

Mr B, Audiologist
Southern District Health Board

A Report by the
Deputy Health and Disability Commissioner

(12HDC00446)



Health and Disability Commissioner
Te Toihau Hauora, Hauātanga

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Executive summary

1. On 23 June 2008, a WellChild nurse referred Miss A, aged three years, to the Audiology Department at a public hospital. Miss A's parents had raised concerns about her hearing, speech and frequent ear infections.
2. On 16 December 2008, Miss A was seen by audiologist Mr B. An audiogram¹ taken on 16 December 2008 indicated bilateral conductive hearing loss.² Mr B referred Miss A to the Ear Nose and Throat (ENT) clinic for further management.
3. On 16 January 2009, Miss A was seen by an ENT registrar. Grommets³ were inserted on 23 April 2009.
4. Following testing on 20 July 2009, Mr B reported his results as bilateral hearing at the bottom end of the normal range with minimal asymmetry between the ears. There was no arrangement for a follow-up appointment.
5. On 25 March 2011, Miss A had a hearing check at school, which identified hearing loss in both ears.
6. On 18 April 2011, Miss A was seen by a private audiologist, Mr F, who found significant right-sided sensorineural hearing loss,⁴ as well as mild low to mid frequency hearing loss on the left.
7. Miss A was referred back to hospital, where she was seen by an audiologist. Assessments on 6 July 2011 and 11 October 2011 confirmed these results.

Findings

8. Mr B failed to perform cross-checks and arrange for adequate follow-up of Miss A. Accordingly, he did not provide services to Miss A with reasonable care and skill and breached Right 4(1)⁵ of the Code.
9. Mr B's documentation of Miss A's care was below expected standards and, accordingly, Mr B breached Right 4(2)⁶ of the Code.

¹ An audiogram is a graphic record of hearing ability for various sound frequencies.

² Conductive hearing loss occurs when sound is not conducted efficiently through the outer ear canal to the eardrum and the tiny bones (ossicles) of the middle ear. Conductive hearing loss usually involves reduction in sound level or the ability to hear faint sounds. This type of hearing loss can often be corrected medically or surgically (from www.asha.org).

³ Ventilation tubes.

⁴ Sensorineural hearing loss occurs when there is damage to the inner ear (cochlea), or to the nerve pathways from the inner ear to the brain.

⁵ Right 4(1) states: "Every consumer has the right to have services provided with reasonable care and skill."

⁶ Right 4(2) states: "Every consumer has the right to have services provided that comply with legal, professional, ethical, and other relevant standards."

10. Southern District Health Board did not take reasonable steps to prevent Miss A's rights being breached and, accordingly, is found to be vicariously liable for Mr B's breach of Right 4(1) of the Code.
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Complaint and investigation

11. The Commissioner received a complaint from Mrs A about the services provided to her daughter, Miss A, by audiologist Mr B and the Southern District Health Board. The following issues were identified for investigation:

- *The adequacy of the service provided to Miss A by audiologist Mr B between June 2008 and July 2009.*
- *The adequacy of the service provided to Miss A by Southern District Health Board⁷ between June 2008 and June 2009.*

12. An investigation was commenced on 30 October 2012. This report is the opinion of Theo Baker, Deputy Commissioner, and is made in accordance with the power delegated to her by the Commissioner.

13. The parties directly involved in the investigation were:

Miss A	Consumer
Mrs A	Complainant
Mr B	Audiologist/provider
Southern District Health Board (SDHB)	Provider

Also mentioned in this report:

Dr C	General practitioner
Ms D	WellChild nurse
Ms E	ENT nurse
Mr F	Audiologist, private clinic
Dr G	Audiologist

14. Information was also reviewed from Mr F and ACC.
15. Independent expert advice was obtained from an audiologist, Ms Lisa Burr, and is attached as **Appendix A**.
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⁷ Southern District Health Board was established on 30 April 2010. The Health Sector Transfers (Southern DHB) Order 2010 provides in clause 5 that all the liabilities of the former Otago DHB were transferred to the Southern DHB as at that date.

Information gathered during investigation

16. In January 2005, Miss A was born six weeks prematurely. She was admitted to the Neonatal Intensive Care Unit because of her prematurity, respiratory distress and jaundice.⁸
17. In March 2007, GP Dr C diagnosed Miss A (then aged two years and two months) with bilateral ear effusions with infection, and treated her with antibiotics. In October 2007 and April 2008, Miss A was seen by Dr C and diagnosed with bilateral glue ear⁹ with inflammation.
18. In June 2008, Mrs A, Miss A's mother, raised concerns about her daughter's hearing with a WellChild nurse, Ms D. At that time, Miss A was just over three years old. Mrs A said that Miss A would not respond when Mrs A was standing behind her, and that Miss A sat very close to the television set. Mrs A said that as she is an early childhood teacher, she knew this was not right.
19. On 23 June 2008, Ms D referred Miss A to the Audiology Department at the hospital, noting that there were concerns with Miss A's hearing, speech and frequent ear infections.

Audiologists

20. Audiologists are not regulated under the Health Practitioners Competence Assurance Act 2003, and therefore are not legally required to have an annual practising certificate or to undertake any competency programmes.
21. The New Zealand Audiological Society (NZAS) represents audiologists and provides a code of ethics, biannual peer review, clinical competence certification, clinical protocols and standards, and a complaint process for its voluntary members.

Mr B

22. Mr B completed a Masters in Physics in the early eighties. A few years later he obtained a position as an audiology trainee with the then Otago Hospital Board.
23. Mr B applied to the Otago Hospital Board to undertake a Diploma of Audiology at Melbourne University. The Otago Hospital Board agreed to support Mr B during this course of study, including paying his salary, rent, university fees and air fares.
24. On his return to New Zealand after successfully completing the Diploma, Mr B joined the NZAS as an associate member. In order to become a full member he required formal supervision. According to Mr B, the hospital's charge audiologist at that time considered that the NZAS's arrangements for granting full membership were

⁸ Being born prematurely may increase the risk of being deaf or becoming deaf. Premature babies are often more prone to infections that can cause deafness. Severe jaundice and a lack of oxygen can also cause deafness.

⁹ Fluid in the space behind the ear drum.

substandard and that a more rigorous programme was required and, accordingly, declined to act as Mr B's supervisor.

25. The following year, Mr B was appointed sole charge audiologist at the hospital.
26. Mr B's associate membership lapsed a few years later as a consequence of various changes made to the NZAS in 1992. In order to become a full member he was required to complete a Certificate of Clinical Competence (CCC). To achieve this, Mr B was required to have clinical supervision with a full member of NZAS. Mr B explained that he attempted to arrange this first with an audiologist in another centre. This was on the basis that his employer paid for the supervisor's expenses, which Mr B said was "not acceptable to the Board at the time". An attempt was then made to set up supervision with an audiologist in yet another centre, but this was not able to be arranged because of Mr B's personal circumstances.
27. Mr B continued to work as a sole charge audiologist until 2010.

First appointment — 16 December 2008

28. On 16 December 2008, Miss A had her first appointment with Mr B. Mr B performed tympanometry (a test of middle ear function) and Conditioned Play Audiometry (CPA). This is a method of testing children who have a development age of 3–5 years old. The child is taught to put a peg on a board or in a cup when he or she hears a sound.
29. Mr B reported the results as "indicative of a bilateral conductive hearing loss". Mr B reported that he had found clear evidence of middle ear problems, and his recommendation was that these needed to be treated. He referred Miss A to the ENT Department, with a view to the insertion of ventilation tubes (grommets). He did not recommend any follow-up with further audiometry tests.
30. Mr B made no clinical notes and took no clinical history at this appointment.

Treatment by ENT Department

31. Dr C then referred Miss A to the ENT Department at the hospital because of her recurrent ear infections and otitis media with effusion,¹⁰ and she was placed on a waiting list for the insertion of grommets, which occurred on 23 April 2009.

Second appointment — 20 May 2009

32. On 20 May 2009, Miss A was reviewed by Ms E, an ENT nurse, who noted that the grommets were in place. Ms E wrote that Mrs A said that Miss A's hearing had improved only minimally.
33. As part of this ENT appointment, Miss A also saw Mr B. He recorded on the audiogram: "Audio — no go." In his response to HDC, Mr B said that the audiogram that day was "not at all successful with no thresholds able to be elicited". He said that

¹⁰ Otitis media with effusion is a collection of fluid in the middle ear without signs or symptoms of ear infection.

he suspected this was because of the long wait Miss A had had in the ENT department. Mr B stated that he attempted Otoacoustic Emission (OAE) testing,¹¹ in an effort to elicit further information about Miss A's hearing, but that "[t]hese not unsurprisingly were absent as they often are in cases where pristine middle ear conditions do not exist".

34. He also said that no history would have been taken at that time as this was usually done by the Ear Nurse, who would have notified him if there was anything relevant. Mr B arranged for a repeat visit.

Third appointment — 20 July 2009

35. On 20 July 2009, Miss A was seen again by Mr B, who conducted an audiogram and reported to Ms D on 3 August 2009 that it showed "bilateral hearing acuity at the bottom of the normal range, with minimal asymmetry between the ears". He said he did not plan to see Miss A again, but was happy to receive further referrals if necessary.

Further ear problems

36. In August 2010, Miss A was seen by Dr C with ear pain and discharge. She was initially treated with antibiotics (Augmentin), then with ear drops (Kenacomb).
37. During a "Before School" check on 24 September 2010, Miss A had an abnormal hearing screening of her right ear. A Public Health vision and hearing technician advised that Miss A needed a further assessment.
38. On 25 March 2011, the Public Health vision and hearing technician again assessed Miss A, and advised Mrs A to have Miss A seen by an audiologist. Because of a waiting time of up to three months at the hospital, Mrs A made a private appointment to see audiologist Mr F at a private clinic. This occurred on 18 April 2011. Testing revealed severe sensorineural hearing loss in Miss A's right ear, and her left ear had a mild hearing loss in the low and mid tones, with normal hearing in the high tones.
39. In July 2011, Miss A was referred to an otolaryngologist, who arranged for a CT scan. In October 2011, he confirmed that the CT scan showed "normal cochlear semi-circular canal and vestibular aqua duct anatomy". He was unable to find a cause for her hearing loss. The otolaryngologist noted that Miss A had had a traumatic perforation problem about a year ago after diving into a pool. He suggested that this would normally have resulted in a "conductive hearing loss" rather than a "sensorineural hearing loss".

Review of Audiology Service

40. In April 2010, Otago District Health Board and Southland District Health Board were merged. The two Boards became one entity, Southern District Health Board (SDHB).

¹¹ Otoacoustic emissions are sounds of cochlear origin that can be recorded using a microphone in the ear canal.

41. In July 2010, SDHB arranged for an external review into the Audiology services in its region, including the hospital. This was partly in response to complaints received by SDHB and concerns raised by the person appointed to implement the newborn hearing screening programme.¹²
42. SDHB appointed the Professional Leader audiologist from Auckland District Health Board, Dr G, to conduct the review. This review identified two main issues: the facility and equipment required upgrading, and there were no personnel with acceptable credentials to carry out the screening programme requirements and aspects of the audiology service provisions such as fitting hearing aids. Additionally, there was no one with appropriate credentials to supervise the tasks of the audiometrist.¹³
43. Dr G noted that the audiometrist was untrained and the ENT service was using a nurse to perform air conduction audiograms. She said that the ENT service should ensure that a trained audiometrist/audiologist performed diagnostic audiograms and that “it is highly likely that inaccurate audiograms are being made as a result of this practice”.
44. Dr G was also critical of the system of storing patients’ audiograms separately from their correspondence. She said that this was “unusual” and the patients’ files did not record all parts of audiology assessments, such as OAE results.
45. SDHB stated that the issues had arisen “principally ... because our incumbent audiologist [Mr B] was not a member of (nor eligible to become a member) of the New Zealand Audiological Society”.
46. In September 2010, SDHB developed a “Service Reconfiguration Consultation” document. In October 2010, SDHB said that as a consequence of this consultation two positions were to be disestablished in December 2010, including Mr B’s position.

Mr B — response

47. In his response to HDC, Mr B said that when he initially reviewed Miss A’s file, he found a record from 3 August 2009 in which the OAE responses were present. He was unclear whether that record had been misfiled or whether he had the wrong date. He believes that it would have served as the cross-check, albeit a fortnight later.
48. On 25 January 2013, SDHB confirmed that there was no record of OAE testing dated 3 August 2009, and that the records show that Mr B saw Miss A on three occasions, the last being 20 July 2009. Miss A’s parents do not recall Miss A having a further consultation with Mr B. It is also noted that in his letter to Ms D dated 3 August 2009, Mr B refers to having seen Miss A on 20 July 2009, the audiogram results, and the fact that he had made no further plans to see her.
49. Mr B said that when he tested Miss A as a four-year-old, he started at the higher frequencies in order to get “as much information about thresholds over as much of the

¹² The national newborn hearing screening programme is in place in all District Health Boards. It is jointly led by the Ministries of Health and Education to ensure those babies detected with a hearing loss receive support from the newborn period through to school entry.

¹³ An audiometrist is a health care technician trained in the use of audiometry equipment.

frequency spectrum as possible in the shortest amount of time”. He said that this was because with children there was always a chance that they could stop responding at any time. He commented that while that might seem as though he was only doing a “quick check”, he believed he was acting efficiently.

50. Mr B said that he had no doubts about the reliability of his results, and that the left high frequency thresholds have now been verified. He said that as the lower thresholds reported in April 2011 were so different from his testing, he wondered whether Miss A’s hearing loss was “progressive, necessitating regular routine monitoring”, and questioned whether it was present at the time of his testing.
51. Mr B said that he was professionally qualified to take on the role of audiologist, as he had a postgraduate Diploma in Audiology. He stated that he did not have his first performance appraisal until May 2003, and at that time he was asked whether he could get full membership to NZAS and obtain a CCC.
52. Mr B said that after June 1996, following the redundancy of the Audiology receptionist, he and the audiology technician had to deal with all appointment making, general reception duties and typing reports, as well as the normal clinical workload.
53. Mr B said that his workload increased when the audiology technician left and was not replaced. In addition, there was a restructure of allied health professionals, and he no longer fitted into any of the categories for professional leadership/management.
54. Mr B said that he tried to update his skills within budgetary parameters but that it was an “uphill battle”. He had tried to access Audiology Standards of Practice but could not do so as he was not an NZAS member.
55. Mr B stated that during the period he worked at the hospital there was very little collegial support, and he had no professional mentor, organisation or support network available to him.

SDHB responses to the complaint

56. On 16 May 2012, SDHB stated:

“Firstly we wish to acknowledge the distress caused to the whanau for the delay in diagnosing [Miss A’s] hearing deficits, and we sincerely apologise for the distress caused by our former employee.”

57. SDHB stated that the view of its senior audiologist who had reviewed Miss A’s clinical file was that the absence of OAE on 20 May 2009 should have raised concerns. Good practice would have been to perform a cross-check on the audiogram, such as a repeat of the otoacoustic emissions at the July 2009 visit. The lack of objective measures meant that the results recorded did not conclusively support Miss A having had normal or near normal hearing in both ears when she was seen on 20 July 2009.

58. SDHB said that Mr B attended NZAS conferences on six occasions between 2000 and 2006. He also attended “upskilling” workshops in 2010. SDHB stated that it had conducted performance reviews in 2002, 2003, 2006 and 2007, which it believed met its obligations to appraise Mr B regularly and to offer him upskilling opportunities. SDHB accepted that the lack of peer support or checks on his performance were issues, but stated that even if it had provided this support, it was unlikely that it would have identified his deficits.
59. On 4 December 2012, on receipt of Ms Burr’s expert advice, SDHB offered to meet with Miss A’s family to apologise, but Mrs A declined the offer.

ACC claim

60. An ACC Treatment Injury claim was lodged, and the matter reviewed on 29 July 2012 by an otolaryngologist. His view was that Miss A’s right-sided hearing loss was “almost certainly” genetic in origin and had been present from birth. He stated:

“There has clearly been a delay because the diagnosis was not made until [Miss A] was very nearly six years of age. However, it is necessary to take into account the difficulties testing the hearing of young children, particularly when the clinical picture is complicated by the presence of middle ear problems, ie, otitis media with effusion and poor Eustachian tube function. It is an unfortunate fact of clinical practice that a number of children with significant hearing loss are not detected, despite being tested, until they are older.”

61. In September 2012, ACC’s GP expert suggested that Miss A’s sensorineural hearing loss could have been caused by the treatment with Kenacomb drops. ACC referred the matter back to the otolaryngologist. In a further report dated 19 September 2012, the otolaryngologist rejected this suggestion and restated his view that Miss A’s profound hearing loss was long standing and “the probability by way of explanation is that the initial audiometric evaluation missed the profound hearing loss on the right”.

Response to provisional findings — Mr B

62. Mr B noted a number of points in response to Ms Burr’s advice and my provisional findings.

Standards

63. Mr B stated that he did his best to keep up with current literature, but that this was only through what was available online. He stated that as far as he knows, the ENT Department did not subscribe to any audiological journals despite requests in the 1990s, and that the Medical School library had very few journals. He stated that, in general, online journals were behind a paywall so he could not access these, and he did not have internet access at all until 2002.

16 December 2008

64. In response to my expert’s comment that no acoustic reflex testing was done on this date, Mr B noted that the tympanometry was indicative of bilateral middle ear involvement, and that he would not have been able to elicit acoustic reflexes in the presence of middle ear effusion. Mr B stated that in general, however, he agrees with

Ms Burr that acoustic reflex testing is important and should be done routinely where possible as part of the cross-check.

65. Mr B also stated that he was in no position to do speech testing on young children who were not able to wear headphones. He stated that the preferred testing method for young children would have been live voice testing, but the soundproofing in the Audiology test rooms was so poor that it was impossible to get levels indicative of normal hearing. Mr B said that this problem had been present for as long as he had been at the hospital, and that it had worsened over time.
66. In response to my expert's observation that there is no record that Mr B advised Miss A's family that further tests should be attempted after her appointment with the ENT specialist, Mr B stated that further testing was usually done after an ENT appointment when requested. He said that he did not routinely test patients again following an ENT visit as he believed that they were under the care of an ENT surgeon, and he had been "put in [his] place previously" and informed that the ENT surgeons would determine when and what tests were necessary. Mr B stated that he felt annoyed that decision-making devolved over time from the ENT surgeon to the registrar to the nurse, all of whom were considered better qualified to determine the necessary tests. Mr B said that he assumed Miss A would be seen again after the ENT specialist's appointment, but could not be certain that she would actually be referred back to him. He stated that he did not inform people that he would see them again if he was not certain of that.
67. However, Mr B also stated that whenever he felt there were concerns or that there was a possibility that hearing could deteriorate, he arranged for appropriate follow-up, and that if this was not arranged he always told patients that the service was happy to see them again if there were further concerns. Mr B said that given the results he had found for Miss A and the fact that she was also under ENT care, he is not surprised he did not arrange follow-up at that time.

Workload

68. Mr B stated that he was routinely seeing about 2500 patients a year, and that any follow-up slots were at a premium. He stated that his administrative work, report-writing and clerical tasks, along with any attempts to keep up with current literature had to be squeezed into times between his appointments. He stated that this made for a hectic workload and that this was well recognised by many of his peers, who regarded the Audiology Department as "just a workhouse". Mr B commented that this meant there was greater potential for errors, as evidenced by an apparent lack of documentation. He noted his concern that ENT and Audiology records had been merged by the time he received this complaint, and that a subsequent absence of records has been assumed to be a failure on his part.

Training

69. Mr B stated that he has to accept SDHB's advice that he attended six NZAS conferences between 2000 and 2006 as he cannot recall those that he attended. However, he stated that although his name was put forward for the 2010 upskilling workshop, he was not accepted for this as he was not an NZAS member, and hence would not be involved in neonatal testing.

Concluding comments and recommendations

70. Mr B concluded his response by saying that he used to take pride in going “the extra mile” for patients, and that he tried to give them the best service that he could. He stated that the work environment was far from ideal. Mr B considers that there is very little chance of him re-entering audiology again.
71. Mr B provided written apologies for forwarding to Mrs A and Miss A.

Response to provisional findings — SDHB

72. SDHB had no comments on my provisional findings, but asked that the improvements that have since been made to its Audiology services be considered with respect to any follow-up action by HDC.
73. SDHB noted:
 - Improvements were commenced initially as a result of a complaint in June 2010 from the NZAS with respect to incorrect auditory brainstem response testing at SDHB. That complaint raised issues about its service and the qualifications of some of its employees.
 - SDHB acted swiftly in response to this, in the first instance by engaging Dr G to undertake a review of the SDHB’s Audiology services. This resulted in a number of service improvement initiatives, including:
 - the immediate purchase of Real Ear Measurement and Immittance equipment;
 - the amalgamation of Audiology Service documentation into patients’ clinical records;
 - the development of a booking schedule to allow for more effective use of Audiologist time;
 - the development of triage criteria, with priority given to paediatric patients;
 - temporary facility improvements with regard to sound field testing;
 - the establishment of a process to provide regular review of children wearing hearing aids;
 - the establishment of testing protocols consistent with NZAS Best Practice Guidelines and the Policy and Quality Standards specified by the Newborn Hearing Screening Programme; and
 - the employment of one full-time and two part-time NZAS certified audiologists.
 - In November 2012, an audit report on the Newborn Screening Programme including audiology for the National Screening Unit noted SDHB’s documentation as being “exemplary”, and described their ABR recordings as “excellent cases, very efficient and accurate thresholds”.
 - In June 2013, SDHB commenced refurbishment of its hearing testing facility. The works include two new soundproofed testing rooms, alterations to another room, and additional soundproofing treatment at other sites in the facility.

- Dr G has been engaged to undertake a peer review of the incumbent audiologist and re-review the Audiology Service structure and protocols, with preliminary inspections of the refurbishments as they proceed.
74. SDHB provided written apologies for forwarding to Mrs A and Miss A.

Opinion: Breach — Mr B

Introduction

75. In October 2007 and April 2008 Miss A was diagnosed with bilateral glue ear with inflammation. In June 2008, when Miss A was three years old, her mother raised concerns about her hearing with a WellChild Nurse, Ms D. Ms D referred Miss A to the Audiology Department at the hospital, noting that there were concerns with Miss A's hearing, speech and frequent ear infections.
76. Mr B tested Miss A's hearing on 16 December 2008, 20 May 2009 and 20 July 2009. It is not possible to clinically conclude that Miss A's hearing loss was present at the time of those visits. Accordingly, this report is focused on whether services of an appropriate standard were provided at each consultation.

Standards

77. My expert advisor, audiologist Lisa Burr, advised me that as audiology is not a registered profession it does not have a set of national guidelines that must be followed. She stated that Mr B would have had difficulty obtaining all of the best practice guidelines from the NZAS website as only NZAS members have access to the full website. However, she pointed out that resources were available from the National Screening Unit and its website. Ms Burr also stated that Mr B would have been able to keep up to date with current literature to form the basis of his clinical protocols.
78. In my view, despite the difficulties Mr B encountered, when working as an audiologist he had a personal responsibility to ensure that he was informed about current developments and best practice.

Qualifications

79. Mr B completed a Masters in Physics and a Diploma of Audiology. Mr B's associate membership of NZAS lapsed and in order to become a full member he was required to complete a CCC, which required supervision by a full member of NZAS. Supervision was available but Mr B stated that he was not able to arrange this. As a result, Mr B did not complete the CCC but continued to work as the sole charge audiologist until 2010.

Testing

80. Ms Burr identified a number of areas of concern with Mr B's testing of Miss A's hearing.

16 December 2008

81. Ms Burr advised me that, on 16 December 2008, Mr B conducted CPA but performed no acoustic reflex testing. She stated that acoustic reflex testing is important as it tests the response of the auditory nerve pathways, which are important in hearing.
82. In addition, no speech testing was performed that day although it could have provided a cross-check of the behavioural results. Ms Burr advised that the cross-check principle was first introduced in 1976 and is widely reported in the literature for audiology.

20 May 2009

83. On 20 May 2009 Mr B was unable to conduct CPA, but did conduct tympanometry and OAE testing on both of Miss A's ears.
84. The audiogram shows "Audio — no go" which suggests that it was not possible to conduct the audiogram testing. There is no record of bone conduction or vibrotactile testing having been conducted. Again, no speech test was attempted and no cross-check was obtained. However, Ms Burr advised that, as Miss A was to be seen again in two months, those issues were not "overly concerning".

20 July 2009

85. At this consultation, Mr B tested the tympanometry (middle ear) and reported the results as: "bilateral Type B low volume tympanograms are consistent with patent ventilation tubes". Ms Burr advised that two errors were made. The first is the incorrect classification of the tympanometry results, which actually show "Type B high volume" tympanograms.¹⁴ The second error is that the Type B low is not consistent with patent grommets.
86. Again, at this consultation no cross-check of hearing was carried out, despite the conflicting results. Ms Burr advised that a third test, such as speech testing, should have been performed to confirm which of the conflicting results was the more accurate.
87. Ms Burr further advised that the follow-up recommendation to discharge Miss A that day was not sufficiently conservative and stated that, in her view, it would have been better to have reviewed Miss A non-urgently within 6–12 months.

Record-keeping

88. This Office has frequently emphasised the importance of record-keeping.¹⁵ Accurate and complete records are essential to ensure continuity of care. The NZAS website refers to its guiding principles, which include: "10. Recognise the importance of

¹⁴ Mr B advised HDC that this was a typographical error, and should have read low volume.

¹⁵ See Opinion 10HDC00610.

documentation.” It also notes that “documentation includes identification of information, relevant history, and results of previous screening, assessment and rehabilitation if available”.

89. Standards New Zealand *Health Records* NZS 8153:2002 states that “[t]he health record is an accurate reflection of the interaction between the healthcare provider and the consumer/patient...”.¹⁶
90. Ms Burr has pointed to the following inadequacies with regard to Mr B’s documentation.

16 December 2008

91. On 16 December 2008, Mr B completed an audiogram, but made no other clinical notes or any record of the history taken. Ms Burr considered that this was a moderate departure from accepted standards. Ms Burr also noted that Mr B’s report of the results as being indicative of a bilateral conductive hearing loss was to some extent inaccurate and would be better reported as “there is a bilateral mild hearing loss today with the underlying hearing in at least one of the ears being normal today”. She noted that there was no record of advice to Miss A’s family that further tests should be attempted after seeing the ENT specialist.

20 May 2009

92. On 20 May 2009, Mr B again saw Miss A and recorded no history. Mr B did not complete a report for that day’s testing, but Ms Burr advised that that is not uncommon when an audiologist is bringing a patient back for further testing. Again, Mr B did not write any clinical documentation to support the results.

20 July 2009

93. On 20 July 2009, Mr B completed an audiogram, but did not document any clinical notes or history.

Conclusions

94. Ms Burr advised that the assessments during the first two consultations were satisfactory overall, and the main deviation from best practice was that Mr B failed to perform a cross-check, particularly when Miss A was discharged. Ms Burr stated that a cross-check is crucial to ensure the audiogram is accurate. This was especially the case as the objective results disagreed with the audiogram. I accept Ms Burr’s advice that Mr B’s failure to perform cross-checks and to arrange for adequate follow-up meant that he did not provide appropriate care.
95. Although Mr B was not a member of NZAS, and was not necessarily bound by NZAS standards, as a health professional he had a professional obligation to maintain adequate records. The key principles are set out in the Standards New Zealand *Health Records*. I note Mr B’s submission that he probably did not arrange further testing after the 16 December 2008 visit given that Miss A was seeing an ENT specialist. However, I remain of the view that Mr B’s documentation of that consultation was

¹⁶ Clause 1.1

inadequate. In my view, Mr B's documentation of Miss A's care did not comply with the relevant standards.

96. I have considered Mr B's submission that, in the circumstances, he was not able to perform cross-checks. However, I am satisfied that cross-checks were crucial in this case, especially as the objective tests disagreed with the audiogram. Overall, I remain of the view that the standard of services provided by Mr B to Miss A was inadequate. Mr B did not provide services with reasonable care and skill and, accordingly, Mr B breached Right 4(1) of the Code. In addition, I consider that Mr B's documentation of Miss A's care did not comply with relevant standards and, accordingly, Mr B breached Right 4(2) of the Code.
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Opinion: Breach — Southern District Health Board

97. Mr B was the sole charge audiologist from 1989 until 2010. During the period in question, June 2008–June 2009, the then Otago District Health Board was aware that Mr B was unable to be a full member of the NZAS because to do so he was required to complete a CCC, which required external supervision by a full member of NZAS.
98. Mr B had previously made some efforts to arrange supervision. For a number of reasons, including supervisor availability, costs, and Mr B's personal circumstances, this did not occur. Mr B advised that in June 2008, he investigated whether he could complete a Master of Audiology programme in New Zealand and found that it was not possible and, even if he was able to complete the qualification, there was no guarantee that he would be eligible to join NZAS.
99. Mr B said that during the period he worked at the hospital there was very little collegial support. He had no professional mentor, and no organisational or support networks were available to him.
100. SDHB said that Mr B attended the NZAS conferences on six occasions between 2000 and 2006, as well as attending upskilling workshops in 2010. SDHB said that it had met its obligations to appraise Mr B regularly and provide up-skilling activities, but acknowledged the lack of peer support or checks on Mr B's performance.
101. The question of external supervision had been revisited on a number of occasions during Mr B's employment at the hospital. In my view, SDHB did not take adequate steps to ensure Mr B received supervision and peer support. Given that Mr B was working as a sole charge audiologist and he did not meet the requirements for membership of the NZAS, SDHB should have done more to satisfy itself that Mr B was competent to perform the role for which he was employed.
102. The facilities within which the audiometry service was operating were suboptimal. Both the facilities and the equipment required upgrading, and the room being used for VRA testing did not meet the requirements for sound testing. SDHB stated that the

issues with the service had arisen “principally ... because our incumbent audiologist [Mr B] was not a member of (nor eligible to become a member) of the New Zealand Audiological Society”.

103. In my view, SDHB failed to ensure Mr B was appropriately supervised, and failed to provide peer support or checks on his performance. Mr B was working as a sole charge audiologist, in a department with suboptimal facilities and equipment. In these circumstances, SDHB did not take reasonable steps to prevent Mr B’s breach of the Code. Accordingly, I find SDHB vicariously liable for Mr B’s breach of Right 4(1) of the Code.

Recommendations

104. Mr B has provided written apologies to Mrs A and Miss A for his breaches of the Code.
105. I recommend that in the event that Mr B resumes work in audiology, he undertake suitable training and arrange for supervision approved by the NZAS.
106. SDHB has provided written apologies to Mrs A and Miss A for its breach of the Code.
107. I recommend that SDHB:
 - provide HDC with a copy of Dr G’s further review of its Audiology Service structure and protocols, and facility refurbishments;
 - ensure that appropriate mentoring and support is available to staff within the Audiology Service; and
 - report to HDC by **30 September 2013** on these matters.

Follow-up actions

- A copy of this report with details identifying the parties removed, except SDHB and the expert who advised on this case, will be sent to the Ministry of Health and NZAS and will be placed on the Health and Disability Commissioner website, www.hdc.org.nz, for educational purposes.

Appendix A — Independent audiology advice to the Commissioner

The following expert advice was obtained from an audiologist, Ms Lisa Burr:

“Introduction

I have been asked by the Commissioner to provide an opinion regarding Case Number HDC ref 12/00446. I have read and agree to follow the Commissioner’s Guidelines for Independent Advisors.

I am a New Zealand qualified Audiologist with the following qualifications; MAud (Hons) BSc, both from The University of Auckland. I have my New Zealand Audiological Society (NZAS) Clinical Certificate of Competency (CCC), meaning that I have passed a practical and theoretical examination to become a full member of the NZAS society. I have recently taken up a paid role as an NZAS CCC examiner. I am a voluntary member of the NZAS Membership Subcommittee (MSC). This committee is involved with designing the CCC examination process. This committee is also currently focused on reviewing the process of accepting both NZ and overseas audiologists into the NZAS. I currently work for Auckland District Health Board at Starship Children’s Hospital, specialising in Paediatric Audiology. I can see no conflict of interest for advising on this case and I have disclosed all affiliations to audiology above.

Audiology is not a registered profession and, unlike other health professions, does not have a set of national guidelines that must be followed. There are three sets of current protocols which are supported by the New Zealand Audiological Society (NZAS) as the Best Practice Guidelines (BPG) used for the current CCC examination. These are: NZAS Best Practice Guidelines (BPG) (1) and those clinical protocols of the two current New Zealand universities which train clinical audiologists, The University of Canterbury (2) and The University of Auckland clinical protocols (3). In the following report I will refer to audiology Best Practice as those supported by any of the three protocols described above. All three protocols are accepted as Best Practice to those in the NZAS community. These protocols also form the basis of the Certificate of Clinical Competence (CCC) Exam for the NZAS of which I am examiner for. Of note: Appendix F was first introduced over a period from 2007–2010 when Universal Newborn Screening was rolled out over the country. The University of Auckland’s clinical protocols have changed minimally over the years. I am not familiar with how frequently The University of Canterbury’s protocols are updated.

I received supporting documents 00001–00077 for HDC Case Number 12/00446. I have reviewed all these documents. The review of these documents forms the basis of the following report. The Commissioner has asked for the following advice for the basis of this report:

The purpose of this advice is to enable the Commissioner to determine whether, from the information available, there are concerns about the care provided by [Mr B] which require further action. This file is still at the assessment stage and the Commissioner is interested in whether you consider

the care provided was appropriate in the circumstances. If you consider the care was appropriate please explain why. If you feel there were departures from expected standards of treatment, please detail these. It is helpful to specify whether any departures from expected standards are mild, moderate or severe.

In particular, please ensure your advice includes comments on the following issues:

- 1. The appropriateness of the testing undertaken by [Mr B] in 2008 and 2009**
- 2. The interpretation of the test results**
- 3. Whether the overall assessments and follow-up action taken were appropriate, in light of the test results**
- 4. If possible, whether any conclusions can be drawn about the likelihood that [Miss A's] hearing impairment was present when she was assessed by [Mr B] in 2008 and 2009.**
- 5. Any other issues or concerns.**

As there are several audiology consultations to consider here I will review each consultation separately and then summarise my findings at the end. I have constructed a timeline of events below to form the basis of the report.

Where I have made assumptions these have been stated in the report. I have assumed that the supporting documents contain all the audiology clinical documentation for [Miss A] from 2008–2011. The Commissioner has asked that I report deviations from current best practice as mild, moderate, severe. Where this is noted I have marked so using the following parentheses {} e.g. {Mild}. In the following report where I am referring to a particular document from the supporting documents I have noted the number of that corresponding document in the following parentheses [], e.g. [000125].

Review of Clinical Audiology Notes (Timeline)

23/06/2008 — Referral

[Miss A] was referred to [Mr B] by [Ms D], Well Child Nurse. The referral highlights parental concerns with both hearing and speech. She has had frequent ear infections.

14/07/2008 — Clinical Report ([Mr B])

[Mr B] has reported back to the referrer ([Ms D], Well Child Nurse) stating that [Miss A] had not attended today's appointment that was scheduled. He has referred her back to the referrer's care. This is routine clinical practice as waiting lists in the public system can be large at times. Our policy at Auckland District Health Board (ADHB) is also to return the care back to the referrer after non attendance at the first scheduled appointment for an initial referral. There is no mention of the appropriate management of non-attendance in the BPGs.

16/12/2008 — Audiology Consultation ([Mr B])

Today [Miss A] was seen for the first time by [Mr B]. No clinical notes or history have been taken today by [Mr B]. This is not in line with the BPG that recommends these both be performed {Moderate}.

It appears [Mr B] has performed Conditioned Play Audiometry (CPA) today. This is assumed by the comment seen on the audiogram (graph of hearing) for the 16/12/2008 stating '(pegs)' [00048]. Pegs are commonly used to test hearing using CPA. CPA is a method of testing children of a development age of 3–5 years old.

The child is taught to put a peg on the board or in a cup when they hear a sound. The results for this testing by [Mr B] today, show a mild loss for a mid and a high pitch on the left side ('X' on the graph). On the right ('0' on the graph) they showed a mild loss at the high pitch tested. Unmasked bone conduction thresholds (the triangles on the graph) test the underlying hearing of both ears. This does not tell us about the underlying hearing of each ear separately. These results were normal, suggesting normal hearing in at least the better hearing ear.

[Mr B] appears to have obtained a significant amount of behavioural information from [Miss A] when she has only responded for five hearing thresholds. He has managed to obtain information regarding the hearing of each ear separately and also about the underlying status of her hearing. When testing young children it is important to move on with testing to obtain a full set of information in order to make a management decision. This shows good technique of CPA testing. [Mr B] has not managed to mask the bone conduction thresholds (underlying hearing test). Masking is when another noise which is played in the non-test ear, to keep that ear 'distracted'. Masking allows us to obtain information about the underlying hearing of the test ear, i.e. underlying hearing of each ear separately. Often it is hard to obtain masked thresholds, however if this is attempted and is unsuccessful it should be recorded in the notes (1–3).

[Mr B] has reported the results as 'indicative of a bilateral conductive hearing loss'. This reporting is inaccurate to an extent. A conductive hearing loss is one where the hearing through the headphones is poorer than that of the underlying hearing. [Mr B] has shown that the hearing in both ears through the headphones today is elevated. Today, however, he has only shown that the underlying hearing of at least one of the ears is normal today. A better way to report the results would be to say 'there is a bilateral mild hearing loss today with the underlying hearing in at least one of the ears being normal today' {Moderate}. In most cases it is likely that results such as those obtained today are consistent with a mild conductive hearing loss in both ears. The results obtained today however do not rule out the presence of an underlying or mild sensorineural hearing loss in at least one of the ears. This means it does not rule out that the hearing loss [Miss A] was diagnosed with was not present today.

[Mr B] has performed tympanometry noted by the letters and numbers below the audiogram [00048]. He has reported Type C2 tympanograms in both ears.

Tympanometry is a test of middle ear function. The BPGs recommend classifying tympanograms using a Type A/B/C classification system, as reported originally by Jerger (1, 4). The 'C' suggests the ear drums are 'pulled in' or retracted today. The 'C2' is not incorrect however generally audiologists do not further classify tympanograms into a subtype. The '2' suggests it is a Grade 2 retraction i.e. the ear drum is 'pulled in' more than a Grade 1 retraction.

No acoustic reflex testing was performed today. Acoustic reflex testing is important as it tests the response of the auditory nerve pathways important in hearing. This testing excludes auditory neuropathy. Auditory neuropathy is a condition where the cochlea is functional however sound is not properly transmitted to the brain properly due to a problem with the nerve pathways of the auditory system (4, 5) {Mild}. No speech testing was performed today {Moderate}.

[Mr B] did not perform a clinical cross-check of the hearing today {Severe}. The BPG (1–3) and literature regarding paediatric audiology (4, 6) both stress the importance of using a cross-check when testing paediatrics. A cross-check is another test which supports the behavioural results obtained to prove they are true results. The cross-check principle was first introduced by Jerger and Hayes in 1976 and is widely reported in the literature for audiology. There is no documentation of attempts at speech testing, such as the Kendall Toy Test, which might have provided this cross-check.

It is my clinical opinion that [Mr B] has managed the case appropriately today. There are no BPGs for how to manage an audiological case. This is left to the discretion of the audiologist. The literature regarding diagnosis of hearing loss following newborn hearing screening recommends diagnosis of a hearing loss by one month of age (1). Many audiologists follow a similar management view when assessing older children, in that they would like to rule out a significant hearing loss in at least one ear within 1 month of the first assessment. Some audiologists might argue that this child should have been brought back to obtain information about the underlying hearing of each ear separately. It may have been more appropriate for [Mr B] to recommend the ENT refer [Miss A] back to audiology after they had managed her middle ears for further testing. One reason this may not have been done is that sometimes ENT's routinely review children back for a post-grommet assessment, which may have been expected for [Miss A] here.

1. [Mr B] appears to have appropriately carried out CPA on [Miss A] today. Although I cannot comment on the reliability how the testing was practically carried out. The cross-check principle was not used today {Severe} suggesting there is a chance today's hearing results are inaccurate. [Mr B] performed tympanometry which is appropriate. It is important to know information about the child's middle ear status. [Mr B] has not performed a speech test (which would have provided a cross-check test) {Moderate}. He has also not performed acoustic reflex testing (auditory nerve function test) {Moderate}. These are important parts of routine testing for audiology as reported in the BPGs (1–3).

2. [Mr B] appropriately interpreted the tympanometry results ‘represent marked middle ear involvement bilaterally’. This interpretation is sufficient. It might have been more appropriate to report the middle status as having ‘negative middle ear pressure in both ears’ (3). As discussed above, he has incorrectly interpreted the audiometry results as a bilateral conductive hearing loss. This might have impacted the family’s view on [Miss A’s] hearing test results today. It would have been important to point out to her family that the underlying hearing test was only able to provide results for the better hearing ear. Also to let them know that the underlying hearing in at least one of the ears might not be within normal limits and that further testing should be attempted after seeing the ENT specialist. This was not documented in the notes or the report.
3. The follow-up action taken today was appropriate. Some audiologists would feel the need for one further audiology test to be scheduled to obtain information about the underlying status of each ear separately. Others would agree that managing by referral to ENT and follow-up post ENT management is sufficient. In my clinical opinion [Mr B] has managed the case appropriately today. He has however interpreted and reported the results incorrectly.
4. [Mr B’s] assessment did not include a cross-check of the audiogram. This means there is a possibility that the results of the hearing test today are inaccurate. The fact that masked bone conduction (test of separate ear underlying hearing) was not tested today means that the presence of a mild significant hearing loss in one ear today had not been ruled out. There is no substantial evidence to show that the hearing loss diagnosed in 2011 was present on this day of testing.

16/02/2009 — Report from ENT

[Miss A] was seen by an Ear Nose and Throat (ENT) Registrar today. He placed her on the waiting list for grommets. Grommets are small tubes which are inserted into the ear drums to help aerate the middle ear. These often help to improve hearing.

23/04/2009 — Operation for Grommet Insertion (Both ears)

[Miss A] had grommets inserted in both ears today.

20/05/2009 — Audiology Consultation ([Mr B])

[Mr B] saw [Miss A] for what appears to be a post-grommet check upon referral by an Ear Nurse. No clinical notes or history have been recorded. As discussed earlier this is not in line with recommended BPG (1). The audiogram shows “Audio — no go” suggesting that [Miss A] could not be taught to play the game today. This often happens with children in audiology testing, as sometimes they are too shy to play or they are in a bad mood and won’t play. If the hearing loss detected in 2011 was present on this day, it might have been hard to condition her (teach her to play the game) if the right ear was used to try and teach her. When a child cannot be conditioned it is best practice to attempt testing with bone conduction testing (which tests the underlying hearing). This is in order to see if

they can be conditioned with this stimulus. Alternatively a vibrotactile stimulus (sound that can be felt) can be used. There is no documentation of either of these being performed {Mild}.

Tympanometry showed Type B tympanograms with a high volume in both ears. These results suggest that both ears have functioning grommets. Distortion Product Otoacoustic Emissions (DPOAEs) (inner ear response) have been tested and these were absent bilaterally. [Mr B] has not done a report for today's testing, which is not uncommon if an audiologist is bringing a patient back for further testing. For this reason I cannot comment on his interpretation of these results. DPOAEs can be absent for a number of reasons. Such reasons being: the presence of wax, suboptimal probe fit, a history of middle ear problems, the presence of a hearing loss, the presence of grommets or a high level of noise in the room (4,7). [Mr B] reports regarding the OAEs that they 'not unsurprisingly were absent as they often are in cases where pristine middle ear conditions do not exist' [00007]. I am in support of this statement as often OAEs are absent where there is a history of middle ear problems, such as in [Miss A's] case (7).

No speech test appears to have been attempted today. Ideally this should have been undertaken today. There is a chance there were time constraints today and this might be why it was omitted {Moderate}. No cross-check was obtained at today's testing. As explained earlier this is an important principle in paediatric audiology testing. [Mr B] appears to bring [Miss A] back within two months of this test; therefore it is not overly concerning that no cross-check was performed.

1. [Mr B] attempted CPA testing and this was unsuccessful. He performed tympanometry to check the middle ear status. He also performed OAE testing in both ears. All of these tests are appropriate. It is unclear whether [Mr B] attempted teaching [Miss A] using bone conducted stimuli (sound played directly to the inner ear) or vibrotactile stimuli (sound that can be felt). The documentation is poor and therefore we cannot know if this was attempted today {Mild}. [Mr B] did not attempt speech testing on this day {Moderate}. There is a chance that there [were] time constraints on the appointment which prevented this from being performed. The management is appropriate with respect to the lack of obtaining a cross-check today.
2. It is unclear how [Mr B] interpreted these results to [Miss A's] family. He has not reported today's results and he has not written any clinical documentation to support the results. It is not uncommon to hold off writing an audiology report until the full results have been obtained.
3. [Mr B] has taken appropriate follow-up action. Although it is unclear in the clinical documentation what his management plan was for today's consultation, the next follow-up was scheduled for two months later. This is appropriate management considering he has not obtained any information to rule out a hearing loss in either ear.

4. The hearing loss that [Miss A] was diagnosed with in 2011 could have potentially been present at this appointment. The objective test results (OAEs) were absent in both ears. This is consistent with results of a child with a sensorineural hearing loss. I cannot state whether the results obtained today prove [Miss A] definitely had the hearing loss on this day. OAEs (inner ear response) can also be absent for a number of other reasons, as discussed above. [Miss A] had both a history of middle ear problems and had grommets on the day of testing (8). Either of these could have resulted in the absence of OAEs on testing today.

20/07/2009 — Audiology Consultation ([Mr B])

No clinical notes or history have been documented today by [Mr B]. This is not in line with BPGs which recommend they should be undertaken (1). [Mr B] tested [Miss A] using Conditioned Play Audiometry (CPA), as previously described. He reported his results as ‘bilateral hearing acuity at the bottom of the normal range’. This interpretation is essentially correct. Technically the hearing threshold at 2000Hz on the left shows a slight sensorineural loss. A better way to report the results would have been ‘normal hearing on the right with a slight high frequency sensorineural loss on the left’ {Mild}.

[Mr B] tested the tympanometry (middle ear check). He reported these results, as ‘bilateral Type B low volume tympanograms are consistent with patent ventilation tubes’ [00064]. Two negating errors are seen here. The first error is an incorrect classification of the tympanometry results that actually show ‘Type B high volume’ tympanograms. The second error is that Type B low are not consistent with patent grommets, Type B high volume tympanograms are. This might show that [Mr B] has poor understanding of tympanogram or alternatively it may be a typographical error of the ‘high’ being replaced for ‘low’ in the report.

No cross-check of hearing was obtained today {Severe}. As discussed earlier this is an important principle of paediatric audiology. We cannot be certain of the accuracy of today’s results without a valid cross-check of the hearing. We have two conflicting results: the absent OAEs (20/05/2009) and the essentially normal hearing results (20/07/2009). A third test such as speech testing should have been performed to confirm which results were more accurate {Moderate}.

[Mr B] has decided to discharge [Miss A] from audiology. As explained before there are no clear clinical management guidelines for the management of audiology cases. The decision is at the discretion of the audiologist. It would have been better to review [Miss A] non-urgently (6–12 months) as the 2000Hz threshold was outside the normal range and no valid cross-check was performed. [Mr B] might argue this was not necessary as [Miss A] would be getting the school vision hearing testing (VHT) around the same time that this appointment would be scheduled.

1. [Mr B’s] hearing testing today was appropriate. He performed the audiometry sufficiently (based on review of the chart). I cannot comment on the practical

execution of the testing. He performed tympanometry (middle ear check). This was appropriate, although this was incorrectly interpreted. He did not perform a cross-check of the hearing test {Severe}. He did not perform a speech test {Moderate}.

2. [Mr B's] description of the audiogram was not in line with BPGs (1–3) {Mild}. BPGs report a loss of 25dB or greater to be a slight hearing loss. He has not described the left hearing loss in this way. A more appropriate way to describe the loss would be a 'normal hearing on the right with a slight sensorineural loss on the left' {Mild}. He incorrectly interpreted the tympanogram results; however another error made the resulting interpretation to be correct {Moderate}.
3. The follow-up recommendation of discharging [Miss A] today was not conservative enough {Moderate}. Without having a cross-check to confirm the accuracy of the hearing test results we cannot be certain they are in fact accurate.
4. The hearing impairment diagnosed in 2011 on the left side is similar from the results obtained on the left ear today. In fact there is no significant difference between the results of the left thresholds obtained by [Mr B] today compared with those from the test performed by [Mr F] (Private Audiologist) on the 18/04/2011. [Mr B] confirms this in the supporting documents when he states 'these results confirm my high frequency thresholds at least for the left ear' [00009]. It is difficult to confirm whether the hearing loss in the right ear was in fact present at this consultation. There is no clear evidence to suggest that it is, however the results obtained to date show that the possibility of a right hearing loss has not absolutely been ruled out.

General Standard of Care

The assessments from [Mr B] in the three consultations for [Miss A] showed a satisfactory standard of care in the first two assessments. The management of the third assessment was perhaps suboptimal. Note there are no guidelines for the management of audiology cases. This is left to the discretion of the audiologist. The main deviation from NZAS Best Practice was that no cross-check was performed when [Miss A] was discharged {Severe}. This is crucial to ensure the audiogram (graph of hearing) obtained is accurate. This is especially the case when the objective results (OAEs) disagree with the audiogram. There were some minor interpretation errors in the resulting information, as was discussed earlier {Mild}. The clinical documentation by [Mr B] was poor throughout the file for [Miss A] {Mild}.

Likelihood of Hearing Loss Presence

There is a possibility that the hearing loss was present at [Mr B's] audiology assessments in 2008 and 2009. It cannot be confirmed, however, that the loss was present at any of these consultations, solely based on the documentation provided. There were clinical indicators that a hearing loss may have been present. There were concerns regarding hearing, speech delay [00049], family history of hearing

loss [00042] and absent otoacoustic emissions [00063]. These are all red flags for significant hearing loss that were all present in the case of [Miss A]. This does not confirm that the hearing loss was present in 2008 or 2009. As discussed earlier, otoacoustic emissions can be absent for other reasons. The concerns with hearing may have been due to the middle ear problems that were managed with grommet insertion. Speech delay can be caused by any number of factors, one being a history of middle ear problems, which [Miss A] had.

[Mr B] suggests that the hearing loss was perhaps not present when he saw [Miss A]. He reports... 'leading me to wonder whether the hearing loss is progressive, necessitating regular routine monitoring. I suspect that is probably the case.' [00008]. His comment is a fair one to make. Hearing losses are not always present at birth, and hearing can drop to any degree at any time for different reasons. I note that on 26th October 2011, [an] ORL consultant reports 'I understand there was a traumatic perforation problem about one year ago after diving into a pool but this would normally have given a conductive hearing loss rather than a sensorineural hearing loss'. In my academic experience, I would have to disagree with this statement. The literature supports barotraumas (trauma caused by pressure) as a possible cause of sensorineural hearing loss (9, 10). This leads me to believe that the accident of barotrauma that [Miss A] had after seeing [Mr B] may have caused the significant hearing loss detected in 2011.

Clinically, Ear Nose and Throat Specialists, determine the cause of hearing loss, therefore determining the cause of [Miss A's] hearing loss is outside my area of expertise to give advice on. It might be beneficial to consult with an ENT expert for advice on the cause of [Miss A's] loss and their opinion on whether it was present for any of these consultations.

Any other issues or concerns

Audiology is not a registered profession and, unlike other health professions, does not have a set of national guidelines that must be followed. [Mr B] would have had difficulty obtaining a set of Best Practice Guidelines from either of the universities as they only give out protocols to students or those supervising students.

[Mr B] would have had difficulty obtaining all of the Best Practice Guidelines from the NZAS website as only NZAS members have access to this section of the website. From his letter he states 'there is a lot of history behind why I was not a member of the Audiology Society...' [00009]. It appears in [Mr B's] performance reviews and his letter that he wanted to become a member of the society and had looked at ways of becoming one. Appendix F of the 'Universal Newborn Early Intervention and Hearing Screening Programme' was released to the public during the roll out of the newborn screening programme. This information would have been able to be obtained from the National Screening Unit (NSU) website. I am unsure of the exact dates of release but to my knowledge there were definitely draft versions were available for public release in 2008 and 2009 (10). [Mr B] would have had access to the paediatric section best practice guidelines (those on the NSU website). [Mr B] alternatively would

have had the option to keep up to date with current literature to form the basis of his clinical protocols. The cross-check principle has been well-known in the audiology industry since the 1970s and this is well documented in most audiology training books (4, 6).

Often as audiologists we discuss cases with other colleagues to get their clinical opinion on how to manage the case. Those in larger district health boards (DHBs) are fortunate enough to have workplace colleagues to have such discussion with. Other smaller DHBs are often reliant on contacting colleagues across other DHBs to discuss their clinical opinion. It is unlikely [Mr B] had such contacts as he was not a member of the NZAS.

If you require any further information regarding this case, please do not hesitate to contact me and I would be happy to provide further advice.

References:

- (1) New Zealand Audiological Society. Best Practice Guidelines. Members Section of NZAS website. <http://www.audiology.org.nz/priv/best-practice-guidelines.aspx> July 2012.
- (2) The University of Canterbury. The University of Canterbury Speech and Hearing Clinic Audiology Protocols and Guidelines. 2010.
- (3) The University of Auckland. Audiology Clinical Checklists. The University of Auckland. 2007.
- (4) Katz, J. and J. Lezynski (2002). Clinical masking. Handbook of Clinical Audiology. J. Katz, R. F. Burkard and R. Medwetsky. Philadelphia, PA, U.S.A., Lippincott Williams and Wilkins: 124–141.
- (5) Burkard, R. F., Manuel, D. and Eggermont, J. J. Auditory Evoked Potentials. Basic Principles and Clinical Application. 2007. Lippincott Williams & Wilkins. Baltimore US.
- (6) Jerger, J. F., Hayes, D. The cross check principle in pediatric audiometry. Archives of Otolaryngology. 1976. 102: 614–620
- (7) Hanis, F. P., & Probst, R. (2002). Otoacoustic Emissions and Audiometric Outcomes, In M. S. Robinette & T. J. Glatke (Eds), Otoacoustic Emissions: Clinical Applications. 2nd Edition. New York: Thieme, 2002
- (8) Daya, H., Hinton, A. E., Radomskiej, P. and Huchzer Meyer, P. Otoacoustic emissions: Assessment of hearing after tympanostomy tube insertion. Clinical Otolaryngology. 1996: 21: 492–494.
- (9) Berkley, S. E., Bernard, S. L. Sensorineural hearing loss caused by skin diving. Archives of Otolaryngology and Head and Neck Surgery. 1970:92(2): 128–131.
- (10) Parell, G. J and Becker, G. D. Inner Ear Barotrauma in Scuba Divers. A Long-term Follow-up After Continued Diving. Archives of Otolaryngology and Head and Neck Surgery. 1993; 119: 455–457.
- (11) National Screening Unit (2011). Universal Newborn Hearing Screening and Early Intervention Programme (UNHSEIP) National Policy and Quality Standards Appendix F Diagnostic and Amplification Protocols. Auckland, New Zealand, National Screening Unit: 72.”