Waikato District Health Board

A Report by the
Health and Disability Commissioner

(Case 16HDC01663)

Health and Disability Commissioner
Te Toihau Hauora, Hauātanga

Contents

Executive summary

1. This report discusses the care provided to Baby A (three months old at the time of the events) by a public hospital over four days in 2015.

2. Baby A was referred to the Emergency Department (ED) of the public hospital by his general practitioner (GP). The GP notes document a diagnosis of laryngomalacia.[1]

3. On Day 2,[2] consultant paediatrician Dr D requested ENT review for Baby A. At 5pm, ENT registrar Dr I reviewed Baby A and documented that he was to have a "scope" (awake flexible fibreoptic nasendoscopy and laryngoscopy).

4. Waikato DHB's policies around SMO responsibilities provide that where an SMO opinion has been requested by another SMO, this review cannot be delegated to an RMO. Reference is made in the clinical notes that ENT specialist Dr G was to be consulted; however, Dr G told HDC that she was not in the region during the weekend of Baby A's admission and, to the best of her knowledge, she was not consulted during this admission.

5. On Day 4, the "scope" initially planned on Day 2 was cancelled, and Waikato DHB was unable to tell HDC who made this decision and why; however, it considered that Baby A appeared to be improving. Baby A was then discharged back to his GP without follow-up care with paediatrics or ENT planned.

6. Following discharge, Baby A received some care from two medical practices. Sadly, Baby A passed away. The coronial autopsy report noted the cause of death to be respiratory failure.

7. Waikato DHB acknowledged that additional and pertinent information was not properly documented in Baby A's clinical record. This included a lack of clear documentation at key decision points.

Findings

8. The Commissioner found that Baby A did not receive services with reasonable care and skill and that Waikato DHB breached Right 4(1) of the Code of Health and Disability Services Consumers' Rights (the Code)[3] for the following reasons:

- A "scope" did not occur in hospital or shortly after discharge at an outpatient clinic.

- Baby A did not receive consultant-level ENT review, even though this was requested by the Paediatrics team. In addition, it is unclear whether there was any form of senior ENT input into Baby A's management.

[1] Floppiness of the laryngeal tissues above the vocal cords.
[2] Relevant dates are referred to as Days 1–4 to protect privacy.
[3] Right 4(1) provides: "Every consumer has the right to have services provided with reasonable care and skill."

- There was poor documentation around key decision-making points, including the decision not to "scope" and the decision to discharge. A number of staff across both the Paediatrics and ENT teams documented their care poorly.

- Baby A was discharged without a formal diagnosis or a plan for specialist follow-up care, either with ENT or Paediatrics.

Recommendations

9. The Commissioner recommended that Waikato DHB:

a) Provide a written letter of apology to Baby A's family for the breach of the Code identified.

b) Provide HDC with a progress report on its consideration of the use of the Paediatrics/ENT shared care form.

c) Report back to HDC on the progress and/or completion of the actions in the ACC Treatment Injury Event Notification Provider Feedback Form that Waikato DHB advised it would take to reduce the risk of similar events.

d) Provide HDC with a written policy or internal guidelines on continuous pulse oximetry investigations.

e) Report back to HDC on how infant weight, height, length, and head circumference are currently recorded effectively at each admission, and whether Waikato DHB has considered the use of growth charts to record and plot infant growth.

f) Carry out an audit of 50 child presentations to the public hospital, where care is shared between Paediatrics and ENT, to ensure that there has been appropriate consultant-to-consultant communication and adequate documentation. Where the results do not reflect 100% compliance, Waikato DHB should consider and advise HDC on what further improvements could be made to ensure compliance.

Complaint and investigation

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

- *Whether Waikato District Health Board provided Baby A with an appropriate standard of care in 2015.*

11. The parties directly involved in the investigation were:

Ms A	Complainant
Waikato District Health Board	Provider

12. Further information was received from:

Dr B	Clinical Unit Leader — Child Health
Dr C	Clinical Director — ENT
Dr D	Consultant paediatrician
Dr E	Paediatric registrar
Dr F	Paediatric senior house officer
Dr G	Paediatric airway specialist
Dr H	ENT registrar

13. Also mentioned in this report:

Dr I	ENT registrar
Dr J	Paediatric registrar
Dr K	ENT consultant
Dr L	Dr D's independent clinical advisor

14. Independent clinical advice was obtained from a paediatrician, Dr Jeffrey Brown (**Appendix A**), and an ENT specialist, Dr Chris Thomson (**Appendix B**).

Information gathered during investigation

15. This report discusses the care provided to Baby A (three months old at the time of the events) by the public hospital from Day 1 to Day 4 (inclusive).

Day 1

16. Baby A was referred to the Emergency Department (ED) of the public hospital by his general practitioner (GP) on Day 1. In the GP's clinical notes, he diagnosed Baby A with laryngomalacia[4] and documented his plan as follows:

> "I have [discussed with] paed[iatric] reg[istrar]
> Advises admit for [overnight] obs[ervations] and sat[urations] etc., allowing mum to rest and formal [diagnosis] be made."

17. That night, Baby A and his mother, Ms A, attended ED. At 10.05pm, a child emergency assessment was carried out. The nurse documented:

> "**Triage**
> Presenting complaint: Noisy breathing
>
> Risk/other: GP referral — laryngomalacia? Noisy breathing. Feeding OK. Mucousy. Otherwise well. Mum anxious.

[4] Floppiness of the laryngeal tissues above the vocal cords.

Patient assessment and history

Noisy breathing most of the time but no vomiting post feeds. Worse after feeding or lying flat. Struggling with bottle feeds — snuffly in nose. Putting on weight. 34/40 born."

Day 2

18. On this date, the on-call/duty consultant[5] paediatrician was Dr D, and the on-call registrar[6] was Dr J. The on-call/duty ENT consultant was Dr K, and the on-call registrar was Dr I.

19. Dr J was the first to review Baby A at 12.45am. He was started on oral ranitidine[7] and nasal saline drops. He was connected to an oximeter[8] overnight. Dr J noted that Baby A had been referred by his GP with suspected laryngomalacia. Baby A's presenting history of concern was:

"
- Mum has noticed 'noisy breathing' since birth. Additional has had a blocked nose +++
- Inspiratory noise — gets louder when takes deep breaths, worse when lying flat, worse when crying, worse post feed
- Stridor[9] has worsened since birth
- No apnoeas, no blue episodes
- Growing well
- Poor sleep and been very grizzly recently with crying +++ … blocked nose
- Mum hasn't slept well for nights as worried he will stop breathing and so grizzly"

20. On examination, Dr J noted that Baby A was alert but "snuffly +++" and inspiratory stridor was observed, which worsened when he started to cry.

21. Dr J's impression was laryngomalacia and a chronic snuffly nose. Maternal exhaustion was also a noted concern. Dr J's plan in relation to this was to admit Baby A to hospital, carry out overnight oximetry, start Baby A on ranitidine, and consider an ENT review in the morning depending on the oximetry results.

22. Baby A was checked by nurses at 1.50am, 2am, and 2.20am. During this time, Baby A received nasal suctioning cares,[10] and improvements to his breathing were documented.

23. Baby A was admitted to the Paediatric Ward at approximately 2.50am. At this time, a child/young person health assessment was carried out, which noted that Baby A's reason for admission was "? laryngomalacia", and that he had had a "snotty nose since birth". The

[5] Specialist.
[6] A doctor who has been a house officer/senior house officer for at least two years.
[7] A medication that reduces the amount of acid produced in the stomach. It is used to treat a number of conditions such as indigestion, reflux, and ulcers.
[8] A device used to measure the oxygen level of the blood.
[9] A high-pitched, wheezing sound caused by disrupted airflow.
[10] Suctioning to remove mucous from the nose to make breathing easier.

assessment also noted that Baby A's nose had thick and yellow discharge, but that his work of breathing required minimal effort.

24. At 3.35am, a paediatric registered nurse (RN) reviewed Baby A and noted:

> "Child appears alert and active. Obs[ervations] checked. PEWS[11] [and] due to mild respiratory distress. Remains on room air. Connected child on to oximetry monitor ... Mum appeared very exhausted and anxious. Reassured mum [and] is settled. Nil new concerns voiced."

25. At 6.20am, the nurse documented that she provided suctioning cares to Baby A again twice. She was able to suction thick sticky discharge the first time, but did not suction anything the second time. She did not have any new concerns regarding Baby A.

26. At 11am, a nurse reviewed Baby A and documented:

> "[Baby A] has been settled asleep in [the morning]. Obs[servations] stable. PEWS 0. Took approx. 45ml formula, settled back to sleep. One good wet nappy taken. Mum present and attending to cares."

27. Consultant paediatrician Dr D saw Baby A for the first time on her ward round at approximately 1.30pm. Dr D noted Baby A's history as continuous snorting, which was "worse than normal", and difficulty feeding. On examination, Dr D noted that Baby A was alert and smiling, but that his stridor was audible. Baby A's throat was noted as normal, and both his nasal passages were unobstructed. Dr D's impression was "? bronchiolitis[12] ?reflux[13] worsening breathing laryngotracheomalacia[14]". Her plan for Baby A was:

> "1. Nasal swabs
> 2. ENT [review]
> 3. Check for choanal atresia[15]
> 4. If not better with ranitidine → try change formula
> 5. [Nasogastric] in → [chest X-ray]"

28. Dr D told HDC that as her observations were normal, there was no indication at that time to complete any blood tests such as blood gas analysis. Dr D recollected that she had a conversation with Baby A's parents and explained that he had laryngomalacia and that it was possible that Baby A's nose had been blocked and had been cleared with suctioning. Dr D recalled suggesting that Baby A's presenting issue could be gastro-oesophageal reflux that was making the laryngomalacia worse, and that ranitidine would therefore help. Dr D also reported that she advised the parents that Baby A did not have choanal atresia, and

[11] Paediatric Early Warning Score identifies patients at risk of clinical deterioration.
[12] A common illness affecting the lungs, which causes breathing problems in babies.
[13] Gastro-oesophageal reflux is inflammation of the lining of the oesophagus caused by stomach acid leaking up from the stomach.
[14] Synonymous with laryngomalacia.
[15] Choanal atresia is a narrowing or blockage of the nasal airway by tissue.

that a chest X-ray would be carried out to ensure that he did not have an obstruction somewhere.

29. At 2.35pm, a paediatric senior house officer[16, 17] wrote: "[C]ontacted ENT Reg[istrar] [Dr I]. Will try to [review] today, if unable, will [review] tomorrow. Requested [lateral neck X-ray] ✓."

30. The Clinical Unit Leader for Child Health at Waikato DHB, Dr B, told HDC that in his opinion, the paediatric team correctly referred Baby A to ENT services for an opinion and active management.

31. At 2.50pm, the nurse reviewed Baby A and noted:

> "Small feeds during shift, 1x wet nappy.
> Obs[ervations] remain stable, afebrile
> [Nasogastric tube] inserted, checked via pop test[18]
> For X-ray at [3.30pm], nurse escort
> Mum tearful at times
> Nasal swabs taken and sent to lab."

32. At 3.30pm, a chest and soft tissue neck X-ray was carried out. The X-rays were normal.

33. At 5pm, ENT registrar Dr I reviewed Baby A. The clinical notes do not indicate that Dr K, the ENT consultant, was present. Dr I noted Baby A's history of noisy breathing after birth, and increased nasal obstruction over the last few days, and that he was off his feeds and had difficulty breathing, especially after feeding and when upset.

34. On examination, Dr I documented that Baby A had a "snuffly nose" but was breathing without increased effort. As a nasogastric tube was in situ, Dr I could not assess past the nasal space. Dr I's impression was "likely nasopharyngeal airway obstruction[19]", and he identified that there was a "need to rule out laryngomalacia". Dr I's plan was:

> "1. Cold saline nasal drops and regular nasal suction
> 2. Will scope[20] in clinic tomorrow
> 3. Overnight oximetry tonight"

35. Regarding the plan to "scope", the Clinical Director of ENT, Dr C, told HDC: "[W]e would normally perform fibreoptic nasendoscopy[21] and laryngoscopy[22] [scope] in this setting."

[16] Waikato DHB was unable to identify this doctor.
[17] A senior house officer is a doctor who has already completed one year of employment post-graduation.
[18] Sound generated by air blown though the nasogastric tube to determine placement in the gastrointestinal tract.
[19] Refers to some blockage of the nose or nasal cavity, and can be caused by a wide variety of problems.
[20] Perform fibreoptic nasendoscopy and laryngoscopy.
[21] The process by which a small fibreoptic camera on a thin flexible hose is inserted through the nostril to examine the back of the mouth.
[22] Examination of the patient's throat and larynx.

36. At 9.10pm, Baby A was seen by a nurse, who carried out observations and did not note any new concerns. The nurse noted that further suctioning cares were completed, and the overnight oximetry was started at 9pm.

Day 3

37. On this date, the on-call/duty consultant paediatrician was Dr D, and the on-call registrar was Dr E. The on-call/duty ENT consultant was Dr K.

38. Overnight at approximately 2.20am, Baby A was reviewed by a nurse. Ms A was feeling unwell, and asked the nurse to feed Baby A. The nurse noted that it was difficult to feed Baby A as he was "snorty and snuffly". Baby A was able to take 20mls via the bottle, and the remainder was fed through his nasogastric tube. Between 4.45am and 6am, Ms A requested further suctioning for Baby A. This was carried out with minimal secretions noted. Saline drops were also used. Observations were carried out and noted to be stable.

39. At 8am, an ENT registrar reviewed Baby A on his ward round. The registrar noted that Baby A had made some progress and was "up and down" overnight. The registrar documented that Ms A felt that Baby A was settling overall, and that "mum [was] tearful ++". The registrar documented that Baby A's oximetry tracing was "poor" and "difficult to interpret".

40. On examination, the registrar noted that although there was no increased work of breathing, Baby A was still "snuffly ++". The registrar's plan for Baby A's ENT management was:

> "1. Please let us know when [nasogastric tube] is out [and] we will scope in clinic ([Dr I])
> 2. Otrivin[23] …
> 3. Saline nasal drops prior to suctioning …
> 4. [Discuss with] [Dr G] re plan"

41. Waikato DHB's paediatric airway specialist, Dr G, told HDC that she was not in the region during the weekend of Baby A's admission, and to the best of her knowledge, she was not consulted during this admission.

42. At 10.50am, paediatric consultant Dr D examined Baby A again. She noted that Baby A had been seen by ENT and the plan was to "scope in clinic", that Baby A's grandmother was present, and that he was feeding well. Dr D recorded that Baby A was "still snorting when he lays down" and "better when lifted up". Dr D also noted: "[M]um very anxious — not sleeping well."

43. On examination, Dr D documented that Baby A was "settled" but "stridor heard". Dr D's impression was laryngomalacia. Her documented plan was:

[23] A medication used for temporary relief of congestion in the nose.

"Plan
1. For scope in ENT clinic
…
4. Cont[inue] Ranitidine
5. Feed little and often
6. [Weigh] before [discharge]"

44. At 2.20pm, a nursing student noted:

"[Baby A] has been settled this shift. Obs as charted. PEWS = 1 due to mild [work of breathing] with subcostal indrawing. Afebrile. … ENT scope tomorrow, yet to confirm time. … Mum expressed frustration … ? lack of suctioning nocte, however discussed with ENT team + happy to have 1–2 [hourly] saline nasal suction performed by grandmother as per medical team discussion. [Nasogastric] tube removed. Grandmother in attendance whilst mother is at [appointment]. Nil other concerns voiced."

45. At 9.15pm, a nurse reviewed Baby A and noted:

"Obs within [patient's] parameters … Taking small frequent feeds as per Nana. … Pamol given at mum's request as she stated [patient] distressed. Although [patient] appeared settled at the time, pamol given. Mum highly anxious + +."

Day 4

46. At 3am, a nurse reviewed Baby A and noted that his observations were stable and that Otrivin nasal spray had been applied to each nostril at 2am.

47. Some time after the nursing entry above, a doctor (name illegible) documented that an ENT ward round had occurred. The consultant working on this shift was Dr K. The ENT note stated:

"Doing better. Breathing good.

Plan
1. Stop otrivin drops
2. Continue saline drops as required"

48. At 9.50am, paediatric registrar Dr E reviewed Baby A during her registrar ward round. She noted normal observations and no new issues. She recorded that Baby A had been "seen by ENT" and was "not for scope at [this] point". She also documented that the ENT team was happy for Baby A to be discharged. Her plan following her ward round was:

"1. [Discharge] home
2. [Discuss with] ENT — ? otrivin drops
3. [Discuss with] Dr D — ? [follow-up] in [outpatient clinic]"

Decision not to "scope"

49. The Clinical Unit Lead for Child Health, Dr B, commented that where ENT investigations were to be carried out, this responsibility lay with the ENT team. Dr E was unable to recall how she received the information that ENT would no longer be carrying out a "scope" on Baby A. She advised that her usual practice in these circumstances would be to speak to the ENT team face to face or contact the ENT registrar via a telephone call to clarify the plan.

50. Dr D recollected that she spoke to Dr E at 10am. Dr E explained that Baby A was looking well and his observations were stable, and that ENT was happy to stop Otrivin and not to "scope" him. Dr D said that Dr E also advised her that ENT was happy to discharge Baby A.

51. The ENT Clinical Director, Dr C, told HDC that he has reviewed the records, and there is no information in the notes to indicate who made the decision not to "scope" Baby A, and why this decision was made.

Discharge

52. In Ms A's complaint to HDC, she reported that "ENT chose not to investigate and send a potential sick infant home".

53. Waikato DHB told HDC that Baby A's father and maternal grandmother were very clear that they were the key decision-makers during Baby A's admission. Waikato DHB stated that it acceded to the family's views, and believes that this practice was culturally and clinically appropriate. Therefore, with respect to the discharge arrangements, Dr D spoke to Baby A's grandmother. Dr D said that she discussed a child and youth health services review the following week, but Baby A's grandmother reassured her that they would seek help if needed. Dr D recalled telling Baby A's grandmother that if they were really worried, they should return to ED.

54. Dr D told HDC that the family "had been seen by ENT who said [Baby A] could go home". She recalled advising that she would check with ENT regarding the team's plan and follow-up, and would look at the second overnight oximetry and discuss it with ENT. Dr D said that she also mentioned that Baby A's weight would be checked before discharge. Dr D recalled that she spoke with the paediatric senior house officer, Dr F, and Dr F spoke to ENT registrar Dr H. At 10.30am, Dr F wrote:

> "Spoke [with] ENT reg[istrar] ([Dr H])
>
> 1. To continue [with] saline drops → keep refrigerated. To stop otrivin drops.
> 2. No plans for ENT clinic [follow-up]. Happy for GP to [review].
> 3. Aware of [Day 2] oximetry report. Aware of new oximetry — [Day 3] → lots of stops, have sent info to reg[istrar]
>
> → Currently no plan by ENT for further oximetry."

55. Dr F told HDC that he has no recollection of Baby A, his involvement in Baby A's care, or his telephone conversation with Dr H. However, Dr F stated: "I expect that my telephone call

to Dr H was a consequence of Dr E's management plan for the patient, and specifically to obtain ENT confirmation that the Otrivin should be stopped."[24]

56. Dr H recollected that Dr F called to ask for advice about the way the saline drops should be given, and told her that the patient was going to be discharged from the primary paediatric team. Dr H remembered saying that as she did not know the patient, she would check with her colleague, ENT registrar Dr I. Dr H relayed to Dr I that "the paediatric team had stated they were happy to discharge [Baby A] and were wondering if he required follow-up from ENT or if GP follow-up as had been written in the notes was sufficient". Dr H recalled that Dr I stated that follow-up with the GP was sufficient, and therefore she relayed this back to Dr F.

57. Dr H stated that her normal practice when dealing with paediatric patients with airway problems would be to make sure that the paediatric ENT consultant, Dr G, or, in her absence, the consultant on call, had seen the patient before discharge. In this instance, that was not the primary question that was asked of her. To Dr H's recollection, the question was about the saline drops, not discharge, as this decision had already been made on the ward round.

58. At 12.10pm, a nurse noted retrospectively that Baby A was settled and his observations were stable. The family were given saline drops to take home, and ranitidine was administered. The nurse documented that there were no new concerns, and Baby A left the ward with Ms A and his grandmother at 11.45am.

59. Dr D told HDC that during Baby A's period of admission, he improved. At the time of discharge, he had gained some weight and appeared clinically well. Based on the paediatric ward weights, Baby A weighed 4.855kg on Day 2 and 4.94kg on Day 3. Dr B commented, however, that he accepts that the service should be more assiduous in obtaining and entering available growth measures, including height/length and weight.

60. Dr D further reported that inpatient care from both Paediatrics and ENT was to assess Baby A's stridor and to "vigorously manage" his blocked nose with saline drops and Otrivin. The teams made progress with the blocked nose, so that the stridor seemed less of an issue.

61. Dr B added:

> "The clinical observations … suggest that [Baby A] was never severely clinically compromised, there was evidence of upper but not lower respiratory tract difficulties, and that these were largely confined to the nasal passages. [Baby A] never required oxygen therapy for respiratory support, his oxygen saturation records on the PEWS record were all in the normal range, and once his nostrils were being effectively cleared there was no increased respiratory effort."

[24] See Dr E's previous ward round note.

62. Dr B further stated:

> "As a general rule, we want patients to be in hospital only if there is a purpose to their admission … The available information supports the view that [Baby A] was not unwell, and that his clinical condition was improving, such that there was not a health reason to be in hospital."

Follow-up care

63. Baby A's discharge summary noted that he did "well on the ward", and when reviewed was cleared for discharge. Baby A's discharge plan was as follows:

> "1. Discharge home
> 2. Continue with nasal saline drops; not for further otrivin drops
> …
> 4. Please follow up with GP in 1 week for review
> 5. Medical certificates completed
> 6. If any concerns, please contact GP/return to hospital"

64. The ENT Clinical Director, Dr C, told HDC:

> "Particularly in retrospect, it might have been desirable for [Baby A] to be followed up electively in the ENT Clinic. However, in the circumstances, even if such follow-up had been arranged, because of his improved clinical situation, it is likely that ongoing conservative, expectant management would have been advised."

65. However, Dr C commented that an awake nasendoscopy at some stage, either as an inpatient or in follow-up, "would have been ideal".

Oximetry results: Days 2–3

66. In Ms A's complaint to HDC, she stated that Baby A had 36 desaturations[25] over a five and a half hour period as low as 76% and at least three minutes long.

First overnight oximetry from 1.50am to 5.25am, Day 2

67. Dr D reported the following results to HDC:

> "Breaks in data from 0200 to 0230 with feeding written on paperwork and saturations varying between 80–90%. No documentation of choking, coughing, aspiration or possible poor contact. Heart rate increased from 0315 to 0345 hours but saturations between 90 to 100%. Stable Heart rate then from 0345 hours. No concerns were documented in nursing notes. Report mentioned [Baby A] was awake most of the time."

68. Dr D explained that due to the breaks and gaps, none of the summary data on the front page of the report could be taken as accurate. Dr D's interpretation was based on the graphical summary page. Repeat oximetry was requested.

[25] A drop in oxygen levels.

Second overnight oximetry from Day 2, 8.47pm, and Day 3, 6.06am

69. Dr D reported the following results to HDC:

> "Three breaks in data 0215 to 0300 hours, 0345 to just after 0400 hours, 0500 to 0515 hours. No information on oximetry to explain reasons for gaps. At 0015 for 5 minutes and between 0415 and 0500 hours, poor signal or breaks. Remaining 5 hours of tracing [saturations] were between 95% to 97%. No clusters and occasional isolated dips to 91–92% which would be within normal limits awake or asleep for a child."

70. Dr D explained again that due to the breaks and gaps, none of the summary data on the front page of the report could be taken as accurate. Dr D's interpretation was based on the graphical summary page.

71. Dr B accepts that the overall responsibility for clinical decisions and management around the oximetry rested with the Paediatric Department, as the team that admitted Baby A. However, Dr B reported that neither of the oximetry tests were technically satisfactory, and he would not rely on them for clinical management.

Senior consultant oversight

72. The "SMO[26] responsibilities and the limits of the delegation of responsibility to RMOs[27]" policy[28] states that the SMO is ultimately responsible for all patients seen or admitted by their RMOs, and the SMO must ensure that he or she is kept reasonably informed regarding the condition of those patients. The policy also outlines that RMOs have a professional responsibility to remain within their area of competence, and to seek assistance when required. The policy states that some SMO responsibilities cannot be delegated to RMOs. This includes the review of a patient when an SMO opinion has been requested by another SMO.

73. Dr B told HDC that the public hospital has "a clear rule" that all acute admissions be reviewed by the admitting consultant within 24 hours (at the very latest) of admission. Dr B commented that in Baby A's case, there was potential ambiguity, as it is clear that Dr D requested an ENT consultation, but this was communicated by a paediatric senior house officer to an ENT registrar. Dr B is unsure whether it was understood that this request was from an SMO, and whether the ENT registrar understood the relevance of this point.

74. In Dr B's view, the SMO responsibility policy should be reviewed, with specific focus on ensuring that:

(i) There is clarity (in a situation where an SMO has requested the consultation) that this requires a formal opinion from the requested consultant;

(ii) Assumptions about the responding consultant's involvement and views are clarified (whether the consultant saw the patient, whether the consultant's opinion was based solely on relayed information).

[26] "Senior Medical Officers" is a term that covers consultants/specialists.
[27] "Resident Medical Officers" is a term that covers house officers and registrars.
[28] Effective date: 29 July 2015. Expiry date 29 July 2018.

75. Regardless, Dr B considers that where there is ambiguity or concern about the opinion, further SMO-to-SMO discussion should ensue.

76. Dr C advised HDC that registrars have been reminded of the need to telephone consultants about ward consultations, and to document the discussion.

Subsequent events

77. Following discharge, Baby A received some care from two medical practices. Sadly, Baby A passed away. The coronial autopsy report documented the cause of death to be respiratory failure.

Further information

Waikato DHB

78. Waikato DHB told HDC that there is additional and pertinent information that was not properly documented in Baby A's clinical record at the time, in particular details of conversations with Baby A's family. Waikato DHB acknowledged that key decision points could have been documented more clearly.

79. Waikato DHB completed a review of Baby A's care through an ACC Treatment Injury Event Notification Feedback Form. The review noted the following:

- Baby A was admitted with a blocked nose/viral upper respiratory tract infection but this was not documented on the discharge summary.
- ENT advice was appropriately sought but there was no consultant-to-consultant communication between ENT and Paediatrics.
- Prior to discharge, Baby A's overnight saturations were monitored but were not documented. Baby A's discharge weight was checked but also not documented.
- Better and accurate documentation by both medical and nursing staff will ensure that there is evidence of appropriate care provided.
- Complete and careful documentation is essential.
- Better communication between different hospital specialties, especially when seeking an opinion from another specialty, is essential.

80. Waikato DHB told HDC that having scrutinised this case, it acknowledges that there are lessons to be learned, particularly around communication and documentation. Waikato DHB reported that when it initially became aware of what happened to Baby A, it did not conduct a review of the case in a systematic way, and did not learn everything it could.

81. Waikato DHB advised that in recognition of the issues relating to communication and documentation, it has formalised the relationship between Paediatrics and ENT medical staff to address coordination of care. Dr B added that the public hospital now uses a shared Paediatrics/ENT form to ensure good documentation of care plans for children with

any airway queries. The public hospital now also ensures that consultant-to-consultant communication occurs whenever there is shared care, or the opinion of another specialty is sought for a patient.

82. The ENT Clinical Director, Dr C, reported to HDC that since this incident, Waikato DHB has begun selectively auditing ward round notes and discharge summaries with the aim of improving the quality of documentation and communication.

ACC

83. ACC obtained external clinical advice from a paediatrician. He noted:

> "[B]ased on the overnight oximetry and poor weight gain, further investigations should have been undertaken to determine the severity; either by repeating the overnight oximetry studies or referring [Baby A] for a sleep study …"

Responses to provisional decision

Ms A

84. Ms A was given an opportunity to respond to the "information gathered" section of the provisional decision. Ms A did not provide a response.

Waikato DHB

85. Waikato DHB was given an opportunity to respond to the provisional decision. Where relevant, Waikato DHB's response has been incorporated into this report.

86. Waikato DHB accepted that the documentation for the treatment and care of Baby A was inadequate in parts and that it failed to demonstrate compliance with its own policy to ensure that an ENT SMO was consulted during Baby A's admission. It unreservedly apologises for this oversight in Baby A's care.

Opinion: Waikato District Health Board — breach

Introduction

87. I have a number of concerns about the service delivered to Baby A by Waikato DHB. My decision has been guided by my clinical advisors, paediatrician Dr Jeffrey Brown and ENT specialist Dr Chris Thomson. I also acknowledge that Waikato DHB's consultant paediatrician, Dr D, has submitted her own independent clinical advisor report from Dr L, which I have also considered. I note that Dr L has advised that he agrees with much of Dr Brown's and Dr Thomson's opinions, and considers that differences in views "are qualitative rather than absolute".

88. Baby A, three months old at the time, was admitted to the public hospital following a referral from his GP. During Baby A's admission, it was noted that he had a chronic snuffly nose. The inspiratory noise seemed worse when he was lying down and after feeding. Dr Brown advised that the initial diagnosis of laryngomalacia and maternal exhaustion was

"entirely appropriate", and the decision to admit Baby A, to monitor with oximetry, prescribe ranitidine, and consider ENT review was "good care and accepted practice". I accept this advice. I have no concerns about the initial care provided to Baby A upon admission.

Adequacy of assessments and tests during admission

Decision not to "scope"

89. Shortly after Baby A's admission and following a referral from the Paediatrics team, the ENT team reviewed him. At the first ENT review by registrar Dr I on Day 2, it was documented that Baby A was to have a "scope" (awake flexible fibreoptic nasendoscopy and laryngoscopy); however, this was cancelled on Day 4. Waikato DHB is unable to tell HDC who made this decision and why, but considers that Baby A appeared to be improving.

90. Dr Thomson advised that infants presenting acutely with feeding difficulties, respiratory distress, and episodes of desaturation, and who present to hospital or outpatients with nasal obstruction symptoms and intermittent inspiratory stridor, would typically undergo awake flexible fibreoptic nasendoscopy and laryngoscopy as a diagnostic procedure at the bedside or in the outpatient clinic.

91. In Dr Thomson's opinion, the decision not to "scope" represented a "moderate departure" from accepted practice. Dr Thomson advised:

> "I would consider a bedside awake flexible fibreoptive nasal endoscopy to be a standard practice in New Zealand in a major paediatric centre … [T]here are no formal guidelines on this but this is the standard of care and pattern of practice that I was accustomed to during my fellowship at the Royal Children's Hospital in Melbourne and was my continued standard of practice in Paediatric Otolaryngology at Christchurch Hospital."

92. Dr Thomson added that it would have been reasonable to defer the examination as long as a definitive plan was in place for follow-up in otolaryngology outpatients, booked within approximately 2–4 weeks.

93. Dr L advised that laryngomalacia can only be definitively diagnosed by direct visualisation via endoscopy. Dr L agreed that endoscopy was indicated and "may be viewed as an expected standard of care". However, he also considered that it was acceptable to actively decide not to proceed with this investigation if symptoms were mild, but that Baby A was "not for now" rather than "not for endoscopy ever".

94. Dr Brown helpfully added:

> "The timing and urgency may be debated, but the undertaking [of a] laryngoscopy, particularly in Waikato DHB which has a specialist paediatric ENT service on site, should not have been an issue."

95. I am critical that a "scope" did not occur, either in hospital or shortly after discharge at an outpatient clinic. I am mindful of Dr L's comment that if symptoms were mild, an *active* decision could be made to not proceed. However, as the facts indicate, Waikato DHB is not able to identify who made the decision not to "scope", nor can it provide me with the clinical reasoning for this decision. In such circumstances, it is unclear whether an "active" decision was made. I also note that Dr L considered that if Baby A was "not for endoscopy" now, this did not mean "not for endoscopy ever", and that, as stated above, no arrangements were made for endoscopy at any time.

96. In response to my provisional decision, Waikato DHB accepted that the "scope" was not performed in hospital, but stated: "[W]e presume that it was because [Baby A] was clinically well … therefore, there were no clinical indications to perform a nasopharyngoscopy."

97. I have considered Waikato DHB's submission; however, being guided by Dr Thomson, I do not agree that there was no clinical indication to perform nasopharyngoscopy. I note Dr L has advised that laryngomalacia can only be definitively diagnosed by direct visualisation, and Dr Thomson advised that not performing a "scope" would be considered a moderate departure from accepted standards. I accept this advice.

Discharge

98. Baby A was discharged back to his GP on Day 4.

99. Dr Brown concluded that the decision to discharge Baby A on Day 4 was "without due consideration of the abnormal oximetry, without arranging investigation by laryngoscopy, without close follow up of maternal coping and without paediatric review". In Dr Brown's opinion, the decision to discharge Baby A was "at least a moderate if not serious departure" from accepted standards.

100. Dr Thomson advised that a review of the notes suggests that Baby A had improved clinically, and that a decision to discharge could have been considered. However, in Dr Thomson's opinion, Baby A "ideally should not have been discharged until the cause of his upper airway obstruction had been diagnosed". Dr Thomson considered this to be a "moderate departure" from the accepted standard of care.

101. Dr L's opinion differs from that of Dr Brown and Dr Thomson. In Dr L's view, it was reasonable to discharge Baby A in the circumstances. Dr L advised:

> "[A]n inpatient stay ought [to] have a very specific purpose … When its purpose has been achieved, if the child requires no monitoring or intervention that can only be provided as an inpatient, and when education and follow up arrangements are in place, it is appropriate they be discharged."

102. There does not appear to be agreement on whether discharge was reasonable in the circumstances. However, as discussed below, I note that all agree that discharge follow-up arrangements were not adequate.

Paediatric and ENT follow-up care

103. Dr Brown advised that in the context of diagnosed laryngomalacia, with abnormal oximetry during feeding and clear maternal exhaustion and anxiety, "a minimum standard of care would be to organise specialist paediatric review and follow-up of expected investigations". Dr Brown concluded that this departure from accepted practice was "moderate".

104. Dr Thomson advised:

> "The problem here is that this child left hospital without an [ENT] review and diagnosis of the cause of his noisy compromised breathing and with no plan for further [ENT] follow up unless his status deteriorated … [T]here should have been a plan in place for the Otolaryngology service to examine this child at some stage."

105. Dr Thomson considered that given the absence of a confirmed diagnosis at discharge, it made the need for ENT follow-up post discharge "even more pressing". He considered Baby A's management in this respect to be a "moderate departure" from accepted standards.

106. Dr L agreed with Dr Brown and Dr Thomson that specialist follow-up (either ENT and/or general Paediatrics) "ought to have been scheduled" within 4–6 weeks.

107. In response to my provisional decision, Waikato DHB reiterated that a number of "distinct proposals for follow-up by Paediatric Medicine were made to the family on discharge", including admission to a residential assessment and education unit and review at child and youth health services, but these were declined. In this report I have noted that these follow-up care options were offered; however, they do not address my advisor's comments that they would have expected follow-up investigations into the cause of Baby A's noisy compromised breathing. I note that Dr Thomson and Dr Brown considered this to be a moderate departure from accepted practice, and I accept this advice. As such, it is my view that Baby A should have received follow-up care from ENT and/or Paediatrics, and I am critical that this did not occur.

Documentation and advice at discharge

108. Waikato DHB acknowledged that additional and pertinent information was not properly documented in Baby A's clinical record. This included a lack of clear documentation at key decision points.

109. In addition, Dr L commented that where no formal specialist follow-up is scheduled (as in this case), the follow-up with the family and GP should be significantly strengthened by explicit advice beyond vague advice to re-refer to Paediatrics if concerned. In Dr L's opinion, the discharge plan ought to have had the following documented:

- General safe sleep advice
- Monitoring of weight gain (e.g., weekly weight with GP), feeding, and swallow
- Guidance around respiratory signs that ought to result in emergency presentation.

110. In Dr L's view, "better communication with [Baby A's] general practitioner … ought to have occurred regarding the assessment performed, his current status, current management and future expectations". Dr L advised that the discharge summary "which serves as a summary of this admission, [Baby A's] immediate health status and handover of care to primary health was … poor".

111. I agree with Waikato DHB that documentation was poor around key decision-making points. In particular, there is either a lack of, or poor, documentation on decision-making around the cancellation of the "scope", and Baby A's discharge and the lack of specialist follow-up care. Complete and accurate documentation is important in ensuring good continuity of care. I am concerned that the poor documentation in this case, for example around the decision not to "scope", contributed to Baby A's discharge with inadequate follow-up arrangements and safety-netting advice.

112. I am also thoughtful of Dr L's concern that the discharge summary — an important means of communication between tertiary and primary care — could have been more robust to ensure a seamless handover of care.

Senior consultant oversight

113. Waikato DHB's policies around SMO responsibilities provide that where an SMO opinion has been requested by another SMO, this review cannot be delegated to an RMO. It is not disputed that consultant paediatrician Dr D requested ENT review for Baby A. However, the clinical documentation shows that Baby A was reviewed by an ENT registrar. Reference is made in the clinical notes that ENT specialist Dr G was to be consulted; however, Dr G told HDC that she was not in the region during the weekend of Baby A's admission and, to the best of her knowledge, she was not consulted during this admission.

114. Dr Thomson noted that from his review of the clinical records, it does not appear that Baby A was reviewed directly by a consultant ENT specialist during his admission. Further, Dr Thomson noted that although there may have been extensive discussion between the registrar and the consultant, this was not documented. Dr Brown commented that it is highly relevant in cases such as this "who calls the shots", and whether RMO consults occur without SMO knowledge or accountability. This is particularly true around decisions on discharge and follow-up, as this is critical to good patient care.

115. In my opinion, there were some suboptimal features in lines of clinical decision-making around Baby A's management. I am critical that Baby A was not reviewed by an ENT SMO in compliance with Waikato DHB's internal policy. It is also concerning that when consultant paediatrician Dr D requested an ENT review, staff were unaware that this was a request for a consultant-level review. Lastly, it is unclear to me whether or not there was any form of consultant or specialist ENT input into Baby A's management.

Conclusion

116. In my view, Baby A did not receive services with reasonable care and skill, for the following reasons:

- A "scope" did not occur in hospital or shortly after discharge at an outpatient clinic.

- Baby A did not receive consultant-level ENT review, even though this was requested by the Paediatrics team. In addition, it is unclear whether there was any form of senior ENT input into Baby A's management.

- There was poor documentation around key decision-making points, including the decision not to "scope" and the decision to discharge. A number of staff across both the Paediatrics and ENT teams documented their care poorly.

- Baby A was discharged without a formal diagnosis or a plan for specialist follow-up care, either with ENT or Paediatrics.

117. Accordingly, Waikato DHB failed to provide services to Baby A with reasonable care and skill, and therefore breached Right 4(1) of the Code of Health and Disability Services Consumers' Rights.

Management of oximetry results — adverse comment

118. Waikato DHB carried out two overnight oximetry tests on Baby A during his admission; however, both returned unreliable results. These results were reviewed by both the Paediatrics and ENT teams. Although the independent advisors differ in their opinion on what the oximetry results show, there is a general consensus that both studies were of poor quality, evidenced by breaks and gaps in the data.

119. Dr Brown advised that the oximetry information should have been correlated with the clinical history and observations, and led to further investigations of the airways, either during the admission or shortly after discharge. While these investigations were occurring, Dr Brown would have expected at least a further oximetry study with close attention to the recording during feeding, both at night and in the daytime when more clinical staff were present. He commented that if further investigations were not possible during this admission, he considers that it would have been prudent to arrange an oximeter monitor at home.

120. Dr Brown noted:

> "[I]t appears that it may have been unclear who was to review and make clinical decisions about the oximetry recordings … However the admitting Consultant was the Paediatrician, so the final responsibility was on them and their team to use the investigation, namely the two oximetry studies, to make decisions on investigation and management."

121. Dr Brown considers that the Paediatric team's failure to carry out further investigations departed from accepted practice, and that this was "of moderate significance".

122. Dr L noted that the oximetry studies "ought neither alarm nor reassure". He also observed that Baby A was not entirely asymptomatic, and did not have normal routine observations — he had intermittent noisy breathing, snorting, snuffliness, feeding difficulties,

intermittent mild respiratory distress, and a PEWS between 0 and 1. Given this and the oximetry results, Dr L advised that "given the relative ease of repeating [oximetry] studies as an inpatient or in the community, I would have discussed the merits of repeating them".

123. In response to my provisional decision, Waikato DHB advised that it disagrees that any follow-up oximetry tests were required on the clinical information available. It explained that in the clinical context in which Baby A presented (nasal congestion), continuous pulse oximetry for the purpose of determining severity of laryngeal or tracheal narrowing would have been an inappropriate investigation, as the nasal obstruction would have confounded any interpretation. If there were ongoing concerns of clinical compromise due to significant laryngeal or tracheal narrowing once the nasal passages were patent, that investigation might then become appropriate.

124. I have considered the advisor commentary around the oximetry studies, as well as Waikato DHB's response to my provisional decision. I remain thoughtful that there did not appear to be further consideration of the merits of repeat oximetry. I note Dr L's comment that oximetry "is not a standard of care in such circumstances but I would nevertheless see it as of some value".

Recommendations

125. I recommend that Waikato DHB:

a) Provide a written letter of apology to Baby A's family for its breach of the Code. The apology should be provided within three weeks of the date of this report, for forwarding to Baby A's family.

b) Provide HDC with a progress report on its consideration of the use of the Paediatrics/ENT shared care form,[29] within three months of the date of this report.

c) Report back to HDC on the progress and/or completion of the actions Waikato DHB advised in the ACC Treatment Injury Event Notification Provider Feedback Form that it would take to reduce the risk of similar events. Waikato DHB is to report back to HDC within three months of the date of this report.

d) Provide HDC with a written policy or internal guidelines on continuous pulse oximetry investigations, within three months of the date of this report. Waikato DHB should consider whether such policy requires wider disciplinary consultation.

e) Report back to HDC on how infant weight, height, length, and head circumference are currently recorded effectively at each admission, and whether Waikato DHB has

[29] See Waikato DHB's letter to HDC dated 22 February 2018.

considered the use of growth charts to record and plot infant growth. Waikato DHB is to report back to HDC within three months of the date of this report.

f) Carry out an audit of 50 child presentations to the public hospital, where care is shared between Paediatrics and ENT, to ensure that:

- There has been appropriate consultant-to-consultant communication; and
- The clinical documentation is adequate.

Where the results do not reflect 100% compliance, Waikato DHB should consider and advise HDC on what further improvements could be made to ensure compliance. Waikato DHB is to report back to HDC within six months of the date of this report.

Follow-up actions

126. A copy of this report will be sent to the Coroner.

127. A copy of this report with details identifying the parties removed, except Waikato DHB and the clinical advisors who advised on this case, will be placed on the Health and Disability Commissioner website, www.hdc.org.nz, for educational purposes.

Appendix A: Independent paediatrics advice to the Commissioner

The following independent clinical advice was obtained from Dr Philip Brown:

"My name is Dr Philip Jeffrey Brown. I have been asked to provide advice to the Commissioner on this complaint reference C16HDC01663.

I have read and reviewed the Commissioner's Guidelines for Independent Advisors. There is no personal or professional conflict in this case.

I qualified MBChB from University of Auckland in 1982, Diploma in Obstetrics in 1983 and FRACP (Paediatrics) in 1992. I have worked as Consultant Paediatrician at Palmerston North Hospital for 25 years since 1992 including neonatal care in a Level 2A Neonatal Unit. I have a special interest in paediatric respiratory medicine. I have looked after many infants with various degrees of laryngomalacia, from those with mild noisy breathing through to those receiving surgical intervention. I routinely review and report on overnight oximetry studies for infants and children conducted at home and in hospital.

I have examined the documents provided, namely HDC website complaint submission dated […], further letter dated 15/11/16, responses from [Dr D] dated 12/12/16, from [the Director of Surgical and Critical Care] dated 19/12/16 containing response from [Dr C], Clinical Director ENT, clinical notes from ambulance officers, emergency department, maternity, postnatal, and paediatric wards, midwifery, the oximetry recording from [Day 2], the post-mortem autopsy report, the written and typed records of [two meetings with family].

I have been asked to provide an opinion on whether the care provided to [Baby A] by Paediatric staff at Waikato DHB was reasonable in the circumstances, and why.

In particular, I have been asked to comment on:

1. [Baby A's] paediatric management during his admission to the public hospital, including the adequacy of the assessments and tests carried out.

2. The oximetry printouts and form my own opinion on what they show.

3. Whether further investigations should have been undertaken during [Baby A's] admission.

4. The appropriateness of the decision to discharge on [Day 4].

5. The appropriateness of the follow-up plan.

6. Any other matters in this case that I consider warrant comment.

I have been asked not to comment on [Baby A's] ENT care, his cause of death or whether management would have changed the outcome.

[...] It is clear that [Baby A's] tragic death has raised many questions of possible cause and effect, and different interpretations of possible investigation and management options that his family consider could have prevented his death.

[Baby A's] paediatric management during his admission to the public hospital, including the adequacy of the assessments and tests carried out.

The clinical history at admission has two key features: a) noisy breathing since birth, worse with feeding and supine position and deep breaths, getting worse and b) mum not sleeping well for several nights, appearing 'very exhausted and anxious'.

Clinical examination confirmed inspiratory stridor, worsening when crying.

The initial diagnosis of laryngomalacia and maternal exhaustion are entirely appropriate. The decision to admit, to monitor oximetry, to prescribe ranitidine, and to consider ENT review are good care and accepted practice. Ranitidine to reduce gastric acid production is standard practice for management of laryngomalacia in many institutions, in an effort to reduce acid reflux and possible aspiration, although it is now known that gastric acid suppression in infants is associated with a two to three-fold increased risk of pneumonia and gastroenteritis.

Although there appeared to be discussions with [Baby A's] grandmother during the admission, there is no documentation of serious addressing of maternal exhaustion, her ability to cope with an infant having difficulty breathing with reported episodes of going blue, and with multiple presentations to general practice leading to anxiety over lack of medical concern for her infant.

I would have expected either a more prolonged admission until a clear picture of infant wellbeing (or otherwise) and of maternal coping could be established, or failing that, arrangements for close home visiting and follow-up from such as a Children's Homecare nursing team, rather than discharge to the community. The discharge summary states 'please follow up with GP in 1 week' but apart from noting a faxed referral for an 'ECHO' there is no hospital follow-up arranged.

I consider, in the context of diagnosed laryngomalacia, with abnormal oximetry during feeding (see below), and clear maternal exhaustion, anxiety, and seeking multiple medical assessments, that a minimum standard of care would be to organise specialist paediatric review and follow up of expected investigations.

This departure from accepted practice is moderate. I have tempered this opinion as moderate rather than severe due to the ambiguity over the arrangement for 'scope'.

The question whether [Baby A] was 'failing to thrive' with weight not progressing has been referred to several times in the complaint and family meetings. There is no growth chart in the clinical record, or any recording of his weight percentile in the admission or subsequent notes. I would expect any infant admitted to hospital to have, at minimum, their weight and length (and head circumference) recorded

including percentiles. This should occur whether or not growth is charted on graphs. If this had occurred, the question of whether or not [Baby A] was failing to thrive, and therefore warranted more intervention, would have been clearer. I find this a moderate departure from accepted standards of care.

The oximetry printouts and my own opinion on what they show.

The first oximetry study was for 3.5 hours in the early morning of [Day 2] using a Masimo Radical-7 with which I am familiar, set to 2 second resolution, and analysed by Profox software which I am also familiar with. The comments note 'child was awake most of the time'.

The first part of this study has periods that have been edited out, and it is written that [Baby A] was feeding until 02:30. During feeding, from 02:00 to 02:20, there is a good heart rate tracing and repeated saturation recordings as low as 80% or less, and the average saturation over this 20 minutes is less than 90%. These are not explained by heart rate changes nor poor contact. Later in this brief recording there are some brief desaturations in the 90's which are normal for his age.

The desaturations during feeding are abnormal, and while there is no nursing record of colour change, these should have raised concern. There is no comment in the clinical notes of these desaturations, or their relation to feeding.

The second oximetry study was for 9 hours from almost 21:00 on [Day 2] to 06:00 on [Day 3]. There has been just over 2 hours edited out of this study, possibly but not certainly because of poor tracing. The only report I can find in the clinical notes is on [Day 4] about discussion with an ENT Registrar who is 'aware of [Day 2] oximetry report. Aware of new oximetry [Day 3] lots of stops.' I do not know what is meant by 'lots of stops' and cannot find any other report in the notes, other than an ENT Registrar note on [Day 3] 'poor tracing, difficult to interpret.'

This recording has several periods of poor probe contact evidenced by a step down to a lower heart rate (eg after 04:20 until almost 05:00). Although the recording suggests low saturations in the 80's and a lot of swinging, the normal heart rate response would be a rise, not drop, so these saturations are artefacts, ie not accurately low. I would not consider the recording after 04:00 useful or informative.

However, during the earlier portion from 21:45 until 02:00 there is a steady saturation averaging 96% for several hours, which gradually rises to higher saturation 97–98% later in the recording. I consider that these sustained slightly low saturations are at the lower end of what could be considered normal for a 3 month old infant.

Almost all the desaturations recorded into the 80's are related to poor probe contact and are not significant. Note that it is critical to look at the graphs rather than the automated software printout listing possible desaturations. This printout list is used to alert which parts of the graph (and the original recording) should be examined for

quality of recording and any clinical report of wake, sleep, feeding, breathing difficulties, or other observations. There was no clinical record of any events.

Combining the low trend recorded during the second study, and the very concerning desaturations during feeding at the start of the first study, I consider that there should have been clinical concern that [Baby A's] breathing could have been compromised, especially during feeding.

I consider that this oximetry information should have been correlated with the clinical history and observations, and led to further investigation of the airways, either during the admission or shortly after discharge. While these investigations were occurring I would have expected at least a further oximetry study with close attention to the recording during feeding, both at night and in daytime when more clinical staff are present. If further investigations were not possible during this admission I would have considered it prudent to arrange for an oximeter monitor at home.

It appears that it may have been unclear who was to review and make clinical decisions about the oximetry recordings, the ENT or Paediatric team. However the admitting Consultant was the Paediatrician, so the final responsibility was on them and their team to use the investigation, namely the two oximetry studies, to make decisions on investigation and management.

I consider their failure to do so a departure from the standard of care or accepted practice, of moderate significance.

Whether further investigations should have been undertaken during [Baby A's] admission.

In the clinical record it is stated that [Baby A] was to have a 'scope' conducted by the ENT service. Based on the history and clinical examination, this investigation was entirely appropriate to look directly for laryngomalacia and to judge its severity. I consider that this 'scope' should have been performed before his discharge, and if it would take a few days to organise, to delay his discharge until it was performed.

It is unclear from the notes, or from the investigations recorded in the family meetings, why this 'scope' was cancelled and by whom.

The timing and urgency may be debated, but the undertaking laryngoscopy, particularly in Waikato DHB which has a specialist paediatric ENT service on site, should not have been an issue.

I consider this failure to arrange laryngoscopy a serious departure from accepted practice.

The appropriateness of the decision to discharge on [Day 4] and the appropriateness of the follow-up plan.

The decision to discharge on [Day 4], without due consideration of the abnormal oximetry, without arranging investigation by laryngoscopy, without close follow-up of maternal coping, and without paediatric review, especially with clear documentation that there are 'no plans for ENT clinic F/U', is surprising to me. I would expect that a three month old infant with the history and findings, let alone the prenatal history, would have warranted close outpatient monitoring and early outpatient clinic review, if indeed they were to be discharged before laryngoscopy and a clear management plan was in place (other than 'if any concerns, please contact GP/return to the hospital').

Any other matters in this case that I consider warrant comment.

It is clear from extensive review and cross-referencing statements in the complaint, the records of family meetings, and the contemporaneous records, that perceptions about attitudes of staff have been weighing heavily on [Baby A's] family. I am unable to comment or judge these perceptions, and have taken care to limit my advice to the facts as documented. I have also attempted to make my judgements without retrospective knowledge of the tragic outcome, but based on what I and my peers would expect in the circumstances as presented at the time of hospital admission.

Nevertheless, it is obvious that [Baby A's] mother had serious problems during her pregnancy with pain, concern that the medications she was prescribed for pain would affect her fetus, and that she expressed strong desire for intervention to deliver [Baby A] early despite the risks of prematurity. She also self-discharged from the postnatal facility and [Baby A] subsequently showed signs of withdrawal from her narcotic pain medication, with difficulties feeding and establishing normal baby routines.

It is very easy to have bias in medical assessment and management of infants if their mother has been on opiate medication, has had chronic pain, has sought multiple help and interventions such as seeking delivery when extremely premature at 28 weeks. I am not judging that such bias occurred in this case. On the contrary, I advise that this background, combined with the multiple general practice visits with concerns for [Baby A's] breathing and growth, should normally lead to erring on the side of longer admission, more careful assessment of both clinical severity and maternal coping, and a lower threshold for investigating to 'rule in' or 'rule out' need for surgical or other interventions.

I recommend that Waikato DHB review:

The use of growth charts to record and plot infant growth at each admission.

The reporting on oximetry recordings — who reports, who advises action, and where in the clinical notes this report is recorded.

> Clear documentation of who orders, and who cancels orders for, investigations, especially when more than one department is involved.
>
> Their processes for senior decision making when more than one department or specialty is involved or consulted in the care if inpatients.
>
> Their processes for 'flagging' admissions when there have been multiple general practice visits for the same problem.
>
> Their approach to and support, such as social work and maternal mental health, for mothers noted to be exhausted and anxious about their infant's wellbeing.
>
> Whether it is prudent to consider instituting a system whereby any family or whānau can 'trigger' a review of a patient if they feel they have concerns that are not being acted on.
>
> Thank you for the opportunity to review this case. It has given me cause to reflect on practices and procedures in our department and any areas for improvement."

The following further independent clinical advice was obtained from Dr Brown:

> "I would consider [the discharge and follow-up plan] to be at least a moderate if not serious departure from accepted standards.
>
> Whether that departure from accepted standards is purely a Paediatric responsibility is at the heart of this matter. The infant was admitted 'under' a Paediatric Consultant, so the final responsibility rests with them. However, it is apparent that a number of decisions, recorded in the notes or otherwise, were made by members of the ENT team, and hence some responsibility must lie with them, and their supervision for those decisions.
>
> I was instructed not to comment on the standards of care by the ENT team.
>
> Nevertheless it is highly relevant 'who calls the shots' in cases such as this and 'corridor consults', RMO consults without SMO knowledge or accountability, and especially decisions on discharge and follow up, are critical to good patient care."

Appendix B: Independent otolaryngology advice to the Commissioner

The following independent clinical advice was obtained from Dr Christopher Thomson:

"I have been asked to provide an opinion to the commissioner on case number C16HDC01663. I have read and agreed to follow the commissioner's guidelines for independent advisors.

I am an Otolaryngologist, Head and Neck surgeon based in Christchurch. I undertook a postgraduate fellowship in Paediatric Otolaryngology at the Royal Children's Hospital, Melbourne in 1999. I have practised at the CDHB as a Paediatric Otolaryngologist from 2001 to 2016.

I have been asked by the Health and Disability Commissioner to review documentation relating to the above case and to provide an opinion as to whether I consider that the care provided to [Baby A] by ENT staff at Waikato DHB was reasonable in the circumstances and why.

In particular, I have been asked to comment upon the following matters:

1. [Baby A's] ENT management during his admission to the public hospital, including the adequacy of the assessments and tests carried out.

2. To review the oximetry printouts and to form an opinion on what they show.

3. To comment whether further investigation should have been undertaken during [Baby A's] admission.

4. To comment on the appropriateness of the decision to discharge the patient on [Day 4].

5. To comment on the appropriateness of the followup plan and in particular the decision not to have ENT followup.

6. To comment on any other matters in this case which I consider warrants comment.

For each of the above questions I have been asked to advise the following:

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

b) Whether there has been a departure from the standard of care or accepted practice and 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 the future.

I have formed an opinion based upon documentation provided by the Health and Disability Commissioner that includes a letter of complaint by the family of [Baby A], a letter of response from [the] Director of Surgical and Critical Care, a letter of response from [Dr D], Paediatrician and a full copy of the hospital notes and oximetry records of the deceased. I have also been provided with and have reviewed the findings of [the] Regional Forensic Pathologist who has submitted a coronial autopsy report.

[Baby A] was admitted acutely to the public hospital under the care of the Paediatric Department following his presentation to the Emergency Department on [Day 1] at 2205 hours. He had presented for admission following referral by his [general practitioner] with a provisional diagnosis of laryngomalacia with a preceding history of several months of noisy breathing, that was more marked during his sleep and worse in certain positions. An ENT referral had already been apparently made for an outpatient review.

The admission findings are documented in detail in [Dr D's] account with a history of inspiratory stridor that had been worsening since birth and also chronic nasal snuffliness and obstruction with periodic respiratory distress and other times periods of relative calm and quiet breathing. Initial examination demonstrated mild respiratory distress but 100% saturation on room air.

Following admission to the paediatric ward, oximetry was performed and in view of a presumptive diagnosis of laryngomalacia and nasal obstruction he was started on antacid therapy and also was administered nasal saline drops to assist with thick sticky nasal secretions. Suctioning of the nose was also performed on a number of occasions.

On the day following admission an ORL review was requested and the patient had contact with the ORL team at 1435 hours on [Day 2]. The ORL team requested a lateral neck xray and at 1700 hours, [Dr I], ORL registrar, examined the patient and noted a snuffly blocked nose, 99% saturation on room air and no increased effort of breathing. At this point a provisional diagnosis was of nasal or nasopharyngeal obstruction, with or without superimposed laryngomalacia. The recommendation at this time was to continue saline drops and to perform awake fibreoptic nasendoscopy and laryngoscopy in the Otolaryngology outpatient clinic the following day. During the first day of admission a nasogastric tube was passed by staff via each nostril, excluding choanal atresia.

Overnight oximetry was performed on the first two nights of admission and was complicated by breaks in recording, rendering interpretation of apparent desaturations difficult. Following ORL review on the morning of [Day 3] there was an apparent plan to discuss the case with [Dr G], Otolaryngologist although I cannot see a written reference to this in the clinical notes.

On [Day 4] a morning ward round by the ORL team noted a clinical improvement with 'breathing good' and there was advice given to stop otrivin drops and to continue

nasal saline drops. Further consultation by the paediatric SHO later that morning with ORL registrar [Dr H] indicated no plan for further ORL outpatient follow-up, with the ORL team deeming General Practitioner follow up and review sufficient. There was no further request from the ORL team for repeat oximetry despite the difficulty interpreting the previous two nights' oximetry results due to technical deficiencies in the recordings.

During the child on patient care the chest was repeatedly auscultated by the paediatric team with no indication of lower airway noise. A chest x-ray and lateral soft tissue x-ray of the neck recorded on [Day 2] demonstrated the nasogastric tube [in situ] and noted clear lung fields and no soft tissue abnormality in the neck.

[Twenty-four days following discharge] [Baby A] was found deceased and a coronial autopsy report concluded that the likely cause of death was due to congenital laryngomalacia associated with acute bronchopneumonia, probably viral.

With respect to the expert advice requested;

1. [Baby A's] ORL management during his admission to the public hospital including the adequacy of the assessment and tests carried out:

[Baby A] was attended by the ENT team within a short time of admission following referral by the paediatric team and was examined at the bedside on a number of occasions. Awake flexible fibreoptic nasendoscopy and laryngoscopy was initially recommended but not carried out, in part due to the apparent clinical improvement of the infant over the two days following admission.

In my opinion this represents a moderate departure from the standard of care/accepted practice. Infants presenting acutely with feeding difficulties, respiratory distress and episodes of desaturation and who present to hospital or outpatients with nasal obstruction symptoms and intermittent inspiratory stridor would typically undergo awake flexible fibreoptic nasendoscopy and laryngoscopy as a diagnostic procedure at the bedside or in the outpatient clinic.

Without this investigation one cannot determine the cause of nasal obstruction which may be due to a number of congential nasal or nasopharyngeal conditions, nor can one make a diagnosis of laryngomalacia. While the history was strongly suggestive of laryngomalacia this diagnosis requires direct endoscopic examination of the larynx in an awake patient to confirm this suspicion. This is a relatively straightforward procedure that can be performed at the bedside using topical nasal spray for local anaesthesia. Without this examination, any diagnosis is speculative. It would be considered standard practice in New Zealand, particularly in a major paediatric centre for this examination to be performed. If laryngomalacia was present, assessment of its severity would be obtained by considering the severity of feeding problems, the presence, absence and severity of episodes of desaturation on oximetry and the degree of obstruction of the larynx noted on endoscopy.

I would recommend that this relatively straightforward procedure be undertaken in future similar cases, however it seems likely that this is already the current contemporary practice of the Otolaryngology Department at the public hospital.

2. Please review the oximetry printouts and form your own opinion on what they show.

As noted by both [the] Director of Surgical and Critical Care and [Dr D], interpretation of the oximetry readings was complicated by the technically poor quality of the studies with 'breaks and gaps in data'. However the data that has been obtained on the two oximetry periods (0150 hours to 0525 hours [Day 2] and 2057 hours [Day 2] to 0606 hours [Day 3]) did detail a number of significant desaturations. [Baby A] exhibited desaturations to between 80 and 90% for a total of 6.3% of the first recording with improvement on the second reading to a total of 3.8% of the sleep periods spent between 80 and 90% saturation. On the first test, 92.8% of the time the child's saturation was at or above 90% rising to 96.1% on the second test.

Interpretation of oximetry is very difficult where artefact may have occurred. If technically sound the desaturations to below 90% would be considered quite significant and would signify a degree of uncompensated upper airway obstruction and/or a gas exchange problem due to a lower respiratory tract pathology (outside my brief to comment upon). Desaturation is often a late sign of respiratory failure in an infant, where compensatory mechanisms begin to become exhausted, often due to patient fatigue. There were however extended periods of normal saturations indicating that airway obstruction may have been intermittent and also perhaps reflecting differing levels of sleep. I would defer to a Specialist Paediatric Respiratory Specialist for detailed comment on the oximetry results.

Continuous oximetry is part of a standard of care in children presenting with upper airways obstruction and respiratory distress. I do not have adequate information to comment on the status of the equipment at the Waikato DHB and again it would be more appropriate for a Specialist Paediatric Respiratory Specialist to consider and comment upon this matter. However if there was any concern regarding the adequacy of oximetry measurement then it would have been prudent to continue monitoring this child prior to discharge until the team were happy that the oximetry results were an accurate reflection of his actual level of oxygenation during sleep.

From an Otolaryngologist's perspective direct examination of the child's breathing pattern, the clinical degree of obstruction and direct visualisation of the larynx is just as important in determining the degree and cause of airway obstruction as oximetry simply reflects the final outcome of respiratory tract obstruction or a gas exchange problem. Infants maintain reasonable saturations in compensated upper airway obstruction until such time that they tire and desaturation may therefore be a rather late indicator of airway obstruction.

3. Whether further investigations should have been undertaken during [Baby A's] admission.

As detailed above I would have recommended that this child underwent awake flexible endoscopy, ideally on the first day of admission. Even though there was a clinical improvement over the following two days documented, this child left hospital without a specific diagnosis for the cause of his upper airway obstruction.

4. The appropriateness of the decision to discharge on [Day 4].

Review of the notes suggests that the child had improved clinically and that a decision to discharge could have been considered. However once again I feel that the child should ideally not have been discharged until the cause of his upper airway obstruction had been diagnosed. I consider this to be a moderate departure from the standard of care and would give a future recommendation that any child presenting with upper airway obstruction where the cause is not apparent should ideally have an awake flexible endoscopy performed prior to discharge.

5. The appropriateness of the follow up plan and in particular the decision not to have ENT follow up.

In my opinion this is a moderate departure from the standard of care in New Zealand and would not be accepted by peers as ideal management. Patients are often followed up in the outpatients where the diagnosis has been made and where continued specialist follow-up determines the progress of the child and whether further intervention is required. In this particular case the absence of a diagnosis at discharge makes the need for ORL follow-up post discharge even more pressing.

From my review of the clinical records it does not appear that this child has been directly reviewed by a consultant Otolaryngologist although there may have been extensive discussion between the registrar and the consultant which has not been documented.

I would recommend in the future that any such cases are followed up in the ORL outpatient department. It is my expectation that this is likely to be the current policy of the Department of Otolaryngology Head and Neck Surgery at the public hospital.

6. Any other matters in the case that you consider warrant comment.

Laryngomalacia is the commonest congenital abnormality of the upper airway and the commonest cause of stridor in infancy. Laryngomalacia is a functional and clinical diagnosis that cannot be made post mortem, as the degree and effect of laryngeal softening and obstruction cannot be predicted by morphology. Therefore I do not feel that a diagnosis of laryngomalacia can be made on the basis of a post mortem examination.

The post mortem report details some swelling of the pharyngeal tissues and epiglottis. Although this can be present in live patients with laryngomalacia, due to excessive movement of these structures with increased respiratory effort and often due to

associated laryngopharyngeal reflux (which is a commonly associated problem with this condition) the post mortem findings of the larynx are in my opinion non specific. If swelling were to be present it would usually involve the aryepiglottic folds (the posterior part of the larynx) rather than the epiglottis.

It appears that the nasal cavity and postnasal space were not examined post mortem. Examination of this area would be technically difficult without having access to endoscopy. Therefore the status of the nasal cavity and postnasal space, which may have been relevant to this infant's upper airway obstruction, is unknown.

Laryngomalacia alone is not widely recognised to be a cause of sudden infant death. I would consider it very unlikely that was the primary cause of this infant's death. Surgical intervention for laryngomalacia is considered where failure to thrive and or significant to saturation is present and is only indicated [in] a small percentage of patients who present with this condition. Surgery in the form of aryepiglottiplasty may have been indicated in this case but with no laryngoscopy having been performed I cannot comment further. Even if laryngomalacia was diagnosed and this surgery was performed I feel that it is speculative whether this would have necessarily prevented this child's death.

Yours sincerely

Chris Thomson"

The following further independent clinical advice was obtained from Dr Thomson:

"Thank you for your further extensive correspondence on 2 August which I have read through.

With respect to the further comments regarding my opinion about the Management during his admission to the public hospital including the adequacy of the assessment and tests carried out:

My only further comment here would be that if it was felt that there had been a significant improvement in the patient's airway status during the hospital stay then the urgency and absolute necessity for awake fibreoptic nasendoscopy and laryngoscopy could be argued. I think that it would have been reasonable to defer this examination as long as there was a definitive plan in place for follow up in Otolaryngology outpatients by a Paediatric otolaryngologist, booked within a short period of time, say 2–4 weeks and as long as the involved clinicians were happy that this child's clinical status was improving.

The problem here is that this child left hospital without an ORL review and diagnosis of the cause of his noisy compromised breathing and with no plan for further ORL follow up unless his status deteriorated. I accept and understand that hospitals are busy places and that decisions to intervene with examinations and investigations can change as a patient's status evolves but I do still feel that there should have been a

plan in place for the Otolaryngology service to examine this child at some stage (either while still an inpatient or as an outpatient shortly post discharge) to answer this question.

I would not consider failure to perform flexible endoscopy on this child whilst an inpatient as a departure from accepted practice if [Baby A] was clinically improving and if there was a plan to perform this as an outpatient within the near future. Conversely, I would consider it a departure from accepted practice if the child was not examined endoscopically as an inpatient if his symptoms were severe and unrelenting or progressive or if there was no plan to see this child again in the Otolaryngology outpatient department post discharge.

Awake flexible fibreoptic nasendoscopy and laryngoscopy is a commonly performed procedure in hospital which is very well tolerated and which has a low morbidity. It gives the surgeon a wealth of diagnostic information and a dynamic view of the upper airway which is not often evident if performed under general anaesthesia.

I have written in my report that I would consider a bedside awake flexible fibreoptic nasal endoscopy to be a standard practice in New Zealand in a major paediatric centre. I agree that there are no formal guidelines on this but this is the standard of care and pattern of practice that I was accustomed to during my fellowship at the Royal Children's Hospital in Melbourne and was my continued standard of practice in Paediatric Otolaryngology at Christchurch Hospital. I am confident that this is representative of current Paediatric Otolaryngology practice in major centres in New Zealand despite the fact that there appear to be no written strict guidelines or protocols on this particular subject.

Any other comments in my original report stand.

Yours sincerely

Chris Thomson"