staff at [Hospital 1]. A CT scan performed at [Hospital 2] did not show a drainable collection.

In summary, the first 2 visits to [Hospital 1] were with non-specific symptoms consistent with a viral illness. The advice given by the medical and nursing staff was reasonable, and there was no documentation at this stage of any facial injury. There was a moderate deviation from best practice as considerably abnormal observations taken at triage were not repeated, and no response to treatment was documented. In my opinion this did not influence the outcome as general statements of [Baby A's] improvement were made.

The first indication of the facial injury was on December 4th. [Hospital 1] staff repeatedly documented that the injury occurred on December 3rd. If [Baby A] hit his head on 27th November as indicated in the complaint letter, it would seem unusual that nothing was documented by the [Hospital 1] staff during the previous examinations. Antibiotics were commenced at this first assessment, and although not a typical choice for this type of infection were only a mild deviation from standard care. It was a moderate deviation from best practice not to observe and discuss the case with the on-call paediatrician at this third presentation. It should be noted however that there was no evidence of airway compromise or an abscess at this stage. [Baby A] re-presented 7hrs later and was promptly referred to [Hospital 2]. Initial assessments in [Hospital 2] by the paediatric and surgical teams confirm the findings of the team in [Hospital 1]. There was no suspicion of any collection in the initial assessments, nor any obvious urgency given that IV antibiotics were not administered for more than 5hrs after arrival. This implies that [Baby A] was indeed very unwell but at that stage not critically so. Overall in my opinion I believe that the care provided by the staff at [Hospital 1] was reasonable, with the exception of the presentation on December 4th. On this occasion I believe [Baby A] should have been discussed with the Paediatrician on call in [Hospital 2] and admitted. There were other deviations from standard care and best practice as I have documented, however while they caused a high degree of dissatisfaction to [Ms A], I do not believe that they unduly influenced the outcome.

<u>Recommendations</u>

[Hospital 1] staff have had a number of meetings regarding this case and have already put in place a number of improvements. These have been documented in the letter of 23 November 2016 by the Service manager of [Hospital 1]. These improvements appear reasonable and go some way to addressing the problems identified. In addition, I would recommend the following, I have only commented on recommendations for [Hospital 1] in line with the advice requested from the Commissioner.

1. Use of a Paediatric Early Warning Score observation chart

These charts are age specific and enable clear identification of reference ranges for vital signs. They are colour coded and at a glance medical staff can see abnormal results. They have been validated, allow early identification of unwell or deteriorating children,

and provide clear advice around frequency of observations and escalation. Currently the clinical records indicate that a generic observation chart is used, without colour coding or scoring, with reference ranges for children provided on a different page. All observations should be charted on a PEWS form, including those taken at triage.

2. I would strongly support the recommendation made that after 2 presentations of the same nature children should be discussed with the paediatrician at [Hospital 2]. Even if transfer is not necessary a period of observation in hospital provides good peace of mind for patients and their families.

My opinion, recommendations are based solely on the clinical information I have received, which is not particularly detailed. I am happy to be contacted should you require anything further, or wish to discuss in more detail.

Yours sincerely,

Scott Wilson, FDRHMNZ
Clinical Lead
Dargaville Hospital

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Addendum 28 June 2017

"On page 3 of the report I have made the following statement: 'I believe my peers would see it as a moderate deviation from the expected standard for these not to be repeated, and clinical improvement documented. A paediatric early warning scoring system is in place in [Hospital 2], and [Baby A's] documented observations would have constituted a high paediatric early warning score (PEWS) (Health Quality and Safety Commission, 2014). These abnormal observations at triage should have triggered a full set of vital signs, and regular repeated observations.'

A Paediatric early warning score is an observation chart which is colour coded and designed so that each vital sign (ie heart rate, blood pressure etc) generates a number, these numbers are added up to give an overall score. The higher the score the more concern that the patient is deteriorating, this normally triggers a medical review and increased frequency of vitals. Whilst [Hospital 1] falls under Waikato, I am not aware of [Hospital 1] ED currently using these charts. Many rural hospitals have adopted these types of scoring systems from their tertiary referral hospitals and although not universally implemented they are rapidly becoming the expected standard. There is currently an expert advisory group working on a national framework for this as part of the deteriorating patient programme, however this is still in the consultation phase.

In the next paragraph on page 3 I have commented 'however failure to repeat observations and document improvement in the vital signs would be a moderate deviation from best practice.' In the absence of the PEWS charts (which I do not believe the ED are using) the observations documented need to be considered as part of the medical assessment. Observations were only recorded at triage, these are often unreliable as patients are unsettled or distressed, and have frequently just arrived in the department. It is best practice to use these initial triage observations to prioritise the patient, but to use repeat sets taken during their medical and nursing assessments to ascertain severity of illness and response to treatment. No further observations were taken following triage, and these were highly abnormal. Making a medical assessment and concluding the patient was safe to be discharged home without demonstrating improvement in the vital signs is a deviation from best practice.

On page 4 I have commented '[Dr I's] assessment seemed brief but adequate, and his conclusion that it was a likely viral illness was reasonable. His advice was in line with standard practice. The decision not to perform regular observations during [Baby A's] stay in ED is a moderate deviation from best practice, staff appeared to rely more on the general appearance of the child as opposed to clinical observations.'

[Dr I] advised the patient to use simple analgesia and keep up his hydration. This is standard advice given by ED doctors all over the country for children presenting with viral illness. Again I have referred to deviation from best practice as the staff appeared to rely on the appearance of the child and disregard the highly abnormal presenting

triage observations. Best practice is to use serial sets of observations to demonstrate either improvement or deterioration as I have discussed above.

Later on page 4 I have commented 'It is a moderate deviation from best practice not to repeat triage observations when [Baby A] was seen, more so given that he was in the department for over 3 hours.' This relates to the second presentation and again relates to best practice which is to repeat serial observations to document clinical improvement prior to reassuring the patient/family and discharging the patient home.

On page 5 I have made the comment 'In my opinion my peers would see this as a mild deviation from accepted practice.' This relates to observing children who present to the ED for a second time with the same problem. There is no expected standard for this, and best practice will vary as the period of observation is often to provide reassurance to anxious parents, and some departments are busier than others. The accepted practice however in most of the rural hospitals is to observe a child in these circumstances, or to discuss with the paediatrician on call. This is a grey area, however from the time of medical assessment to discharge was only 20 minutes so I believe my peers would see this as a mild deviation from accepted practice in rural hospitals.

On page 6 I have commented 'In my opinion at this stage the case should have been discussed with the Paediatric team in [Hospital 2] and observed in hospital, the decision not to do so is a moderate deviation from best practice in rural hospitals. Most rural clinicians refer to the Starship Hospital clinical guidelines for advice on paediatric management. These guidelines advise that most children with facial cellulitis should be admitted, especially if there is a high degree of anxiety (Starship Children's Hospital, 2015).' When [Baby A] presented for the third time best practice would be to discuss with a paediatrician as there was still diagnostic uncertainty. There is no universal standard of care, however the Starship guidelines are the closest we have and I have referenced those in the report. These indicate that most children with facial cellulitis should be admitted, especially if there is a high degree of anxiety. The best person to decide who should be admitted and to which hospital is the paediatrician on call, so best practice is to discuss the case with them for advice.

In the next paragraph I have referred to 'recommended practice'. This relates to the choice of antibiotic. There are many differing opinions and recommendations on antibiotic choices, I have reference the local guidelines from Waikato and Starship in my report however these are not universal and many other sets of recommendations exist in NZ and overseas. Amoxicillin did appear in a recommendation from Johns Hopkins University which I have referenced. There is no standard of care for antibiotics, and accepted practice varies throughout the country. I have used the term recommended practice as antibiotics will typically be chosen from a formulary of some kind using sensitivity patterns, they are normally an expert recommendation of some sort as opposed to the individual doctor independently considering the local sensitivity patterns of the bacteria."

Addendum: 6 November 2017

"I have been asked to provide further advice to the Commissioner on case number C16HDC01594. I have read and agree to follow the Commissioner's Guidelines for Independent Advisors.

The expert advice requested by the Commissioner is as follows:

To review the enclosed documents and advise whether I consider the care provided to [Baby A] by [Hospital 1] ED was consistent with accepted standards of practice.

In particular, please comment on:

1. What is the accepted standard of practice, in rural hospital EDs, for repeating observations in these circumstances? Was there a departure from this standard of practice and if so to what extent (mild, moderate, or severe)?
2. In respect of the first presentation on 29 November 2015, were there any additional factors that indicated a need for repeat observations? Who should have conducted the repeat observations? Was there a departure from this standard of practice and if so to what extent (mild, moderate, or severe)?
3. In respect of the second presentation on 1 December 2015, were there any additional factors that indicated a need for repeat observations? Who should have conducted the repeat observations? Was there a departure from this standard of practice and if so to what extent (mild, moderate, or severe)?
4. In respect of the second presentation on 1 December 2015, what is the accepted standard of practice for the length of time that a consumer like [Baby A] should have been observed in the emergency department? Was there a departure from this standard of practice and if so to what extent (mild, moderate, or severe)?
5. In respect of the third presentation on 4 December 2015, were there any additional factors that indicated a need for repeat observations? Who should have conducted the repeat observations? Was there a departure from this standard of practice and if so to what extent (mild, moderate, or severe)?
6. In respect of the third presentation on 4 December 2015, was the decision to prescribe amoxicillin an accepted standard of practice? Was there a departure from this standard of practice and if so to what extent (mild, moderate, or severe)?
7. In respect of the third presentation on 4 December 2015, was the decision not to refer a consumer like [Baby A] to a paediatric team the accepted standard of practice? Was there a departure from this standard of practice and if so to what extent (mild, moderate, or severe)?
8. Waikato DHB's response to your report dated 1 June 2017.
9. Any other matters that you consider warrant comment.

Documents considered in compiling this report were:

- Letter of complaint dated […]

- Waikato DHB's response dated 23 November 2016, 20 February 2017, and 1 June 2017.
- Clinical records from [Baby A's] presentations at [Hospital 1] ED on 29 November 2015, 1 December 2015, 4 December 2015, and 5 December 2015.

… [background deleted for brevity]

My opinion

1. *What is the accepted standard of practice, in rural hospital EDs, for repeating observations in these circumstances? Was there a departure from this standard of practice and if so to what extent (mild, moderate, or severe)?*

The standard of practice for repeating observations should be determined by local policy, clinical need, and level of concern. Waikato have indicated in their response letter that a conscious decision has been made to use a Child Emergency Assessment Chart for all paediatric ED attendances rather than PEWS. While PEWS is used in [Hospital 2] for inpatient monitoring once there has been a decision to admit a child, no paediatric cases are admitted to the ward in [Hospital 1]. PEWS is used in a number of other rural EDs, however as Waikato have a clearly established local policy to use the Child Emergency Assessment Chart, that is the standard of practice for presentations to [Hospital 1] ED.

The Child Emergency Assessment Chart that was used in both [Hospital 2] and [Hospital 1] emergency departments consists of several pages, there is a generic observation chart, reference ranges by age are on a separate page, and there are no recommendations for frequency of observations, clinical review, or escalation pathway if the observations are abnormal or deteriorating. [Hospital 2] indicate that they have made a conscious decision to use this chart because the PEWS was designed for inpatient use, they have not given a reason why they feel this chart is more appropriate or superior to PEWS.

The view of my peers regarding frequency of observations varies around the country. Many rural facilities are using a PEWS scoring system in the ED for safety and simplicity as it provides a simple colour coded tool for immediate identification if recordings are outside of the normal range, and if so by how much. It then provides direction on frequency of observations required and the urgency for clinical review. This is particularly useful for facilities that do not often manage infants or children as the normal ranges for observations vary considerably in the early years of life.

In most rural EDs it would be typical for observations to be repeated hourly at a minimum while in the department. This would increase in frequency if there was concern that the patient was unstable and likely to deteriorate. The PEWS system for instance would have mandated at least 15 minute observations for a child presenting with [Baby A's] recordings at triage on 29 November. Some rural hospitals use policies which recommend less frequent observations for lower triage cases, however this is

on the assumption that the baseline observations are within normal limits, which [Baby A's] were not.

On three of [Baby A's] visits to the [Hospital 1] Emergency Department he had triage observations recorded as his only set. If you were to review these observations and [Baby A's] history, without hindsight and the knowledge that he had clinically improved, it is my opinion that there has been a moderate departure from the accepted standard of practice for observations not to have been repeated on a regular basis during his time in the ED.

2. In respect of the first presentation on 29 November 2015, were there any additional factors that indicated a need for repeat observations? Who should have conducted the repeat observations? Was there a departure from this standard of practice and if so to what extent (mild, moderate, or severe)?

The clinical records of this visit are brief, however there is no suggestion of respiratory distress, shock, or altered mental state. There are no additional factors documented that indicate a need for repeat observations. The abnormal observations taken at triage are of themselves a factor which indicates repeat observation be required. Single sets of observations can be misleading so it is important to demonstrate a trend towards clinical improvement or deterioration.

The observations would typically be taken by the nursing staff, however the doctor when examining a child such as [Baby A] would normally count the respiratory rate and pulse, and examine for capillary refill and signs of reduced GCS. The nursing staff would complete the observation chart.

[Baby A's] triage observations were significantly abnormal with elevations in heart rate and respiratory rate. I believe my peers would view the decision not to perform regular observations during [Baby A's] stay in the emergency department to be a moderate deviation from the standard of practice.

3. In respect of the second presentation on 1 December 2015, were there any additional factors that indicated a need for repeat observations? Who should have conducted the repeat observations? Was there a departure from this standard of practice and if so to what extent (mild, moderate, or severe)?

There is no suggestion of respiratory distress, shock, or altered mental state. Nurses have indicated at triage that [Baby A] appeared to be a well looking baby. There are no additional factors documented that indicate a need for repeat observations. [Baby A] did not receive a full set of observations at any stage during this presentation. His respiratory rate is not recorded.

A single set of observations can be misleading so it is important to demonstrate a trend towards clinical improvement or deterioration. The observations would typically be taken by the nursing staff, however the doctor when examining a child such as

[Baby A] would normally count the respiratory rate and pulse, and examine for capillary refill and signs of reduced GCS.

Even though [Baby A] appeared well, I believe my peers would view the decision not to at least complete one full set of observations to be a mild deviation from the standard of practice.

4. In respect of the second presentation on 1 December 2015, what is the accepted standard of practice for the length of time that a consumer like [Baby A] should have been observed in the emergency department? Was there a departure from this standard of practice and if so to what extent (mild, moderate, or severe)?

When a child presents to the emergency department for a second time it is common practice in rural hospitals to observe the child for a period of time and/or discuss with paediatrics. Some rural facilities may offer overnight admission however [Hospital 1] don't admit paediatric patients, so would need to transfer to [Hospital 2] for admission. There are no hard and fast rules regarding how long to observe, so there is no standard as such. This practice is normally to provide reassurance to the clinical team and to the concerned parent who has been struggling at home, so observation is for as long as it takes to ensure this reassurance is achieved. From triage to discharge [Baby A] was in the department for around 2hrs 45 minutes, it is not documented how much of this was in the waiting room. From time of medical review to discharge was 25 minutes. There are no nursing notes recorded other than the brief triage note.

If [Baby A's] mother was exhibiting signs that she was unhappy with the level of care then I believe my peers would view the decision to discharge him so quickly to be a mild deviation from standard of care. If however [Baby A's] mother was comfortable and happy to take [Baby A] home then there has been no departure from standard of care.

5. In respect of the third presentation on 4 December 2015, were there any additional factors that indicated a need for repeat observations? Who should have conducted the repeat observations? Was there a departure from this standard of practice and if so to what extent (mild, moderate, or severe)?

On December 4th [Baby A] was triaged at 1557hrs as a triage 3. He is documented by the triage nurse as showing signs of increased respiratory effort, pain 4–6/10, and hot/flushed/dry, with a widespread rash. The only triage observations that are documented are a RR of 60 and a capillary refill of <2. There are several additional factors present on this occasion which indicate the need for repeat observations, namely the increased respiratory effort in the presence of an elevated respiratory rate, there was also significant pain, a new rash, and the presence of dehydration.

Full sets of observations were repeated at regular intervals during [Baby A's] stay, at 1610, 1630, 1700, and 1740. These demonstrated improvement in [Baby A's] observations, and the final set taken at 1740 are within normal limits for a child of [Baby A's] age.

As documented above normal practice would be for the nursing team to undertake the repeat observations. The doctor would typically record pertinent examination findings in his notes, but would seldom complete the observation chart. On this occasion observations were completed and documented by the nurse, with the doctor documenting preliminary, and follow up observations in the clinical summary.

In my opinion, the standard of care was met with regards to observations on this occasion.

6. In respect of the third presentation on 4 December 2015, was the decision to prescribe amoxicillin an accepted standard of practice? Was there a departure from this standard of practice and if so to what extent (mild, moderate, or severe)?

Standard of practice for rural hospitals is the local antibiotic guidelines. In the case of [Hospital 1] this would be either Waikato District Health Board or Starship clinical guidelines.

It is not clear from the clinical notes what infection is being treated. The impression from [Dr B] is that of 1. Viral illness with rash, and 2. Small lip laceration with swelling.

If [Dr B] was treating a soft tissue infection of the face then his choice of amoxicillin was a mild deviation from best practice as it is not one of the recommenced antibiotics in either the Waikato or Starship guidelines. If he was treating a viral infection with amoxicillin then this is a severe deviation as the antibiotic will be ineffective.

7. In respect of the third presentation on 4 December 2015, was the decision not to refer a consumer like [Baby A] to a paediatric team the accepted standard of practice? Was there a departure from this standard of practice and if so to what extent (mild, moderate, or severe)?

[Hospital 1] do not admit paediatric cases. Longitudinal care of paediatric patients is provided by [Hospital 2] paediatricians. This is typical of many rural hospitals, even the ones that do admit paediatric cases will have a close relationship with their tertiary paediatric colleagues. When [Baby A] presented for the third time with no clear diagnosis it would be expected that the paediatricians should be involved.

I believe my peers would view the decision not to refer [Baby A] to paediatrics in [Hospital 2] on this third visit as a moderate deviation from the standard of practice in rural hospitals.

8. Waikato DHB's response to your report dated 1 June 2017

Waikato DHB have responded to the two recommendations made in my initial report. They have explained that the decision not to use a paediatric early warning score in their ED was a conscious one, opting instead for a Child Emergency Assessment Record. They have provided reasons for not using PEWS, but no reason why the current form was chosen or why it is a superior tool. I understand and accept this

explanation as PEWS was designed as a tool for inpatient use, however the tool they have chosen appears to be inferior as it does not provide triggers for escalation in the event of deterioration.

Waikato DHB have accepted and implemented the second recommendation to ensure any repeat presentations are discussed with paediatrics at the second visit. This should go some way to preventing another case like this in future.

9. *Any other matters that you consider warrant comment.*

Waikato District Health Board have updated their Child Emergency Assessment form. The one utilised during [Baby A's] presentations in late 2015 has been replaced with an improved version in September 2016. This new version includes a section on red flags on the triage page, which include elevated respiratory rate. It also advises staff completing the form to circle the relevant reference ranges for observations.

At the end of the form it states that PEWS scoring is mandatory for all paediatric admissions to the ward, KSSU, or at any stage if staff feel it is clinically indicated or helpful. Sections have also been added indicating that it is mandatory for all children to have a set of observations documented within the hour prior to discharge.

This form is a considerable improvement over the previous version. As mentioned in my previous report, I do not believe that the failure to repeat observations had any impact on [Baby A's] outcome, however this improved form should go some way to preventing a similar situation in future.

I would like to reiterate my conclusion from the initial report. I believe that the care provided by the staff at [Hospital 1] was reasonable, with the exception of the presentation on December 4th. On this occasion, I believe [Baby A] should have been discussed with the Paediatrician on call in [Hospital 2] and admitted. There were other deviations from the standard care as I have documented, however while they caused a high degree of dissatisfaction to [Ms A], I do not believe that they unduly influenced the outcome.

Yours sincerely

Dr Scott Wilson, FDRHMNZ
Clinical Lead
Dargaville Hospital"

Addendum: 4 January 2018

"REPORT FOR HEALTH AND DISABILITY COMMISSIONER

Date: 4 January 2018

Ref: C16HDC01594

I have been asked to provide further advice to the Commissioner on case number C16HDC01594. I have read and agree to follow the Commissioner's Guidelines for Independent Advisors.

The expert advice requested by the Commissioner is as follows:

Please review the enclosed document and advise whether it changes your earlier advice. In addition, I draw your attention to:

1. The blood test results.
2. The decision to prescribe amoxicillin
3. Whether [Baby A] was 'significantly unwell' when he presented on 4 December 2015

Documents considered in compiling this report were:

- Letter from [Waikato DHB]. 12 December 2017
- Statement from [Dr J], not dated
- Minutes from [Hospital 1] Mortality and Morbidity meeting, 27 April 2016
- Laboratory reports for blood tests taken 4th to 7th December 2015
- Statement from [RN D], 11 December 2017
- Statement from [RN], not dated
- Waikato DHB policy: Management of paediatric presentation at [Hospital 1] Emergency Department, 1 May 2015.

… [Background deleted for brevity]

My opinion

My opinion on this case was initially laid out in my report of 10 May 2017. Further advice was requested and provided in a second report on 6 November 2017.

I have considered the above documents provided by Waikato District Health Board in detail. I find that whilst they do provide additional useful information they do not change the advice I have provided in my earlier reports.

I will address the 3 specific issues raised below.

1. The blood tests results

Any investigations performed must be interpreted within the clinical context, and are typically used to strengthen confidence in a working diagnosis or to prompt further thought regarding an alternative explanation for symptoms. It is difficult and can be misleading to interpret any investigation, especially blood tests, without knowledge of the patient's symptoms at the time.

One set of blood tests were taken in [Hospital 1], at 1720hrs on 4th December 2017. At the time the blood tests were taken [Baby A] had presented to the [Hospital 1] Emergency Department for the third time in 5 days, having been referred by his GP. The nurse indicated that she was concerned because of the abnormal observations, fever not resolving with paracetamol, and crying not able to be consoled by his mother. There were new findings of reduced oral intake and dehydration, and [Baby A] fulfilled paediatric sepsis criteria. [Dr B] reviewed [Baby A] and his impression was an ongoing viral illness, he did not believe the lip was infected. Urine bag was applied and blood tests taken.

The results of these tests were documented as: Full blood count: Haemoglobin 122, Platelets 235, Total White cell count 15.7, Neutrophils 13.1, Lymphocytes 1.8. Technicians comment that neutrophils appear mildly increased in number with mild toxic changes. Renal and Liver function tests were normal, Calcium and phosphate levels normal, and C-reactive protein (CRP) 25. Blood cultures were also taken.

The blood culture results did not become positive until the following afternoon, well after the [Baby A] had left [Hospital 1]. Results were identified and phoned to a ward at [Hospital 2] at 3.10pm on December 5th. The results therefore had no impact on the assessment or treatment given in [Hospital 1] prior to transfer.

The CRP was mildly elevated. This is a non specific finding and could indicate a viral or bacterial infection, or simply be related to the trauma [Baby A] had suffered. It is only mildly elevated however even in cases of severe sepsis it can take many hours if not days for the CRP to climb to a high level. A single measurement is useful, however the trend over sequential CRP measurements provides more reliable information about the severity of infection. [Dr B] did not have any previous blood test results for comparison so needed to interpret this single measurement in isolation.

The full blood count demonstrated a total white cell count at the upper limit of the normal range at 15.7, however the proportion of neutrophils was considerably elevated at 13.1 (reference rage 0.0–5.9), and lymphocytes were supressed at 1.8 (reference rage 3.5–11.5). The technician also commented there were mild toxic changes. The elevation in neutrophils with toxic changes can be suggestive of a bacterial infection, especially in the presence of supressed lymphocytes (De Jager, et al., 2010). While some viral infections can cause these changes they are typically more aggressive viral pathogens. In my opinion these blood tests whilst not grossly abnormal should have created a higher degree of suspicion that [Baby A] may be

developing sepsis, especially given the duration of symptoms, derangement in observations, and level of concern demonstrated by [Ms A] and [Baby A's] GP.

Urine specimen does not appear to have been obtained. No explanation for this is given in the records.

In summary I do not believe that these results were entirely reassuring given the clinical context and working diagnosis of viral infection. I believe there should have been a high index of suspicion that there may have been a developing bacterial infection given the severity of presentation, duration of illness, and the fact that [Baby A] fulfilled sepsis criteria. The inflammatory markers were only mildly elevated, however in my view the white cell count differential and toxic changes are more in keeping with a developing bacterial rather than an ongoing viral infection.

2. *The decision to prescribe amoxicillin*

[Dr B] documented that his impression was that of an ongoing viral infection. As indicated in my previous report viral infections do not respond to antibiotic treatment. [Dr B] documented that he did not believe the lip was infected, and the amoxicillin was prescribed as prophylaxis against oral organisms.

It is not common practice to prescribe antibiotics as prophylaxis for an uncontaminated minor wound of the lip. [Baby A] was believed to have struck his head on the cot side earlier that day, it was not likely to have suffered contamination.

If there was contamination of the wound, or bacterial infection was considered a possibility then amoxicillin would have been an unusual choice. As detailed in my previous reports it does not appear on the local antibiotic recommendation list for facial cellulitis and would not sufficiently cover oral organisms.

In my opinion the decision to prescribe amoxicillin was a deviation from standard practice. If [Baby A] was felt to have a viral illness with reassuring blood tests and no infection of his lip, then no antibiotics were justified. Alternatively if there was suspicion of a bacterial infection of the lip, an alternative choice of antibiotic would have been more appropriate.

3. *Whether [Baby A] was 'significantly unwell' when he presented on 4 December 2017*

In my opinion [Baby A] was significantly unwell when he presented on 4 December 2015. This is based on the written accounts of medical and nursing staff who assessed him at presentation, clinical recordings, and the blood test results. I have endeavoured to interpret these in isolation without reference to the clinical outcome of the case.

Clinical impressions are however also extremely important and can only be provided from physically seeing the patient, which I did not. I note that [Dr B] felt that [Baby A] did not look significantly unwell, and certainly improved following treatment and observation in the Emergency Department. [RN C] did describe clinical concerns early

in the presentation, however goes on to indicate that observations were improving and [Baby A] settled to sleep. He continued to have a widespread rash and puffiness of his cheeks, but no worsening of symptoms.

There are several pieces of information which lead me to conclude that [Baby A] was significantly unwell when he presented on December 4th.

Firstly his GP had reviewed him and felt that he needed to have further investigation in the Hospital. General practitioners are typically astute at identifying unwell patients, and on most occasions would not refer to hospital unless they consider a patient to be significantly unwell. [Baby A] had been unwell for 5 days by this stage, and was still exhibiting significant clinical signs. In my opinion this should have prompted consideration that he may have been more unwell than initially thought.

Secondly observations were considerably abnormal. [Baby A] was breathing at a rate of 60, which is well above the reference range. Elevated respiratory rate can be due to a large number of factors such as pain, fever, anxiety, or can be a marker of infection or sepsis. He had a generalised rash, an elevated heart rate at 180, and a high fever of 39.5 degrees. [Baby A] would have satisfied Paediatric Systemic Inflammatory Response Syndrome (SIRS) criteria (Starship Child Health, 2015) at presentation. SIRS in the presence of suspected or confirmed infection constitutes sepsis. Observations however were repeated while in the department and did settle prior to being discharged.

Thirdly [Baby A] was dehydrated, with the clinical notes indicating reduced urine output.

Finally the nurse's impression indicated that [Baby A] appeared to be in a moderate amount of pain and was restless in his mother's arms. He also had an increased temperature not relieved with paracetamol. [RN C] was concerned due to his clinical observations being outside of the normal range, his rash, and his crying not being consoled by his mother.

These details lead me to believe that [Baby A] was significantly unwell. He had been ill for 5 days and his presentation on December 4th to the GP, and subsequently the hospital, showed a deterioration, compared to his previous review on December 1st. He fulfilled paediatric sepsis criteria and several people had expressed concern about his condition.

My opinions expressed in this report are based solely on the clinical information I have received in writing. I am happy to be contacted should you require anything further, or wish to discuss in more detail.

Yours sincerely,

Dr Scott Wilson, FDRHMNZ
Clinical Lead
Dargaville Hospital

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Addendum: 25 April 2018

"**Date: 25 April 2018**

Ref: C16HDC01594

I have been asked to provide further advice to the Commissioner on case number C16HDC01594. I have read and agree to follow the Commissioner's Guidelines for Independent Advisors.

My name is Dr Scott Wilson. I have been vocationally registered as a specialist in Rural Hospital Medicine with the Medical Council of New Zealand since 2011, reference number 33017. I have also completed a postgraduate diploma in rural and provincial hospital practice with distinction. I have worked at SMO level in Rural Hospital Medicine in New Zealand for the past 11 years, predominantly in Level 3 rural hospitals. I am currently working as a Rural Hospital Specialist in Dargaville and Ashburton Hospitals. I am an advanced paediatric life support (APLS) instructor.

I was Clinical Director of Ashburton and Rural Hospitals for Canterbury District Health Board from 2012 to 2015, and have been Clinical Leader for Dargaville Hospital since January 2016. I chair the New Zealand Rural Hospital Clinical Leaders Forum, and sit on the executive of the New Zealand Rural Hospital Network. I have been an elected member of the Board of Studies and Council for the New Zealand College of General Practice, Division of Rural Hospital Medicine since 2014.

The expert advice requested by the Commissioner is as follows:

To review the response letter from [Dr B] and comment on whether it alters your earlier opinion in any way. If there are any departures from the accepted standard of practice, please identify them.

Documents considered in compiling this report were:

- Letter from [Dr B] dated 28 February 2018

Background (direct copy of summary taken from HDC letter dated 13 April 2017)

[Ms A] complains about the delayed recognition of the seriousness of her son's condition at [Hospital 1].

On 27 November 2015, [Baby A], aged 6 months, knocked his head against his cot cutting the left side of his lip. On 29 November 2015, his temperature was elevated and remained so despite regular paracetamol being given to him. Concerned, [Ms A] brought [Baby A] to [Hospital 1] ED, where he was seen by [a doctor] and assessed as having a viral illness.

[Ms A] again brought [Baby A] to [Hospital 1] ED on 1 December and 4 December 2015. On both of these occasions, his symptoms were again assessed as being viral in origin. During the consultation on 4 December 2015, the small laceration on [Baby A's] lip was assessed as causing a soft tissue infection and he was commenced on oral antibiotic therapy. The next day, [Baby A's] mother remained concerned and again brought [Baby A] to [Hospital 1] ED. The treating physician was [Dr J] who, following a discussion with a paediatrician at [Hospital 2], advised [Ms A] to transport her son to [Hospital 2 ED] for assessment.

At [Hospital 2], [Baby A] was admitted to a general paediatric ward. Blood cultures indicated a staphylococcus aureus infection and a plan was made for central intravenous access to be obtained in the operating room. On 6 December 2015, in the operating room, the anaesthetist assessed [Baby A's] airway as being compromised due to significant facial and airway swelling. [Baby A] was intubated and transferred to the intensive care unit (ICU). On 7 December 2015, [Baby A's] blood cultures confirmed a multi resistant staphylococcus aureus (MRSA) infection sensitive only to vancomycin. [Baby A's] antibiotic therapy was changed and he was transferred to the paediatric ICU at [Hospital 3] for management of sepsis secondary to infection and to cater for his ongoing need for ventilation.

At [Hospital 3], [Baby A] was diagnosed as having Ludwig's angina with MRSA infection, which required surgical drainage and a long course of intravenous antibiotic therapy. [Baby A] was discharged home on 15 December 2015.

While [Baby A] has recovered from Ludwig's angina, he has an ongoing problem of right marginal mandibular facial nerve paresis.

My opinion

My opinion on this case was initially laid out in my report of 10 May 2017. Further advice was requested and provided in a second report on 6 November 2017, and third report on 4 January 2018.

[Dr B] has provided a letter in response to my report of 4 January. I have considered this at length and offer the following comments.

[Baby A] was referred by his General Practitioner (GP) to [Hospital 1] Emergency Department on 4 December 2015. As mentioned in previous reports I believe GPs are typically astute at identifying significantly unwell patients that require hospital level care. I have reflected on [Dr B's] comments regarding this referral, however I believe it would be unusual for General Practitioners to have a lower threshold for referral because they are located next to the hospital. I agree the referral letter did not comment on the presence of facial cellulitis. I accept [Dr B's] view that a child presenting with fever, runny nose, and cough is a common paediatric presentation to the emergency department, and this is caused by a viral infection in the majority of cases. I also accept that a rash, diarrhoea, and vomiting is most commonly caused by a viral infection. Differentiating between bacterial and viral infections in children is often very difficult.

[Baby A] was triaged by the nurse as a triage code 3 and moved to a resuscitation bay where he was assessed, blood tests were taken, and treatment given. As outlined previously his observations were grossly abnormal on presentation and he met sepsis criteria. I challenge [Dr B's] comments that there are no sepsis criteria, or sepsis guidelines for children at [Hospital 1]. The Starship Hospital guidelines are used throughout the country as a valuable paediatric resource and are aligned with international research and consensus data on the topic (Starship Children's Hospital, 2015). [Dr B] indicates that staff at [Hospital 1] adhere to the Management of Paediatric Presentation at [Hospital 1] Emergency Department instead (Waikato District Health Board, 2015). The [Hospital 1] guideline relates to indications for referral, it does not provide any criteria for assessment of the specific illnesses instead referencing the Starship Hospital Guidelines for specific illness protocols (as mentioned above) as a resource. I believe these 2 guidelines are complimentary in managing paediatric presentations at [Hospital 1]. I stand by my earlier advice that I believe [Baby A] fulfilled well defined sepsis criteria and as such was significantly unwell when he presented on December 4.

[Dr B] assessed [Baby A], blood tests were obtained and a number of medications given. The C-reactive protein (CRP) level was measured at 25mg/L during [Baby A's] assessment on 4 December 2015. As documented previously this is only a mild elevation. The CRP often takes some hours to show significant elevation, a level of 25 demonstrates a mild inflammatory response which does not firmly reinforce or refute the impression of a viral illness. It is often the rise or fall in CRP which provides this information, as this correlates well with alteration in disease activity as [Dr B] has described. My advice given in the report of 4 January states the CRP was mildly elevated which could indicate a viral or bacterial infection, or simply be related to the trauma [Baby A] had suffered so is of little help in these circumstances. This view has not changed. [Baby A's] white blood count (WBC) was at the upper limit of the normal range for his age, however the neutrophil count was elevated at 13.1 with mild toxic changes. Investigations need to be interpreted in context and I accept that [Dr B] had a strong clinical suspicion of a vial illness at that time. [Dr B] is an experienced clinician and assessed [Baby A] first hand, my comments are based solely on the clinical

documentation. Clinical impressions are extremely important as [Dr B] has commented, however I stand by my initial advice. Whilst elevation in neutrophils, suppression of lymphocytes, and toxic changes can occur in the presence of viral pathogens in my view it is more in keeping with a bacterial infection.

I acknowledge [Dr B's] statement that the amoxicillin was not given to treat the working diagnosis of viral illness, nor was it prescribed to treat facial cellulitis as this was not felt to be present on examination. It was prescribed mainly as prophylaxis against a developing infection from the lip laceration. [Dr B] commented that he considered the possibility of an early secondary bacterial infection given the clinical presentation and blood results therefore considered antibiotic treatment appropriate. I did not see the wound so accept [Dr B's] clinical impression on this issue.

If [Dr B] prescribed antibiotics on the basis there could be an early bacterial infection then it would be by definition an early facial cellulitis, an antibiotic should have been chosen to cover the likely bacterial pathogens based on local sensitivity guidelines. Amoxicillin was chosen, and as outlined in previous reports this does not appear in any of the recommended local guidelines for facial cellulitis. I accept that amoxicillin is widely used and well tolerated however is not recommended in the antibiotic guidelines for an infection of this nature so is a mild deviation from accepted standard of practice. I accept [Dr B's] comments that amoxicillin covers about 80% of oral pathogens, however the local guidelines are formulated to take causative organisms and local resistance patterns into account when making recommendations for empiric therapy.

During his time in the Emergency Department [Baby A's] clinical state and observations did improve and by time of discharge had returned to the normal range. I accept [Dr B's] impression that he had responded as he had expected during that assessment, so in his opinion was safe for discharge.

[Dr B] indicates that his view was that [Baby A] did not fulfil the criteria set out in the [Hospital 1] guidelines for referral to Paediatrics (Waikato District Health Board, 2015). This guideline indicates that referral to [Hospital 2] Paediatric Service is required for children with potentially serious illness. This includes those children with abnormal vital signs who do not improve or respond as expected to treatment. It also includes children who look sick despite normal observations. In my view [Baby A] should have been discussed with Paediatrics for several reasons: This was [Baby A's] third visit to the Emergency Department with evolving symptoms, he had been referred by his GP who felt that further review was needed, nurses had indicated concern that he was unwell, and he met sepsis criteria on presentation. In my view this would suggest that [Baby A] was not improving or responding as expected to treatment over the total period of illness.

Summary

I wish to reiterate that my opinion on this matter has been formulated purely from written statements. As an experienced clinician [Dr B] would have relied heavily on his

clinical impression of how unwell he believed [Baby A] to be. A great deal of information is obtained from seeing, examining, and talking to patients and their families. This may not be reflected in the written documentation which is often very objective. There is also variation amongst clinicians over what constitutes 'significantly unwell', as this is often subjective in nature. In formulating my opinion I have tried to rely on objective findings wherever possible.

I accept [Dr B's] comments that Ludwig's angina is a rare condition and his initial symptoms were very atypical for this. In reviewing this case I have endeavoured not to use hindsight, and to evaluate the decisions made with the information available to the clinician at the time.

I appreciate the opportunity to comment on feedback from [Dr B]. While it does provide further insight into what occurred it does not alter my earlier advice regarding this case.

Yours sincerely,

Dr Scott Wilson, FDRHMNZ

Clinical Lead
Dargaville Hospital

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