Noteworthy Decision Summary

Decision: WCAT-2007-02967 **Panel**: Marguerite Mousseau **Decision Date:** Sept. 28, 2007

Occupational Noise-Induced Hearing Loss – Robinson's Tables – Use of Expert Evidence – Section 7 of the Workers Compensation Act – Policy item #31.40 of the Rehabilitation Services and Claims Manual, Volume II

This decision is noteworthy because it provides an analysis of the use of Robinson's Tables and expert evidence in an occupational noise-induced hearing loss claim.

The Workers' Compensation Board, operating as WorkSafeBC (Board), informed the worker that his hearing loss was partially due to exposure to occupational noise and partially due to other causes. As a result, a Robinson's Tables were used to decide how much of his hearing loss was likely due to his exposure to occupational noise. Based on this calculation, the worker did not have sufficient occupational noise-induced hearing loss to receive a permanent disability award. The Review Division confirmed this decision. The worker appealed to WCAT.

The worker's appeal was allowed. The worker argued that there was no "positive" evidence on his file that suggested a non-occupational cause for his hearing loss. He submitted that the Board audiologist had referred only to a "possibility" of conductive loss but had offered no evidentiary support for using Robinson's Tables as is required by policy item #31.40 of the *Rehabilitation Services and Claims Manual, Volume II* (RSCM II). Item #31.40 states that Robinson's Tables will only be applied where there is some positive evidence of non-occupational causes or components in the worker's loss of hearing (for example, some underlying disease) and will not be applied when the measured hearing loss is greater than expected and there is only a speculative possibility without evidentiary support that this additional loss is attributable to non-occupational factors. The worker also argued that the audiograms on file had the classic configuration of a noise-induced hearing loss.

The panel found that the worker's entitlement to a permanent disability award should not be based upon the use of Robinson's Tables. The Board audiologist stated that "the type, degree and configuration of the hearing loss" and the "asymmetry" of the hearing loss were inconsistent with occupational noise-induced hearing loss. The panel found that the Board audiologist did not explain how she has arrived at this conclusion. For example, she had not explained what type of hearing loss the worker had that was inconsistent with occupational noise-induced hearing loss. She stated that test results "suggested the possibility" of a high frequency conductive loss. If that was the basis for the rather definitive statement that the "type" of hearing loss was inconsistent with occupational noise-induced hearing loss, this was not adequate. There was also no explanation for the statement that the worker's hearing loss was inconsistent with his work history.

It was accepted that the audiologist was an expert and that her opinion was expert opinion evidence. However, item #31.40 of the RSCM II required a sufficiently clear explanation of the basis for recommending the use of Robinson's Tables so that an adjudicator might determine whether the policy requirement of positive evidence of other causes had been satisfied. Although the general information that has been provided in the opinion was very useful, it was also necessary to have an adequate analysis of the specific configuration of the worker's hearing loss and an explanation as to the manner in which it did not conform to the typical

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pattern of noise-induced hearing loss. This was the type of considered opinion required by policy in order to apply Robinson's Tables.

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WCAT Decision Date: September 28, 2007
Panel: Marguerite Mousseau, Vice Chair

Introduction

The worker appeals a decision regarding his entitlement to compensation for hearing loss. In a decision letter dated June 16, 2005, an officer of the Workers' Compensation Board, operating as WorkSafeBC (Board), informed the worker that his hearing loss was partially due to exposure to occupational noise and partially due to other causes. As a result, a formula called Robinson's Tables had been used to decide how much of his hearing loss was likely due to his exposure to occupational noise. Based on this calculation, the worker did not have sufficient occupational noise-induced hearing loss to receive a permanent disability award. However, the Board would pay for the cost of hearing aids.

The worker requested a review of this decision. In *Review Division Decision #R0055876*, dated January 31, 2006, a review officer confirmed the Board officer's decision that it was appropriate to determine the degree of occupational noise-induced hearing loss on the basis of Robinson's Tables. Accordingly, the review officer also confirmed that the worker was not entitled to a permanent disability award.

The worker appealed this decision to the Workers' Compensation Appeal Tribunal (WCAT). In *WCAT Decision #2006-01808*, a panel confirmed the Review Division decision. This WCAT decision was subsequently voided in *WCAT Decision #2007-01808* and the worker's application for reconsideration of the original WCAT decision was allowed.

The decision before me, therefore, is *Review Division Decision #R0055876*. The jurisdiction to consider this appeal flows from section 239(1) of the *Workers Compensation Act* (Act). This is an appeal from a final decision made by a review officer.

The worker is represented by legal counsel, who requested that the worker's appeal proceed by oral hearing because oral evidence was needed regarding the worker's disability. An initial determination was made by WCAT Registry staff that the appeal should proceed by way of written submissions. I am not bound by that decision but, after reviewing the documents on file and considering the issues to be determined, I agree that an oral hearing is not required in order to address this appeal. There is no dispute regarding the worker's disability; the issue is the degree of hearing loss that is due to his exposure to occupational noise. This determination involves the application of policy to medical evidence.

Issue(s)

The issue on this appeal is the extent of the worker's occupational noise-induced hearing loss. This involves consideration of whether it was appropriate to use Robinson's Tables to calculate the worker's occupational noise-induced hearing loss.

Background

The worker submitted an application for compensation for hearing loss on March 4, 2005. He stated that he had been employed in heavy duty welding in a fabricating shop. His date of birth was January 20, 1935 and he had retired on January 20, 2000. He stated that he had been aware of hearing problems for the last ten years and that he was "almost deaf." An audiogram showing the results of hearing tests conducted on January 21, 2005 was submitted with the worker's application for compensation.

The worker also completed an employment history in which he indicated that he had worked in another jurisdiction between 1961 and 1977. After that time, he had worked in British Columbia. A Board audiologist compiled a noise exposure record. This record indicated that the worker had significant exposure to hazardous levels of noise in British Columbia and the other jurisdiction in which he had worked. In addition, a Board officer obtained the worker's individual audiogram summary which provides the results of hearing tests conducted in 1979, 1980, 1984, 1986, 1995 and 1997.

A Board audiologist reviewed the results of the audiometric tests conducted on January 21, 2005 and concluded that non-occupational factors had contributed to the worker's loss of hearing. As a result, she recommended that Robinson's Tables, a statistical formula, be used to calculate the expected noise-induced hearing loss for the worker's age and history of occupational exposure. Using this formula, the audiologist said that the best estimate of the worker's occupational noise-induced hearing loss was 27 decibels in each ear.

After receiving the audiologist's opinion, a Board officer issued the decision letter that forms the basis of this appeal. The worker requested a review of this decision. The review officer confirmed the Board officer's decision in a decision dated January 31, 2006. He stated that it was not necessary to specifically identify the non-occupational causes of the worker's hearing loss in order to apply Robinson's Tables. The absence of the characteristic benchmarks of occupational noise-induced hearing loss was, in itself, sufficient evidence that there were non-occupational causes for the loss of hearing.

The review officer noted that the configuration or pattern of hearing loss is a recognized diagnostic tool for determining the cause of hearing loss and the Board audiologist's expert opinion was that the worker's pattern of hearing loss was not typical. He cited the characteristics of occupational noise-induced hearing loss as described by the American College of Occupational Medicine Noise and Hearing Conservation

Committee and he noted, in particular, that hearing loss is almost always bilateral with usually similar bilateral audiometric patterns and it almost never produced a profound hearing loss.

Subsequently, the worker's family physician, Dr. Larsen, wrote a letter, dated June 9, 2006, in which he stated that the worker claimed to have a 40-year occupational noise exposure history. He stated that, on reviewing the worker's chart, he could see no other medical reason for the worker's hearing loss.

In addition, Dr. Kloppers, ear nose and throat surgeon, wrote to the Board on July 12, 2006. Dr. Kloppers stated that he had first seen the worker in April 2005 and that the worker had a history of significant hearing loss after working as a metal worker all his adult life. He states that the worker is right-handed so it is understandable that the right ear was more exposed to noise than the left and it is therefore not surprising that his hearing loss is asymmetrical bilaterally. Dr. Kloppers goes on to say that the hearing loss is of the same sloping nature, which indicates noise exposure hearing loss.

Law and Policy

Section 7 of the Act states that compensation is payable for non-traumatic hearing loss, that arises "out of and in the course of employment." The compensation must be paid in accordance with Schedule D. Under Schedule D, in order to receive compensation, a worker must have a minimum hearing loss of 28 decibels at the frequencies of 500, 1000, and 2000 Hertzian waves.

There are also a number of policies on hearing loss which are set out in the *Rehabilitation Services and Claims Manual, Volume II*, (RSCM II). The policy at item #31.40, "Amount of Compensation under Section 7," deals with situations where factors other than exposure to noise have likely contributed to a worker's loss of hearing. This policy says, in part:

> Where a worker has an established history of exposure to noise at work, and where there are other non-occupational causes or components in the worker's loss of hearing, and where this non-occupational component cannot be accurately measured using audiometric tests, then "Robinson's Tables" will apply. "Robinson's Tables" will only be applied where there is some positive evidence of non-occupational causes or components in the worker's loss of hearing (for example, some underlying disease) and will not be applied when the measured hearing loss is greater than expected and there is only a speculative possibility without evidential support that this additional loss is attributable to non-occupational factors.

The policy at item #31.20, "Amount and Duration of Noise Exposure Required by Section 7," provides, in part:

> It has been suggested that after 10 years of exposure further loss is negligible. Generally speaking, the evidence is that the first 10 years has a significant effect at higher frequencies. However, where lower frequencies are concerned (up to 2,000 hz.) hearing loss continues after that time and may, in fact, accelerate in those later years. Therefore, since the disability assessment under Schedule D relies on frequencies of 500, 1,000 and 2,000 hz., no adjustments for duration of exposure are made.

The policy at item #97.34, "Conflict of Medical Opinion," provides, in part:

> Where there are differences of opinion among doctors, or other conflicts of medical evidence, the Board officer must select among them as best she or he can. The Board officer must not do it by automatically preferring the opinions of one category of doctors to another category, nor should it be done by counting heads, so many opinions one way and so many another. The Board officer must analyze the opinions and conflicts as best as possible on each issue and arrive at her or his own conclusions about where the preponderance of the evidence lies.

Reasons and Decision

The worker's representative made submissions to the Review Division and WCAT in support of the worker's appeal. The main points of his argument are set out in his submission to the Review Division, which is dated October 21, 2005. In this submission, he stated that the audiologist had not explained how the worker's hearing loss was inconsistent with his work history, which includes a 40-year history of noise exposure, nor had the audiologist commented on the configuration of the hearing loss. The representative submitted that the hearing loss need not be symmetrical; the literature merely states that it is usually bilateral. He also noted that the audiologist had referred to the possibility of a high frequency conductive hearing loss but there was no clear evidence of an inner ear defect or disease such as had been noted in *WCAT Decision #2005-00769*.

The representative submitted that there was no "positive" evidence on the worker's file that suggested a non-occupational cause for the worker's hearing loss. He submitted that the audiologist had referred only to a "possibility" of conductive loss but had offered no evidential support for using Robinson's Tables as is required by the policy at item #31.40 of the RSCM ll.

The representative goes on to state:

> In this case, all summary audiograms on file have the "classic" configuration of a noise-induced hearing loss [1]:
>
> - The loss is bilateral and of a comparable degree.
> - The loss is minimal at low frequencies.
> - There is a "sloping" configuration.
> - The loss peaks [notch] at 4000 Hz.
> - There is some hearing recovery at 6000 Hz and 8000 Hz.
>
> Thus, this worker's configuration of hearing loss conforms to a typical pattern of noise-exposed loss as documented in the literature. Again, there is no positive evidence to the contrary.
>
> On that basis, it is submitted that the Robinson's Tables did not apply in this case. There is no positive evidence of non-occupational factors. The audiograms on file have the classic configuration of a noise-induced hearing loss.

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[1] For example, the 1997 audiogram showed an incremental loss on the left as follows: 20, 40, 40, 55, 70, 40, 35. The loss on the right was: 20, 30, 40, 40, 60, 40, 30. The loss was maximal at 4000Hz [70 on the left and 60 on the right].

The representative also referred to several WCAT decisions which involved the application of Robinson's Tables: *WCAT Decisions #2005-04001*, *#2005-00769* and *#2004-00917*. In his submission to WCAT, the worker's representative referred to Dr. Larsen's letter and stated that the worker should receive a permanent disability award based on Dr. Larsen's statement that he does not see any other medical reason for the worker's loss of hearing.

I have reviewed the WCAT decisions noted by the worker's representative in his submission to the Review Division. Decisions of WCAT are not policy and, with the exception of WCAT decisions issued by a panel constituted under section 238(6), WCAT is not bound to follow legal precedent (section 250(1)). However, the WCAT *Manual of Rules of Practice and Procedure* (MRPP) provides that WCAT will strive for consistency in decision making. (See items #14.10 and 20.44 of the MRPP.) Accordingly, it is useful to consider the reasoning in appropriate prior decisions.

In *WCAT Decision #2005-04001* the panel found that evidence that the extent and pattern of hearing loss was inconsistent with occupational noise-induced hearing loss was an insufficient basis for using Robinson's Tables. In that case, the opinion

evidence of the audiologist was quite general and there had been speculation regarding other possible causes.

On the other hand, in *WCAT Decision #2004-00817*, another panel concluded differently. In that decision, the panel referred to *Appeal Division Decision #98-1974* (15 WCR 283). The WCAT panel noted that, in the Appeal Division decision, the panel had concluded that the requirement for "positive evidence" in policy item #31.40 did not mean that the evidence had to specifically identify the non-occupational cause of the hearing loss. The absence of the characteristic benchmarks of occupational noise-induced hearing loss set out in the literature would constitute sound, reliable evidence of non-occupational cause(s) to warrant the application of Robinson's Tables under policy #31.40.

In this regard, I have reviewed *Appeal Division Decision #98-1974*, specifically with respect to the opinion evidence that provided "positive evidence" of non-occupational causes in that case. I was the panel in that case and I made the following comments regarding the type of evidence that could constitute "positive evidence" for the purposes of policy item #31.40:

> The policy respecting Robinson's Tables (item #31.40) could however be interpreted as stating that, once there has been an established history of exposure to noise at work, all hearing loss will be accepted as compensable unless there is evidence identifying a specific non-occupational cause for the hearing [loss]. This appears to be the interpretation suggested by the worker's representative.
>
> An alternative interpretation of this policy however suggests a broader interpretation of the phrase "positive evidence". This interpretation would treat the phrase "positive evidence" as including any reliable or sound evidence of non-occupational causes — not limiting the acceptable evidence to specific evidence of another cause. It would result in acceptance of hearing loss as occupationally induced unless there was reliable evidence that the hearing loss was caused by non-occupational causes but this would not require additional evidence of the likely cause. This interpretation is consistent with the usual interpretation of the evidence required under item #31.20.
>
> Based on memo #13, it seems that the audiologist relied on the following information to conclude that the worker's hearing loss was not entirely due to occupational causes:
>
> - the dramatic deterioration over a 3.5 year period (between 1993 and 1996) was not consistent with the very slow threshold deterioration of a noise induced hearing loss

- the timing of this rapid deterioration was also inconsistent with noise induced hearing loss since it occurred after 30 years of exposure to noise

- the flat configuration of the hearing loss was not consistent with noise induced hearing loss which is a high frequency "notched" loss centred at 3000 to 4000 Hz and preservation of near normal hearing at the lower thresholds

- the hearing loss previously accepted as compensable was, in itself, questionable since it had largely occurred after the worker had been exposed to noise for 17 years

- the results of the November 4, 1996 tests showed findings suggestive of middle ear pathology (in memo #17 another audiologist indicated that these findings were negligible)

[emphasis in original]

The analysis of the worker's history and configuration of hearing loss that was provided by the audiologist was accepted in the Appeal Division decision as positive evidence of non-occupational causes.

In contrast to the analysis set out in that opinion, the audiologist's opinion in the present case is set out below in full:

> Audiometric results from January 21, 2005 indicate a mild to moderate-severe hearing loss in the left ear and a moderate to profound hearing loss in the right ear. Bone conduction results suggest the possibility of a high frequency conductive hearing loss in both ears. The type, degree and configuration of the hearing loss, as well as the asymmetry are not consistent with occupational noise-induced hearing loss or the client's work history.
>
> Occupational noise-induced hearing loss is characterized a notch from 3000-6000 Hz with normal hearing at 250-1000 Hz, similar hearing bilaterally and is never conductive, but always sensorineural (ACOEMA, 2002; Dobie 1995; Sataloff and Sataloff, 1993, 1998).
>
> In this case the audiometric features of the hearing loss are incongruent with a strictly noise-induced hearing loss. The presence of noise damage to hearing does not preclude the co-existence of other ear disease. Hearing loss of idiopathic or unknown origin can occur in a noise-exposed population. The lack of a definitive indication of a specific otological

condition does not mean that the loss by exclusion must be noise-induced. Non-occupational etiologies are typically not specifically identified given that there are innumerable causes of hearing loss (Sataloff and Sataloff, 1993; Dobie, 2001). Therefore, the occupational noise exposure history in conjunction with the audiometric configuration of hearing loss (e.g. site of lesion, frequencies involved, severity, time course) is used to define occupational noise-induced hearing loss (Alberti, 1987; Sataloff and Sataloff, 1993; Williams, 1996, Dobie, 2001). It is equivalent to a medical assessment of the likely mechanism of injury. One of the most important features generally characteristic of occupational hearing loss is the worker **must have a history of long-term exposure to intense noise levels sufficient to cause the degree and pattern of hearing loss evident in audiologic findings** (Sataloff & Sataloff, 1993). Lipscomb (1987) indicates that when diagnosing occupational noise-induced hearing loss, there needs to be a hearing loss consistent with the damage risk criterion, and the hearing loss must be consistent with the alleged cause (hazardous occupational noise exposure). Although this client has had hazardous noise exposure, and also has hearing loss, the configuration and the time course of the hearing loss are not consistent with the characteristic of occupational noise-induced hearing loss established in the scientific literature.

It is possible that occupational noise has contributed to the high frequency hearing loss. However, the possible conductive component, the low and mid frequency involvement and the asymmetry strongly suggests that non-occupational factors have contributed to this client's overall hearing loss. In view of the positive evidence that non-occupational factors are present, Robinson's Tables are the fairest and best reflection of the extent of occupational noise-induced hearing loss (NIHL) bilaterally. Robinson's Tables are a statistical formula, which calculates the expected noise-induced hearing loss for the client's age and history of occupational noise exposure, for the most susceptible 10% of a population. The values are calculated at the 10th percentile, which assumes that the client is among the 10% *most* susceptible individuals. The 10th percentile means that 90% of individuals with the same noise exposure history would have better hearing than the calculation reflects. If we assumed the client had average susceptibility, we would make the calculation for the 50th percentile. We instead assume *greater than average susceptibility*, giving the benefit of the doubt to the client. Robinson's Tables (sent for scanning) are the fairest and best reflection of the extent of occupational noise-induced hearing loss (NIHL) bilaterally. They give the best estimate of the client's occupational noise-induced hearing loss as **27** dB average (500 – 2000 Hz) in either ear.

The client no longer works in hazardous noise. The above results are the best indication of the extent of the hearing loss from the client's hazardous

noise exposure. It is well documented that once the exposure to the hazard of noise ceases, there is no significant further progression of hearing loss as a result of past noise exposure (ACOEMA, 2002; Dobie 1995; Sataloff and Sataloff, 1993, 1998).

The client is a hearing aid candidate and may benefit from amplification.

References:

1. American College of Occupational and Environmental Medicine Association (2002). *Evidence-based statement on noise-induced hearing loss.* Retrieved June 30, 2002 from the World Wide Web at http://www.acoem.org/guidelines/pdf/Noise-induced-Hearing-Loss-10-02.pdf.
2. Alberti, P. (1987) Noise and the ear. In D. Stephens. (Ed.), *Scott-Brown's Otolaryngology*. London: Butterworth, (Original work published 1952)
3. Dobie, R. (1995). Prevention of noise-induced hearing loss. *Archives of Otolaryngology: Head and Neck Surgery, 124,* 385-391.
4. Dobie, R. (2001). *Medical-legal evaluation of hearing loss.* San Diego: Singular (Original work published 1993)
5. Sataloff, R. & Sataloff, J. (1993). *Occupational Hearing Loss.* New York: Marcel Dekker Inc. (Original work published 1987)
6. Sataloff R., & Sataloff, J. (1998). Occupational hearing loss: basic concepts. *Journal of Occupational Hearing Loss, 1,* 7-15.
7. Williams, R. G. (1996). Review paper: the diagnosis of noise-induced hearing loss. *Journal of Audiological Medicine*, *6,* 45-58.

[reproduced as written, emphasis in original]

The audiologist, in this case, has stated that "the type, degree and configuration of the hearing loss" and the "asymmetry" of the hearing loss are inconsistent with occupational noise-induced hearing loss but has not explained how she has arrived at this conclusion. She does not explain, for example, what type of hearing loss the worker has that is inconsistent with occupational noise-induced hearing loss. She states that test results "suggest the possibility" of a high frequency conductive loss. If that is the basis for the rather definitive statement that the "type" of hearing loss is inconsistent with occupational noise-induced hearing loss, it does not seem adequate. There is also no explanation for the statement that the worker's hearing loss is inconsistent with his work history.

Further on in the opinion, the audiologist states that "the possible conductive component, the low and mid frequency involvement and the asymmetry" point to other causes. Although it may very well be that the audiologist's conclusion is well-founded, some further explanation is required to make that apparent. I have already noted the

concern regarding the "possible conductive component." Beyond that, it is not clear what is meant by "low and mid frequency involvement." Is the audiologist saying that, after 40 years of exposure, there should be no hearing loss at those frequencies as a result of exposure to noise? If so, this seems inconsistent with the policy which states that hearing loss, at frequencies up to 2,000 Hertz, continues after ten years and may actually accelerate in later years.

The opinion contains many general statements about the characteristics of occupational noise-induced hearing loss and references to literature that supports these statements, but it provides very little interpretation or analysis of the worker's history of hearing loss and the configuration of his hearing loss. The representative has provided his interpretation of the worker's audiograms and submitted that, based on the literature, the worker's pattern of hearing loss appears quite consistent with occupational noise-induced hearing loss. Although I do not accept his interpretation of the audiograms, I find that the audiologist's opinion contains insufficient analysis to provide a sound basis for rejecting the representative's submission.

It is accepted that the audiologist is an expert and her opinion is expert opinion evidence. In my view, however, the policy requires a sufficiently clear explanation of the basis for recommending the use of Robinson's Tables that an adjudicator may determine whether the policy requirement of positive evidence of other causes has been satisfied. Although the general information that has been provided in the opinion is very useful, it is also necessary to have adequate analysis of the specific configuration of the worker's hearing loss and an explanation as to the manner in which it does not conform to the typical pattern of noise-induced hearing loss. This is the type of evidence that was accepted as constituting positive evidence of non-occupational causes in *Appeal Division Decision #98-1974*. In my view, the policy requires the articulation of a considered opinion of this nature in order to apply Robinson's Tables.

In the present case, I am persuaded by the representative's submission that the requirement for "positive evidence of non-occupational causes or components" has not been met. I find that the opinion evidence does not provide a sound basis for the application of Robinson's Tables. As a result, I consider that Robinson's Tables should not have been applied to determine the extent of the worker's occupational noise-induced hearing loss.

Conclusion

I vary *Review Division Decision #R0055876*, dated January 31, 2006. The worker's entitlement to a permanent disability award should be based on the worker's audiogram of January 21, 2005 with the appropriate apportionment based on the number of years that the worker was employed in another jurisdiction.

Marguerite Mousseau
Vice Chair

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