



Embargoed until Friday 22nd October 2010

National Foundation for the Deaf (NFD)

Be Heard Position Paper

Topic: Changes to the ACC legislation for NIHL – Noise-Induced Hearing Loss (sound injury deafness)

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NFD© 22 October 2010

Example of Letter to be sent to MPs on 22 October 2010
Parliament Buildings
Wellington

20 October 2010

Dear MP,

Since we last communicated, NFD has been working with an award winning research writer to complete a Position Paper on the Changes to the ACC legislation for NIHL - Noise-Induced Hearing Loss (sound-injury deafness), a copy of which is attached.

This Position Paper has been prepared collaboratively with contributions from all perspectives of the hearing impaired sector and it gives precise and credible information to you as a Member of Parliament on how these changes have impacted on consumers with Noise-Induced Hearing Loss (sound-injury deafness).

As Michael Uniacke noted "for most people, blind people arouse concern, but deaf people arouse impatience."

Because of this, we very much need your support as a Member of the New Zealand Parliament, to protect and uphold the human rights of people with Noise-Induced Hearing Loss.

We have attached a list of issues with which we seek your active support. This list will offer you a golden opportunity to make a difference for people with Hearing Impairment in New Zealand.

We would also appreciate the opportunity to meet with you to discuss this further and ask that you please advise of your availability to: sara.huszak@nfd.org.nz

Regards

Louise Carroll QSO, JP, GDPPA (Mgment), MPM (Mgment)
Chief Executive Officer
National Foundation for the Deaf Inc

BULLET POINTS

- ***The UN Convention imposes on ratifying States an obligation to “safeguard and promote the right to work including for those who acquire a disability during the course of employment by taking appropriate steps to... promote vocational and professional rehabilitation, job retention and return to work programmes...”¹***
- *While the direct cost to ACC for all hearing loss claims including noise induced hearing loss in 2008-9 was \$58.4 million, the loss to the economy is substantially greater when sound injury rehabilitation is not provided.²*
- *At least 55% of ACC claimants for sound injury deafness are low-income manual, trades and agricultural workers, who are more vulnerable to severe financial constraints as their hearing impairment progresses. This is the group least able to afford hearing aids and who will comprise the primary group of claimants declined by ACC.*
- *The rate of growth in claims since 2007 has not increased. The actual costs of hearing aids are less than was projected – as a result of the 2007 ACCORD (the voluntary agreement with audiologists and hearing aid manufacturers) there has been a reduction in the cost per hearing aid of 22% since 2007 and audiology fees have not increased since 2001.*
- ***Rehabilitation of people with sound injury deafness will pay back society in an economic and social sense with higher workforce participation, higher taxation revenue, associated spin-off economic benefits, and more socially productive lives. This is wholly in line with ACC’s objectives, as stated in the purpose of the Act, to provide for social rehabilitation of injured New Zealanders.***

¹ Article 27: Work and Employment : subs (f)

² Submission to the IPRC Amendment Bill 2009 by NFD p13

We ask that you, as a Member of the New Zealand Parliament, advocate on our behalf to ensure at least some of the following issues are addressed.

We ask that you as a Member of Parliament advocate that ACC needs to:

1. implement Noise-Induced Hearing Loss entitlement based on individual case merit and to provide a whole of government funding approach allowing for a one-stop provision of hearing aids and related services as required for noise-induced hearing loss based on a claimant's single needs assessment for hearing loss
2. ensure the calculation of the percentage of Noise-Induced Hearing Loss is conducted as required under the legislation; furthermore we ask that cover is not re-litigated but is maintained through the lifetime of the claimant as Noise-Induced Hearing Loss because it is a permanent and irreversible injury
3. when setting policy, to include consideration of the research findings from the Auckland University School of Population Health, to determine the potential contributions of other occupational hazards and non-work related noise exposure to the incidence and prevalence of NIHL
4. fund NFD to provide a support programme for people endeavouring to gain hearing aid funding
5. retrench from implementing the proposed decrease in audiological fees as they have not been increased since 2001
6. actively pursue its stated purpose of education on prevention of noise-induced hearing loss

We also ask that you advocate:

7. for a review of the New Zealand legislation and the effectiveness of its implementation. This should include a review of the adequacy of the legislation, the effectiveness of its implementation and monitoring of the legislative requirements, and whether changes such as the introduction of action levels and a shift to a hearing loss prevention approach or noise management programmes could enhance its effectiveness
8. with ACC and OSH to increase their educational activities amongst trades and agricultural and other occupational groups of workers vulnerable to noise-induced hearing loss in line with their statutory obligations and that they give due consideration to implementing the 'SoundSafe' model as identified by Thorne et al in their 2006 Report to ACC
9. with ACC and OSH to actively encourage industry to develop a strong workplace culture of noise control, hearing protection and prevention of Noise-Induced Hearing Loss
10. for funding of NFD to develop a national education campaign on the issue of noise-induced hearing loss and how to prevent it
11. with the Ministry of Education to ensure that education on the risks of noise exposure and noise-induced hearing loss is included in school curricula at all levels
12. with the Ministry of Social Development to fund research that explores and reports on the nature and incidence of bullying of *hearing impaired* people in all aspects of their lives.

National Foundation for the Deaf Inc (NFD) Position Paper on changes to the ACC legislation for Sound Injury Deafness and Noise-induced Hearing Loss (NIHL).

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EXECUTIVE SUMMARY

Hearing is the brain's response to sound waves that our ears receive. The damage with sound injury occurs in the fine hair cells inside the cochlea in the inner ear, close to the brain, that detect higher frequencies of sound. Once they die, the hair cells cannot be repaired or regenerated. Noise-induced hearing loss (NIHL or sound injury deafness) is the term for permanent hearing loss caused by irreversible injury from exposure to excessive noise.

In 2009 the government announced it was preparing all or part of ACC to make it a more attractive proposition for sale to private investors or to 'opening it up to competition'. The government embarked on a "cost containment" exercise that included setting a claim threshold of 6% for claimants with NIHL. The figure of 6% was not chosen for clinical reasons but was based on the level of expenditure ACC calculated it wanted to save.

While 6% does not sound like a significant amount, in fact the hearing frequencies damaged by noise injury occur predominantly in those frequencies that are necessary for communication. 95% of claimants are men who have worked in noisy environments – construction, manufacturing, farming, fisheries, engineering workshops – sometimes for many years. As the injury is usually slowly progressive, it may take years before the effects become obvious. The 6% threshold of hearing loss is not reached until there has been substantial damage to the hearing system.

The original ACC Act was designed as a comprehensive, no-fault cover for all injury for all New Zealanders. It is funded by all resident New Zealanders through employer levies (for the Work Account, which includes claims for work-related injuries including noise-induced hearing loss, Motor Vehicle registrations, and taxes (for personal injury). It is also highly regarded internationally as an admirably cost-effective scheme that provides a crucial component of New Zealand's health services.

The rationale is that by 2019 employers will have paid levies to fund all existing as well as potential (i.e. residual) claims for NIHL up to the year 2046 (i.e. for the next 36 years). The Minister is addressing the expressed concerns of employers over these levies by cutting entitlements to rehabilitation (Note: claimants for NIHL are not paid compensation, only rehabilitation in the form of audiological services including hearing aids). The actual and proposed cuts include:

- less specialist support from audiologists for fitting and training claimants in the effective use of hearing aids (which are actually miniature computers)
- reducing the trial period of new hearing aids to three weeks
- a reduction in the amount paid by ACC towards the cost of hearing aids
- insufficient funding for hearing aid repairs
- requiring claimants to part-pay for their own rehabilitation.

All these changes undermine the purpose of the ACC Act, including that of “ensuring that, where injuries occur, the Corporation’s primary focus should be on rehabilitation with the goal of achieving an appropriate quality of life through the provision of entitlements that restore to a maximum practicable extent a claimant’s health, independence and participation” as stated in Section 3 (c) of the Act.

There are other funding options available to ACC.

In addition, the amendments to the Act:

1. **ignored the legal obligations** required by the NZ Bill of rights Act 1990, the Human Rights Act 1993, the ILO Convention 17 and the UN Convention on the Rights of persons with Disabilities
2. **ignored the international specialist audiological research** that states unequivocally that ACC’s assessment process is not scientifically validated, is unfair and inequitable, and produced variable outcomes
3. **failed to consider the widespread economic costs** of untreated NIHL to New Zealand
4. **dismissed the individual and community hardship incurred** by claimants as a result of ACC failing its own statutory objectives.

Assessment of noise-induced hearing loss

Under the ACC regulations, a claimant for NIHL must first have a hearing assessment by a fully qualified audiologist, who have a minimum of a Masters Degree in Audiology and are required to undergo 12 months (minimum) clinical experience followed by a Clinical Competency Examination and must be Full members of the New Zealand Audiological Society. Once the audiologist has passed the CCCs (Clinical Certification) their name is circulated and accepted. Each Full member of the NZAS must undertake a biennial (two yearly) Clinical Education Peer Review process. who holds a minimum of an MA in Audiology plus demonstrated clinical competency. The results of the assessment are recorded on an audiogram, i.e. a hearing chart of the sensitivity of the ear in decibels graphed against the frequency in kilohertz (kHz). One Hz = 1 cycle or wave of sound per second.

Human hearing is usually between 20Hz and 20,000 Hz. With NIHL, the frequencies of 3,000-6,000 Hz are the first to be damaged. Over time the notch widens out and is lost as it includes other higher and lower frequencies and comes to resemble that of age-related hearing loss. Also, current research indicates that pre-existing NIHL accelerates age-related hearing loss.

The audiologist's report is then sent to an ACC-approved ENT specialist who advises ACC on whether the claimant meets the criteria for a hearing aid.

Noise-induced hearing loss and age-related hearing loss

An added complication for claimants is that ACC is proposing to apply an increasing scale of additional hearing loss purely based on age (whether or not a person actually has age-related hearing loss) and deduct this from the total hearing loss. Depending on what proportion of hearing loss is then determined by the ENT as being from NIHL or other causes, ACC will pay the proportion of a hearing aid that is related to the noise-induced hearing loss only. So if 50% is attributed to NIHL and 50% to other causes, ACC will pay 50% - or half - of the required hearing aid.

There is no confirmed scientific basis for application of this age-related scale.

The situation could occur where a claimant at age 50 who has an 8% sound injury will not qualify for an updated hearing aid at age 65 as 2.9% is deducted because of his age, even if he has no further hearing loss.

Noise-induced hearing loss and idiopathic hearing loss

Idiopathic hearing loss essentially means the ENT does not know the cause of this portion of hearing loss – it may or may not be NIHL. ACC chooses to interpret this percentage of hearing loss as NOT being caused by sound injury, even though it may well be.

As a difference of 0.1% in the allocation of NIHL or ageing or idiopathic (unknown cause) hearing loss can result in ACC denying a claimant hearing aids, or requiring them to pay a substantial component of the cost, and a different ENT may make a different assessment.

This renders the process unreliable as it becomes subjective, dependent upon individual ENT's because there are claimants who receive hearing aids who should not qualify and those who are denied who should be receiving them.

The regulations do not allow either the ACC or the ENT to apply discretion.

Responsibility for prevention of NIHL

There is an established international standard for workplace noise. Although there is still some risk of hearing loss at lower sound levels, exposure to 85dBA over an 8-hour period is regarded as the maximum permissible noise dose. Every increase in decibel rating above that increases the risk of sound injury. Of note, a 3 decibel increase equates to a doubling of the sound intensity.

For sustained or repeated exposure to steady or intermittent high frequency noise, such as a chainsaw, or a concrete drill, there is no possibility of recovery and hearing loss is permanent.

Both the Department of Labour, through the Health and Safety in Employment Act 1992, and ACC have legally mandated responsibility for regulating the limits of noise exposure in workplaces and promoting measures that reduce personal injury.

In 2005 the Department of Labour acknowledged their failure to adequately implement systems to address noise exposure in workplaces and promote measures that reduce personal injury, and a 2009 preliminary research report from Massey University noted that there is relatively poor compliance with OSH regulations around workplace noise.

At the same time, a recent study at a Kinleith pulp and paper mill, where there has been strong management commitment to monitoring noise levels, engineering controls and personal hearing protection, showed that over a 10 year period there was almost no deterioration in the 254 participants' audiometric profile.

It is internationally accepted on the basis of research that personal hearing protection can not be as effective as noise control at source. Workplace control requires the issue of hearing safety to be part of workplace culture and includes noise management programmes that focus on reducing noise exposure at source. Appropriately selected and fitted personal hearing protection is valuable in prevention of sound damage but is unable to provide full protection. Personal hearing protectors are often hot and cumbersome to wear and in a large construction site, for example, could even jeopardize the wearer's safety. But, even a few minutes' exposure to a noise toxic environment can cause damage.

Best international practice places hearing protection on the lowest rung of the hierarchy of noise control measures. There is an urgent need for widespread education on sound injury prevention.

Safety Issues

Workers, working in noisy employment situations who have untreated hearing loss may not hear safety instructions or warning calls and they become a risk to themselves and to others. There are also issues such as road safety, and family risks of not hearing young children's voices – when backing out of a driveway, for example.

Allowing an acceptable rate of 6% noise-induced hearing loss permits employers to regard a rate of up to 5.9% sound injury as acceptable. This is a disincentive to implement noise controls. The changes also expose employers to the risk of litigation, which is a burden on individuals, employers and the Court system that ACC was designed to prevent.

Legal Issues

The changes to the ACC Act have the potential to undermine the human rights principles related to rehabilitation.

1. **Discrimination on the grounds of disability.** Setting a 6% (or any) claim threshold on an injury is discriminatory and is tolerating and enshrining hearing loss in law, which in effect is legalizing discrimination.
2. **Discrimination on the grounds of age.** The proportion of people over 65 is increasing and the application of an age-related scale of hearing loss is discriminatory. If part of a claimant's hearing loss is from causes other than NIHL, this is a collateral benefit that does not cost ACC any extra. The issue is not that ACC is being required to pay more. The issue is that ACC is seeking ways of shifting payment elsewhere.
3. **Discrimination on the grounds of race.** Maori and Pacific Islands claimants have the lowest number of claims, yet have higher rates of employment in noisy industries and higher incidence of hearing loss. This policy exacerbates that inequity.
4. **Flouting of New Zealand's legal process.** There has been no indication that consideration has been given to a single point raised in the submissions to the Select Committee. In addition, the proposal to introduce part-payment for NIHL/age-related hearing loss had not been signaled, and only 4 weeks was allowed for submissions. This is a bare minimum legal response time, which, considering the most impacted are communication impaired and require further time for consultation, indicated the process was flawed and the outcome pre-determined.
5. **Review of changes to legislation by Treasury.** It is a requirement of due process that changes be reviewed by Treasury's Regulatory Impact Analysis team and a Regulatory Impact Statement issued. This has not been done. There has been no indication from

government or from ACC of any arrangement to take up the additional costs for claimants, or for assistance for claimants who need to co-ordinate different funding sources. Related businesses – audiologists and hearing aid manufacturers – have not been properly consulted on the viability of the changes.

Socio-economic Costs: the national burden of untreated noise-induced hearing loss

There are substantial economic and social implications for all New Zealanders resulting from untreated NIHL.

ACC's financial rationale

While ACC has \$10billion in liabilities, in the last year it has posted a billion-dollar surplus; in 2009 it had \$11.1billion in assets with \$13.4billion forecast for 2010, and the ACC investment team has \$10billion under profitable management.

The figures ACC quotes for their proposed annual savings from NIHL by applying the 6% are artificially inflated as they also include rehabilitation, maintenance and costs from work-related accidents. Although the ACC consultation document on the proposed changes states the growth in claim costs as being 57% between the years 2005 and 2009, the actual annual rate of growth between 2005-6 and 2008-9 was only **3.64%**.

There are continuing to be profound changes in the nature of work since the early 20th century as increasingly fewer people are employed in noise-toxic environments and more are in white-collar and service based jobs where communication skills are essential.

The rate of growth in claims since 2007 has not increased. The actual costs of hearing aids are less than was projected – as a result of the 2007 ACCORD (the voluntary agreement with audiologists and hearing aid manufacturers) there has been a reduction in the cost per hearing aid of 22% since 2007 and audiology fees have not increased since 2001.

The projected figures for existing and future claims are based on historical data that renders them questionable.

National costs of NIHL

- 1. Lost earnings.** In 2009 there was a total of 34,042 claimants in the 45-69 year old age group in active employment. Their earning ability – and their ability to be taxpayers and consumers – will be compromised by the application of the 6% claim threshold and the age-related scale.

2. **Tax foregone.** The comprehensive 2010 Australian Senate Report on Hearing Health in Australia notes the negative effects on taxation levels of lower workforce participation and lower income levels for people with hearing impairment. This also means less revenue from GST.
3. **Loss of consumer spending.** Over 55% of NIHL claimants are in low-paid manual work (30% did not have their occupation recorded). If ACC approves part-payment only, these low-income workers will not be able to pay the balance and will remain disabled and unable to contribute to the economy as taxpayers and consumers.
4. **Increased health costs.** Adult hearing loss is associated with an increased risk for a range of health conditions including diabetes, heart attacks, strokes and many stress-related conditions.
5. **Deadweight losses.** The government must fund additional revenue to recover loss of taxation from additional taxes needed to replace that lost to the government by policies that prevent productivity of people with NIHL; fund welfare payments; fund additional health costs; and recover deadweight losses from the administration involved by government systems on health, welfare and spending transfers.

For the Australian economy the annual costs per person with hearing loss total 1.4% of total GDP. It is reasonable to transfer this statistic to New Zealand and by doing so, this represents a New Zealand equivalent of NZ\$1.87billion. Rehabilitation of people with NIHL will pay back society in an economic and social sense with higher workforce participation, higher taxation revenue, associated spin-off economic benefits, and more socially productive lives.

Psycho-social effects of untreated noise-induced hearing loss

Hearing impairment including noise-induced hearing loss may appear to be an invisible disability but the effects of untreated hearing loss are not. These are well documented and include:

- **Fear** – of losing employment e.g. by misunderstanding communications; not being able to use phones at work or in an emergency; not finding a job (misunderstandings in interviews); humiliation; of being seen as slow, stupid or difficult; being alone and not hearing someone enter the house.
- **Increase in financial hardship** – people with hearing impairment earn significantly less on average than the total population. The Ministry of Social Development provides small loans for hearing aids only to beneficiaries and only if they do not receive ACC. The Ministry of Health is operating within severe financial constraints, and a new funding policy has been introduced which denies assistance unless you are on a Community Services Card or are a beneficiary.

- **Communication problems** – for example, having to rely on nonverbal cues, which can easily be misinterpreted, or a parent not being able to hear vital family discussions.
- **Loneliness** – either struggling or being unable to watch movies or DVDs unless they are subtitled; unable to attend live theatre or shows; wanting, but being unable, to engage in voluntary activities such as search and rescue; and being excluded from conversation at family and social gatherings.
- **Additional health hazards in noisy workplaces** – these can include dust, stench, noxious fumes, heat, and may be indicative of poorly regulated workplaces.
- **Stress on partners and family members** – the strain of conversation that must include raised voices is fatiguing for everyone; there is a loss of intimacy and casual conversation; the partner's social life also becomes constricted. The psycho-social effects of stress are known to elevate the output of stress hormones, leading to increased risk of disease. There are clear indications that the use of hearing aids has direct health benefits. Less stress leads to improved health outcomes.
- **Bullying** – whether intentionally or unintentionally – and being treated with contempt as being slow, dense, stupid or backward, is quite common for people with hearing impairment regardless of their age (or youth). The reality is that the hearing impaired person is more often subject to a culture of bullying and intolerance. This applies in the workplace as well as in personal relationships. As one hearing impaired person noted, “For most people, blind people arouse concern, but deaf people arouse impatience.”

SUMMARY

The amendments to the ACC Act and regulations cannot be justified on legal or ethical grounds as they enact discrimination on the basis of disability, age and race.

They cannot be justified on scientific grounds, as the science does not support the basis of ACC's hearing assessment and age-related hearing loss schedules.

They cannot be supported on economic grounds as the overall national costs of not treating noise-induced hearing loss are significantly outweighed by the benefits of rehabilitation.

Furthermore these amendments to the ACC Act cannot be justified on social grounds, as the implementation of a government policy that knowingly precludes persons with a life-altering sensory impairment from receiving rehabilitation is in contravention to human rights.

1. DEFINITION: NOISE-INDUCED HEARING LOSS OR SOUND INJURY DEAFNESS?

Noise-induced hearing loss (NIHL) has been the term used to describe permanent loss caused by irreversible injury from exposure to excessive sound.

Until 1 July 2010 individuals who were professionally assessed as having a permanent hearing loss that resulted from excessive workplace sound were able to claim rehabilitation from ACC in the form of hearing aids and related support services in order to continue with their normal working and personal lives. ACC has now introduced criteria making it more difficult for claimants to receive the rehabilitation to which they were formerly entitled.

A significant contribution to the rise of claims for noise-induced hearing loss to ACC has been the poor implementation of regulations, including workplace monitoring and education, by the agencies charged with delivering this, including ACC itself.

Individual responses from both workers and management to the term 'noise-induced hearing loss' may be affected by the word 'noise' which is generally associated with unpleasant sound. For example, to a farmer driving a noisy tractor while spreading fertilizer over his paddocks in order to increase his stock yield, the noise may not be perceived as unpleasant even while it is gradually damaging his hearing.

The word 'sound' is a neutral term that more accurately reflects the range of noises both attractive and unattractive that may affect hearing. In his Final Report to ACC on Noise Induced Hearing Loss (1996) Professor Peter Thorne noted that: "To rename the disorder from noise-induced hearing loss to 'sound injury deafness' or similar may create a better public understanding of the nature of this problem. Replacing 'noise' with 'sound' avoids the common but erroneous distinction people make between noise ('bad') and sound ('good'). Changing from 'hearing loss' to 'injury' actively frames it as a physical injury that is caused by sound exposure."

2. INTRODUCTION

The original Accident Compensation Act was passed in 1972, offering all New Zealanders comprehensive, no-fault cover for rehabilitation and compensation as a result of personal injury, regardless of the cause, and regardless of their race, age, occupation or gender. It was based on five guiding principles proposed by Hon. Justice Woodhouse and his fellow Commissioners. These include:

1. Community responsibility
2. Comprehensive entitlement regardless of the cause of the injury
3. Complete rehabilitation
4. Real compensation
5. Administrative efficiency

In 2001 the Accident Compensation Act was amended. Section 3 states that the purpose of the Act is “to enhance public good and reinforce the social contract represented by the first accident compensation scheme by providing for a fair and sustainable scheme for managing personal injury that has, as its overriding goals, minimizing both the overall incidence of injury in the community, and the impact of injury on the community (including economic, social and personal costs), through:

“S3 (a) establishing as a primary function of the Corporation the promotion of measures to reduce the incidence and severity of personal injury:

“S3 (b) providing for a framework for the collection, co-ordination, and analysis of injury-related information:

“S3 (c) ensuring that, where injuries occur, the Corporation’s primary focus should be on rehabilitation with the goal of achieving an appropriate quality of life through the provision of entitlements that restores to a maximum practicable extent a claimant’s health, independence and participation:

“S3 (f) ensuring that persons who suffered personal injuries before the commencement of this Act continue to receive entitlements where appropriate.”

The Accident Compensation Corporation became a crucial and effective component in the provision of health services. It has enabled injured people to return to their responsibilities as citizens, as far as their recovery from injury permits.

However, in late 2009 the Cabinet Social Policy Committee issued a document on proposed changes to ACC legislation with the aim of curbing expenditure. It stated that the changes included “a change of focus **from welfare agency to injury risk manager...**” and that the proposed amendments aimed to achieve “cost containment opportunities.” This is reflected in

the change of the title of the Act from The Injury Prevention, Rehabilitation and Compensation Act, which emphasizes the roles of prevention and rehabilitation, back to the original title Accident Compensation Act.

There are several amendments aimed at shifting the focus from welfare and rehabilitation with regard to noise-induced hearing loss: principally the proposed cost containment measures for noise-induced hearing loss claims reduce the provisions for rehabilitation to which the Act states injured claimants are entitled.

Financial sustainability has taken precedence over the fair and reasonable provision of services to injured persons. This is inconsistent with the principles of the Act, and ignores the socio-economic burden of untreated noise induced hearing loss to the country.

The shift to injury risk management, which is essentially an 'incentive' by way of reduced levies for employers who have a proven record of reduced claims, does not benefit the majority of businesses such as small construction firms, engineering workshops and farmers. Nor does it indicate intent to include a broad based education programme on noise-induced hearing loss such as the recommended 'SoundSafe' campaign outlined by Thorne et al in their 2006 Report to ACC.

The cost containment measures include a revision of funding for the actuarial estimates of liability for residual claims, of which the largest contributor is hearing loss from noise-induced hearing loss. The intention is that employers pay levies that by 2019 would fully fund any and all existing and potential claims where a component of the injury may have been incurred prior to 1999 – that is, for all persons who had exposure to noise in the workplace prior to that date, although the claims may not be lodged until 2046. This is not a measure of sustainability that must be considered in the standard accounting and insurance contexts which time-match expenditure to revenue.³

Many of the future as well as current claimants are persons who will have worked in employment situations where employers failed to meet their obligations for management of workplace noise under the Health and Safety in Employment Act 1992, and who will now be able to avoid meeting their full responsibilities for this damage to peoples' health. Other employers who have taken care to meet their obligations under the Act more fully may rightly be reluctant to subsidize the activities of their less responsible fellow employers.

³ Submission of the NZ Audiological Society On Regulations for Noise Induced Hearing Loss under the ACC Act 2001 (June 2010)

The Act is addressing the concerns of employers over levies by cutting entitlements to rehabilitation. The government has several other funding options available to address these concerns:

1. To extend the time period for full funding beyond 2019
2. To return to a Pay As You Go model
3. To fund hearing loss claims as they are lodged.

Instead, it has chosen to cut costs by setting regulations that will reduce the number of successful claims. It aims to do this by

- i) setting a 6% hearing loss threshold for noise-induced hearing loss claims
- ii) reducing the entitlement to essential specialist support services for fitting and training claimants in the effective use of hearing aids, and
- iii) requiring claimants to part-pay for their own rehabilitation, as ACC will no longer fully fund hearing aids.

Through the amended 2010 legislation, the government has

- a) abrogated a number of its legal obligations and responsibilities under New Zealand and international laws
- b) ignored the international specialist audiological research which states unequivocally that ACC's assessment process is unfair and inequitable and produced variable outcomes
- c) failed to consider the widespread economic costs to New Zealand including GDP, and
- d) dismissed the individual and community hardship incurred by claimants as a result of ACC failing to meet the objectives of its own statute by not restoring claimants to their maximum possible recovery from injury.

2.1 Summary of amendments to the ACC Act and regulations 2010 as they affect claimants for noise-induced hearing loss

1. Setting a claim threshold of 6% for noise induced hearing loss. Prior to this there was no minimum percentage claim threshold. **By introducing this threshold the purpose of the ACC Act in providing full rehabilitation is negated.** This initiates a significant change to the overall basis for making claims.
2. Reduction in the amount paid by ACC for a hearing aid to a maximum of \$2000, or \$800, \$1200 or \$1500 depending on the option ACC determines. That is, ACC no longer fully funds hearing aids. The average (NB not the

maximum) cost of hearing aids provided to ACC clients is \$1710 following the 2007 ACCORD agreement between ACC and HIMADA.⁴

3. A maximum of three weeks' trial for a new hearing aid
4. Extending the time required before paying for repairs to hearing aids from five to six years (manufacturers are withdrawing spare parts for repairs after five years)⁵
5. Insufficient funding granted by ACC for repairs
6. Reduction in access to services from and fees paid to audiologists, who provide the hearing assessments, fitting, adjustment and training in the use of hearing aids
7. Increasing costs to audiologists by requiring them to either purchase additional calibration equipment or to increase the frequency of audiometers being sent for calibration.
8. Ignoring the legal obligations required by the NZ Bill of Rights Act 1990, Human Rights Act 1993, the ILO Convention 17 and the NZ Convention on the rights of Persons with Disabilities.
9. Changes to the funding of ACC's residual liabilities by
 - incorporating the Residual Claims Account into the Work Account that is funded by levies from employers
 - requiring a final valuation of the residual liabilities as at 30 June 2009, which would become the total amount to be paid by residual levy payers (employers)
 - setting a final date of 31 March 2019 by which date the estimated outstanding claims liability will be paid off

2.2 Summary of effects on claimants for noise-induced hearing loss

- More claimants will be denied rehabilitation by application of the 6% threshold
- More claimants will be denied rehabilitation by combining the application of the 6% threshold and the application of the age-related scale of hearing loss
- Of those claims accepted, hearing aids will no longer be fully funded and the claimant will have to pay the balance if they want to implement rehabilitation
- Access to audiologists for fitting and training in the use of hearing aids is reduced to a maximum of three visits. Claimants will be required to pay for additional consultations as required

⁴ HIMADA submission to the Consultation on Regulations for Noise-Induced Hearing Loss to ACC (June 2010)

⁵ Ibid

- Trial periods for new hearing aids (which are miniature computers and require precise specialist adjustment for each wearer, and which take time, practice and sometimes coaching for the new user to adjust to wearing) are limited to three weeks. After that the claimant must pay all consultation costs
- The funding for repairs to worn hearing aids is reduced
- Replacement hearing aids will only be provided after 6 years, regardless of the operational ability of the aid
- Employer levies are being reduced so there will be less funding available for sound injury rehabilitation.

There are significant implications for audiologists being able to continue implementing high professional standards and being able to sustain a viable business model, especially for small town and rural services.

2.3 NFD and hearing sector response to the proposed changes

In response to a government call for submissions the NFD was among many organizations that made strong arguments against the changes. However, the government proceeded to enact the changes, with the financial cost reduction imperative being the driver.

All resident New Zealanders, either directly through ACC levies and motor vehicle registrations, or indirectly through their tax payments, fund the ACC scheme. By any standards, the ACC scheme, though not flawless, has worked satisfactorily. An evaluation in 2007 by PriceWaterhouseCooper found the ACC scheme “achieved a level of benefits and performance comparable with Australia and other countries, *at a lower cost.*” (Our italics)

In addition, the Report to Government on the proposed changes⁶ notes: “Treasury advice to the Government has stated that it is not clear that ACC costs are excessive... ACC costs for New Zealand employers are substantially lower than the costs paid by Australian employers.”

Cost is a driver of service design and delivery. The obvious financial cost is in the provision of rehabilitation services – in this case hearing aids.

⁶ Report to Government on the Injury Prevention, Rehabilitation, and Compensation Amendment Bill from the Transport and Industrial Relations Committee 2010

Vital costs recognized in the aims of the ACC Act as part of the government's social contract with New Zealanders include providing rehabilitation in order to prevent the wide-spread socio-economic costs to the country of disability and lost productivity⁷, along with the personal social costs of increased poverty⁸, desperation and broken family relationships⁹ consequential to non-provision of rehabilitation. Reducing access to audiology services to claimants also reduces the claimant's ability to maximize their opportunity for rehabilitation.

The current New Zealand government has declared it is preparing all or part of ACC to make it a more attractive proposition for sale to private investors or to 'opening it up for competition'.¹⁰ The inevitable focus will be to reduce services in order to maximize the financial gain to potential investors. Hence the introduction of a cost-cutting exercise for claimants with noise induced hearing loss. Reducing access to audiology services for claimants also reduces the claimant's ability to maximize their opportunity for rehabilitation.

In addition, the rationale for the changes is not underpinned by a sound scientific audiological basis.¹¹ Because of the method of injury measurement for hearing loss that ACC is choosing to adopt, noise damage has to be very extensive before it registers as a handicap on the scale. The 6% threshold is therefore not reached until there is substantial injury to hearing.

There is a further concern that allowing a threshold of 6% gives implicit permission to employers to relax their noise management strategies further as the occurrence of noise induced hearing loss is acceptable up to 5.9%.

The implications of cutting the right of New Zealand citizens to full rehabilitation for noise induced hearing impairment are profound and far-reaching.

⁷ Listen Hear! – The economic impact and cost of hearing loss in Australia – report by Access Economics Pty Ltd (February 2006)

⁸ Kochkin, Sergei, PhD. The Impact of Untreated Hearing Loss on Household Income (May 2007). Better Hearing Institute

⁹ Reuters, November 2008. 'Hearing loss hard on couples' report on study by Bary Williams.

¹⁰ Ref Report from the Transport and Industrial Relations Committee above

¹¹ Submission to the Transport and Industrial Relations Committee on The Injury Prevention, Rehabilitation and Compensation Bill (2009) from Professor Peter Thorne and Dr David Welch, Department of Audiology, University of Auckland.

3. AUDIOLOGY AND THE SCIENCE OF HEARING

It is acknowledged that New Zealand's University-based audiological researchers are among the world leaders in their field. During the last 15 years there have been major advances in the science of audiology: understanding how the complex mechanisms of the ear interact with the brain in order to produce the interpretation of vibratory wavelengths called sounds that give meaning to and elucidate what we hear. However, there are very distinct areas where the science is yet to identify how to measure or interpret aspects of this hearing mechanism.

It is in this area of ill-defined audiological science that ACC is now imposing a scale of hearing loss that will deny claimants with noise induced hearing loss their right to rehabilitation.

3.1 How the ear works

There are three distinct sections to the ear structure through which sounds must pass before they reach the auditory nerve center deep in the brain.

The protective outer ear – the shell, or pinna – channels sound into the ear canal and assists with identification of sound location. Sound waves travel along the ear canal, eventually impacting upon the thin cone-shaped eardrum, causing it to vibrate. The eardrum separates the outer ear from the middle ear.

The middle ear is about the size of a 10 cent coin though it is only a few millimeters deep. The vibration from the ear drum is passed on to tiny bones: the hammer (malleus), the anvil (incus) and the stirrup (stapes) that amplify and transmit the vibrations on to the inner ear. The middle ear is filled with air, and the internal and external pressure needs to be maintained at a similar level, or the eardrum becomes stretched and does not vibrate correctly. This pressure is normally maintained by swallowing, as this opens and closes the eustachian tube that connects the middle ear to the back of the throat.

The inner ear – about the size of a large marble – is where the sound energy is changed to mechanical energy then into nerve impulses that travel to the brain.¹²The inner ear includes the vestibule, semicircular canals and the cochlea. The vestibule and the semicircular canals contain the organs that contribute to balance and to spatial

¹² Medical-Legal Evaluation of Hearing Loss, 2nd ed. 2001 By Robert A. Dobie. p23

orientation. The cochlea is the hearing organ. Shaped like a snail shell, it contains 20,000 minute sensory or hair cells that coil around inside the spiral and are moved as a result of sound vibrations. These cells are connected to a number of nerves, which together make up the auditory or 'hearing' nerve.

The auditory nerve bundle of about 30,000 nerves then passes out of the cochlea and travels to the first auditory center in the brain, where it branches out and connects with many other nerves to send messages to the higher levels of the brain, i.e. the cortex.¹³

It is the fine hair cells of the cochlea that are damaged by sound injury. After a relatively short exposure of a few hours to very loud noise they become bruised. If there is time to rest they may recover. If the noise is extremely severe, such as being close to a sudden extremely loud explosion (known as acoustic trauma), or there is exposure to continuous or repeated loud noise over a long period of time, the hair cells break off and do not renew. The more intense and prolonged the exposures to noise, the greater the degree of hair cell loss. The bruising or breaking of the hair cells may also result in tinnitus, which is often an early warning symptom for noise-induced hearing loss,¹⁴ and may be present for a time or may become permanent and troubling.

The human ear is now known to be an exceptionally intricate and delicately constructed mechanism. While it is vulnerable to illness or disease, it is nonetheless well protected from direct injury – except for head injury – by the bones of the skull. It is, however, able to be irreversibly damaged by the insidious if invisible exposure to excessive sound, which research indicates is principally a result of working in industrial or noise-toxic environments.

Audiologists are able to measure with a high degree of accuracy some aspects of sound injury. However, science is yet to state definitively what all the causes of hearing loss or damage to the cochlea may be. [Appendix I: photographs of healthy and noise-damaged cochlea]

3.2 Audiology assessment for noise-induced hearing loss

Under the ACC regulations a claimant for noise induced hearing loss is first required to have an assessment by an audiologist. This includes a hearing assessment and a history of the claimant's hearing loss, including any previous audiograms.

¹³ How Do We Hear? www.thehearinghouse.co.nz Article by Professor Peter Thorne, Department of Audiology, University of Auckland

¹⁴ Dobie, p29

Audiologists who are Full Members of the NZ Audiological Society have a minimum of a Masters degree in Audiology and are required to undergo 12 months (minimum) clinical experience followed by a Clinical Competency Examination and must be full members of the New Zealand Audiological Society. Once the audiologist has passed the CCCs (Clinical Certification) their name is circulated and accepted. Each Full member of the NZAS must undertake a biennial (two yearly) Clinical Education Peer Review process.

Audiologists use a range of tests to measure hearing thresholds at sounds of different frequencies. Three principle methods include:

1. Pure tone audiometry. An audiometer is used to record the intensity of sound heard by a client. A pure tone can be sent by air conduction (using an earmuff) or bone conduction (by a vibrating probe on the bone behind the ear). The site of the hearing loss in the ear as well as the degree of loss can also be determined by readings.
2. Speech audiometry. Human speech with definite words and set protocols helps to determine the extent to which speech is audible in quiet and provides further evidence to where in the hearing system injury originates .
3. Immittance audiometry. A tympanometer or immittance audiometer measures the resistance that the structures of the middle ear offer to incoming sound. It tests the function and integrity of the eardrum and ossicles.

There are a number of other high level tests available for audiologists to use.

Audiologists also provide the selection and fitting of a hearing aid appropriate to the individual's hearing needs, adjustment of the hearing aid and the ear mould as needed, and training in the appropriate use of the aid.

Audiologists record hearing on an audiogram that is a hearing chart of the sensitivity of the ear in decibels graphed against the frequency in kiloHertz (kHz). 1 Hz means 1 cycle or wave of sound per second. For humans, hearing is usually limited to frequencies between 20Hz and 20,000 Hz (some animals and other species have higher and lower ranges). A grand piano ranges from 27Hz to 4,000Hz. Humans are particularly sensitive to frequencies between 1,000-6,000 Hz. These include the range of frequencies that are most crucial for speech and verbal communication. It must be noted that an audiogram is a measure of hearing sensitivity to single sounds in a controlled environment. It is not able to measure the more sophisticated function of hearing in a typically complex environment with multiple everyday sounds of conversation and background noise. Although it is the established standard test used

to quantify the degree of the hearing loss, audiometry is not a measure of handicap or disability created by injury.

With **noise-induced hearing loss** the frequencies of 3,000-6,000 Hz are the first frequencies to be damaged. Normal hearing on a range of frequencies continues across the audiogram graph in a more or less straight line. The V-shaped 'notch' on an audiogram chart that shows a loss between 3000-6000 Hz is the distinctive indication of noise induced hearing loss (Appendix II). However, with repeated exposure to excessive noise over time, the notch widens out and is lost as it includes other higher and lower frequencies¹⁵ [Appendix III] and comes to resemble that of age-related hearing loss.

In fact, research indicates that in ears with cochlear damage from previous noise exposure, 'subsequent hearing loss progression with age was exacerbated at frequencies outside the original NIHL'¹⁶ – that is, existing sound injury damage may accelerate age-related hearing loss. This was confirmed by Kryter, whose study found that noise-age interactions which resulted in additional hearing loss frequencies that extended the notch did not eventuate in ears that did not have these noise notches.¹⁷

The matter is further complicated by the use of the term 'idiopathic' hearing loss to describe hearing loss where the cause is not definitively known.

3.3 Noise-induced hearing loss and the 6% threshold

Noise-induced hearing loss occurs when the ears are exposed to sounds that are greater than they can handle. It usually occurs in occupational settings and mostly affects men (over 95% of claims to ACC for sound injury deafness are men).¹⁸ The hearing injury appears gradually over a long period of time – about ten years – after repeated exposure to loud noise (although it can occur as a result of a single one-off extremely loud explosive noise such as being next to a canon shot). In many occupational settings, such as engineering workshops or construction sites or factories, the sound exposure is composed of a range of different sounds coming from different

¹⁵ Noise-Induced Hearing Loss of Occupational Origin: A Guide for Medical Practitioners. Department of Labour Occupational Safety & Health Service 1994

¹⁶ Acceleration of Age-Related Hearing Loss by Early Noise Exposure: Evidence of a Misspent Youth by Sharon G. Kujawa and M. Charles Liberman. The Journal of Neuroscience, February 15, 2006

¹⁷ Kryter, K.D. (1985) The Effects of Noise on Man. 2nd edition. New York. Academic.

¹⁸ Epidemiology of noise-induced hearing loss in New Zealand by Peter R Thorne et al. NZ Medical Journal 22 august-2008, Vol 121 No 1280

sources at a variety of intensities, frequencies and complexities that stop, start, pulse and often vary considerably.¹⁹

Hearing is the brain's response to sound waves that our ears receive. The damage with sound injury occurs in the fine hair cells in the inner ear, in the cochlea, close to the brain, that detect higher frequencies of sound (technically this is usually between 3–6kHz)²⁰. This includes frequencies important for speech discrimination but the lower frequencies are also very important for speech discrimination. Once they die, the hair cells cannot be repaired or regenerated.²¹

Noise-induced hearing loss happens slowly so people are often unaware of what is happening to them, and like all hearing impairment it is an invisible disability. As their hearing diminishes and growing fatigue from the struggle to hear sets in, regardless of their level of expertise at work, the person with hearing impairment can affect worker communication and safety, with an increased risk of accidents.²²

There are significant individual variations in the effects of hearing damage and the way in which a person's brain may interpret sound.

In a newsletter for health care professionals, ACC stated that 'ACC claims experience and Australian research support that people with hearing loss of less than 6% do not generally require hearing aids.'²³ *This is an inappropriate clinical assumption and is factually incorrect.*

On the surface, 6% does not sound like a significant loss. It implies there is still 94% hearing left and is the rationale in the Cabinet paper for setting the 6% threshold, which states: 'A person with 6% hearing loss does not require a hearing aid.' This is based on a false assumption.

As described by Professor Peter Thorne and Dr David Welch in their submission on the Bill, "The ACC proposes to adopt a criterion for injury based on handicap as measured by percentage scale. This assesses the hearing handicap by applying a percentage handicap to the amount of hearing loss in each frequency (pitch) of the hearing spectrum. It weights the frequencies according to their importance and is heavily

¹⁹ Report for ACC on Noise Induced Hearing Loss by Professor Peter Thorne (2006)

²⁰ Noise-induced Hearing Loss: update to the position paper from the American College of Occupational and Environmental Medicine (ACOEM) (2002)

²¹ Acceleration of Age-Related Hearing Loss by Early Noise Exposure by Sharon G. Kujawa and M. Charles Liberman.

²² Ibid

²³ ACC News Bulletin June 2010 Issue 1133.

dominated by loss in the lower tones (1000 and 2000 Hz). However, noise damages parts of the ear that detect the higher pitch tones (3000-6000Hz particularly), which are important for detection of sounds in background noise and sound localization. Because of the way the percentage is calculated noise damage has to be very extensive before it registers as a handicap on the scale.” (2009)

They further note in their submission that the 6% threshold is not reached until there has been substantial damage to the hearing processes.

Australian research does not support ACC’s claims. The Australian schemes are insurance schemes that focus on compensation, unlike ACC where the focus is on rehabilitation. The South Australian scheme, for example, states with regard to “Therapeutic devices (including hearing aids) – no limits in place and entitlement is based on just having a hearing loss, there is no percentage threshold. The test for entitlement is: **is it reasonable, appropriate and necessary.**”²⁴

For some people a loss of 6% may not be an issue, for others even a 3% loss can be a significant impairment that could affect their safety at work, their ability to make sense of conversation in an employment environment making it potentially unsafe, their family responsibilities and road safety. Setting a 6% figure minimises a complex condition by making it appear simple and even trivial.

3.4 Noise-induced hearing loss and age-related hearing loss (presbycusis)

An added complication for claimants who are aged over 57 (men) and 65 (women) is that ACC proposed to apply an increasing scale of additional hearing loss purely based on age and deduct this from the total hearing loss. This scale of age-related hearing loss is a population-based scale that does not allow for individual variability – a person with no age-related hearing loss will nevertheless have a standard percentage deducted from the total hearing loss as a result of their age.

There is no confirmed scientific basis for the application of this scale as an addition to noise- related hearing loss. As stated in HIMADA’s submission on the regulations, it is a “false assumption that it is possible for ENTs to determine with precision the

²⁴ NFD submission to the Transport and Industrial Relations Committee on The Injury Prevention, Rehabilitation and Compensation Amendment bill (2009)

percentage of injury and non-injury related hearing loss for a claimant and that the diagnostic technology and research exists to support this.”²⁵

3.4.1 ISO Standards do not accept this approach. The ISO Standard 7029: 2000 Acoustics – Statistical distribution of hearing thresholds as a function of age states: “...it is not possible to determine for an individual precisely which part of an observed hearing loss is attributable to an accumulation of detrimental effects on the hearing which increase with age, and which part has been caused by other factors such as noise.”

3.4.2 NIOSH does NOT recommend accounting for presbycusis when looking for medical causation of a progressive hearing loss. The American National Institute for Occupation Safety and Health (NIOSH) states: “Although many people experience some decrease in hearing sensitivity with age, some do not. It is not possible to know who will and who will not have an age-related hearing loss... The median hearing loss attributable to presbycusis for a given age group will not be generalized to that experienced by an individual in that age group.”²⁶

3.4.3 The American College of Occupational and Environmental Medicine states: “Over a period of years of prolonged noise exposure, hearing loss due to noise expands to involve additional frequencies. This, together with the effects of aging, may reduce the prominence of the ‘notch’. Therefore, in older individuals, the effects of noise may be difficult to distinguish from presbycusis without access to previous audiograms.”²⁷

3.4.4 Kujawa and Liberman’s study (2006) indicates: “pathologic but sublethal change initiated by early noise exposure render the inner ears significantly more vulnerable to aging.”²⁸ That is, sound injury creates an underlying weakness in the ear that deteriorates at a faster rate as the person ages.

3.4.5 The Goycoolea study on ‘The effect of life in industrialized societies on hearing in natives of Easter Island’ supports these positions. The study found equal hearing thresholds in males or females of similar ages. However, males

²⁵ Consultation on Regulations for Noise Induced Hearing Loss (June 2010) HIMADA

²⁶ DHHS (NIOSH) Publication No. 98-126 Section 5.1

²⁷ American College of Occupational and Environment Medicine: updates to position paper on Noise-induced hearing loss 2002.

²⁸ Acceleration of age-Related hearing Loss by Early Noise Exposure by Sharon G. Kujawa and M. Charles Liberman (2006). The Journal of Neuroscience, February 15, 2006.

from the island who lived and worked in modern industrialized society had a greater hearing loss, whereas the native males and females who remained on the island had hearing acuity similar to females who lived in the United States.²⁹ This find is backed up by other studies in non-industrial societies; while the findings are somewhat equivocal, the outcomes suggest that the difference between male and female thresholds as a function of age is due to environmental factors, the most significant of which is noise exposure.³⁰

Given the rate of 95% male claimants for noise-induced hearing loss this has obvious implications for the application of an age-related scale of hearing loss in addition to sound injury deafness.

In a practical application of the scale, if a male claimant for noise-induced hearing loss is aged 65 and is assessed as having an 8% total hearing loss, then 2.9% is deducted because of his age. As the balance is then only 5.1% he does not qualify for a hearing aid from ACC, although as stated above his noise-induced hearing loss is likely to have contributed to, if not solely caused, the apparent age-related component.

In addition, under the latest amendments to the regulations, if by using this method his hearing loss of 8% is assessed at 50% noise-induced hearing loss and the balance is deemed to be age-related, then ACC will pay for only 50% of the hearing aid.

Another example: a male claimant who qualifies with an 8% sound injury at age 59, with no further hearing loss, will not qualify for a hearing aid when he returns for an updated aid at age 65 as 2.9% is deducted because of his age. By age 77, even if his hearing loss does not progress further, the ACC scale will determine that he has a 10.3% age-related loss, which presumes

- a) that his sound injury no longer exists – **a clinical impossibility**
- b) that the audiogram recording his *actual* hearing loss (including the proportion of sound injury) must also therefore have no validity.

The ACC regulations imply that there is a scientific basis for apportioning cause of hearing loss to age or to sound injury when in fact the science does

²⁹ Effect of life in industrialized societies on hearing in natives of Easter Island. Goycoolea MV, Goycoolea HG, Farfan CR, Rodriguez LLG, Martinez GS, Vidal R. Laryngoscope 12:1391-1396, 1986

³⁰ Presbycusis study of a relatively noise-free population in the Sudan. Rosen S, Bergman M, Plester D, El-Mofty A., Satty MH. Ann of Otolaryngology, Rhinology and Laryngology 71:727-743, 1962

not exist to support this. The diagnostic analysis of *actual* hearing loss determined through the audiogram is subjectively determined, and the ENT specialist will also bring a high degree of clinical subjectivity in determining the degree to which loss is attributed.³¹

3.5 Noise-induced hearing loss and idiopathic hearing loss

Noise-induced hearing loss is a gradual condition and audiology records taken during relevant noisy employment conditions over a claimant's working life are often unavailable or may not have been made at all. This may be a result of changes in employment situations, failure of the employers to carry out their requirements under the Health and Safety in Employment Act, or the claimant's lack of awareness of noise-associated risk.

Because of the gradual process of noise induced hearing loss, and the fact that many (but not all) claimants are in their seventies, an accurate recall of all relevant noisy work-related employment over several decades is often unobtainable. This, plus the spread of hearing loss in an audiogram that is broader than the 'notch' characteristic of some noise-induced hearing loss, has led to the use of the category 'idiopathic' hearing loss where noise-induced hearing loss may or may not apply. 'Idiopathic' essentially means the specialist does not know the cause of the hearing loss.

The American College of Occupational and Environmental Medicine states in its position paper on Noise-Induced Hearing Loss (2002) that there needs to be additional research into certain aspects of noise-induced hearing loss that remain poorly understood, and recommends that research be conducted into the role of co-factors in hearing loss, including solvents, metals, vibration, heat, and carbon monoxide. These are all conditions that workers in construction, engineering, mining and factories may encounter along with excessive noise. Kujawa and Liberman also note that: "Hearing losses in noise-exposed and/or aging ears are highly variable. This variability may arise from underlying differences in actual noise exposures, as well as the influence of other intrinsic and environmental variables that produce hearing loss on their own or alter NIHL vulnerability. Such variables do not lend themselves easily to retrospective quantification."

³¹ Submission to the Transport and Industrial Relations Select Committee on the IPRC Amendment Bill from The Hearing Sector, 2009.

ACC, acting on the advice of its selected ENT specialists who must recommend whether or not a claimant meets the criteria for a hearing aid, chooses to interpret the percentage of hearing loss classified as 'idiopathic' as NOT being caused by noise-induced hearing loss. Whilst some may be due to unknown causes, the idiopathic category is also a function of using population-based tables to assess individual losses and is thus a consequence of the extreme variability in age and noise-related hearing loss. As Professor Peter Thorne wrote in his DoL submission on the regulations: "An outcome associated with the use of median population data to assess the individual that highlights more actual hearing loss than can be accounted for by the sum of the estimated age and noise the inaccuracy of this method is that for some individuals there may be contributions. This residual component is then considered to be idiopathic or unexplained hearing loss. Dobie (2008) comes to the reasonable conclusion that given that other inner ear conditions are of such low prevalence (see 1.9) it is highly probable that the residual or idiopathic hearing loss reflects advanced aging and/or greater susceptibility to noise."³²

The principles of the Act do not support these regulations. ACC's core function is to provide rehabilitation and if in the course of that rehabilitation there is a benefit to other hearing loss conditions the claimant has, that is a collateral benefit which incurs no extra cost to ACC.

3.6 The roles of the audiologist and the ENT specialists

The audiologist is responsible for completing the hearing assessment (audiogram) in conjunction with completing a history of exposure to occupational noise. This report is then provided to the ENT. The audiologist also recommends and fits the appropriate hearing aid/s and provides coaching in the use of the hearing aids, adjustment to the aids if needed with follow-up support, and arranges for any repairs or maintenance.

Hearing aids are miniature computers that allow the hearing organ to capture sounds but, unlike the human ear, they have not been trained to filter sounds. A person therefore needs time for their brain to process all the new sounds they are hearing and to differentiate their meaning. The time this can take varies with each individual, regardless of his or her age. In addition to any necessary adjustments to the delicate mechanism of the hearing aid itself, a person new to the use of a hearing aid may need

³² Dobie, R. A. The burdens of age-related and occupational noise-induced hearing loss in the United States. *Ear and Hearing*, 2008, 29, 565-577.

regular support and education from their audiologist for anything from a two or three weeks period to several months.

In addition to capping the price of new hearing aids and restricting the number of follow-up consultations a claimant may have, ACC is proposing that the trial period for a new hearing aid should be capped at three weeks. An administrative decision is therefore over-riding a therapeutic dictate.

This truncates the potential for rehabilitation: if a hearing aid cannot be properly used it is of no use at all and the person needing the hearing aid is unlikely to use it.³³

Role of the ENT specialists

ACC relies on the ENT's recommendation as to whether to grant entitlement to rehabilitation.

However, many ENTs attribute a percentage of hearing loss to idiopathic causes. These are **not scientifically based** and vary when the same individual is assessed by different ENTs. It is possible, for example, that a 0.1% difference in the allocation of sound injury and ageing or idiopathic (unknown cause) hearing loss can result in a decision detrimental to the claimant, imposing on them consequent substantial expenditure, or in denying them any entitlement by ACC. This renders the assessment process unreliable, and the claimant is at risk of further injury by this.

Additionally, there is the possibility that there are those who receive hearing aids who should not qualify, because of the unsoundness of the procedure.

The regulations do not allow either the ENT or ACC to apply discretion. This is not in line with the statute, which requires that the ACC assist in restoring a claimant's independence to the maximum extent practicable.

³³ Application of the Stages-of-Change Model in Audiology by Lorraine A. Babeu, Patricia B. Kricos and Sharon A. Lesner. 2010.

4. RESPONSIBILITY FOR PREVENTION OF NOISE INDUCED HEARING LOSS

The knowledge that excessive sound causes injury to hearing has long been known. Prior to the industrial revolution, noise induced hearing loss was called 'blacksmith's deafness'. During the 19th century, with the growth of mechanization and engineering equipment in factories, sound injury deafness became an occupational hazard for an increasing number of workers. The ability to describe the typical high-frequency effect in sound injury has been available since 1937.³⁴

In 1995 New Zealand passed Health and Safety Legislation regulating the limits of noise exposure in occupational environments, but the requirement for employers to control noise at source was not obligatory. In a presentation of preliminary results of research conducted by Auckland and Massey Universities at an ACC Reference Group meeting in 2009, it was observed that there appears to be low compliance with the voluntary HSE Act.³⁵

The 2003 ACC Annual Report stated that despite the knowledge of effective controls and guidelines the prevalence of noise-induced hearing loss showed no sign of decrease.³⁶ ACC's Statement of Intent 2010-2013 describes the three core functions for the Scheme as injury prevention, rehabilitation, and compensation and states:

"Injury prevention: ACC has a key role in promoting measures that reduce the incidence and severity of personal injury. However, the Act requires that such measures only be undertaken by ACC itself if they are expected to lead to a cost-effective reduction in levy rates."

Preventive measures for noise-induced hearing loss would fit within this definition. In 2006 Professor Thorne noted: "It is estimated that currently around a quarter of the NZ workforce of 1.47 million workers are affected by some degree of harmful noise at work."³⁷

4.1 Acceptable levels of sound

There is a very clear recognized international standard up to which workplace sound is established as being in a relatively acceptable zone for most individuals. Although there is still some risk of hearing loss at lower intensities, exposure to 85dBA over a

³⁴ Dobie p138

³⁵ Consultation on Regulations for Noise-Induced Hearing Loss by HIMADA. June 2010

³⁶ Final Report for Noise Induced Hearing Loss for ACC by Professor Peter Thorne (2006). p20

³⁷ Ibid p20

24-hour period is regarded internationally as the maximum permissible noise dose.³⁸ Every increase in decibel rating above that increases the risk of sound injury.

For the assessment of noise levels in a workplace, the measurement of continuous peak exposure limits is required. As the human ear is not evenly sensitive to all frequencies, a scale (the A scale) is used to weight the frequencies of the sound. Two core measurements are required.

- i. The measurement of sound levels (dB) and from these
- ii. The total exposure to sound over an 8-hour period (Leq: equivalent continuous noise level).

The measurement of decibel levels

The decibel (dB) is used to express measurements of sound strength on a logarithmic scale. The smallest audible sound for the average normally hearing human is 0dB, though for a few people with acute hearing it can be less than 0.³⁹

A decibel scale has a logarithmic increase in value. Unlike a linear scale where a change from 1 to 3 represents a threefold increase in the value, on a decibel scale a 3 decibel increase equates to a doubling of the sound intensity. (The Richter scale, which is used to quantify the amount of seismic energy released by an earthquake, is a logarithmic scale.)

In practice, this means that while an increase from 85dB to 88dB may not seem particularly significant, in fact it represents an increase of 200% (i.e. a doubling) of sound energy).

This has implications for environments where sound injury may occur. Dobie defines **noise induced hearing loss as “the product of repeated exposure to sounds that are too long and too intense in duration.”**⁴⁰ Sound environments are not usually constant in strength and the level can vary typically over quite a range and include impulses of high level. Repeated exposure to impulse noises such as sledge hammering a steel plate on a metal work surface, or a jet aircraft taking off (at 130dB this is beyond the threshold of pain) will create physiological responses that must be factored in. At 140dB, a person can be exposed to the same amount of sound energy

³⁸ Ibid p26

³⁹ Dr George Dodd, Senior Lecturer, Dept Acoustics Auckland University. Email 17 September 2010

⁴⁰ Medico-Legal Evaluation of Hearing Loss (2nd edition) by Robert A. Dobie, M.D. p138

in less than *one second* as they would be at an average of 85dB(A) for 8 hours. Damage could be instantaneous.⁴¹

For some people, a relatively small increase in intensity may be damaging, and that can vary with different individuals. For many, while loud short bursts of sound of, for example, 15 minutes may bruise the fine hair cells in the cochlea, a rest period will allow the cells to recover. For sustained or repeated exposure to steady or intermittent high frequency noise, such as a chainsaw, or a concrete drill, or some manufacturing machinery, there is no possibility of recovery and hearing loss is permanent.

Leq – the measurement of continuous noise level

The term 'Leq' is used to quantify an acceptable level of noise. The Department of Labour describes this as "an imaginary constant noise level which contains the same amount of energy as the actual fluctuating or intermittent noise over a stated period."⁴²

The total noise energy for the working day can be assessed by adding up all the separate exposures at the range of different levels and times. The total exposure over a period of 8 hours when expressed in decibels is called the 8hr Leq.

In New Zealand, the limit for an acceptable level of noise exposure in the workplace is set at 85dB (A) Leq – that is, the level corresponding to the average sound intensity over an 8 hour day when frequency-weighted.

This workplace standard is the maximum for an individual over 8 hours of any 24-hour period. If it is exceeded – for example, by working overtime, a second shift, or a second job in a noisy environment, or by after hours activity without using hearing protection such as using a lawn mower (at 100dB, the maximum allowable noise dose will occur after 15 minutes exposure), or a chainsaw (at 155dB the maximum dose takes only 15 seconds to accumulate), or attending a rock concert, then hearing damage is likely to occur.

As background levels of noise rise, it becomes increasingly difficult to understand speech. First consonants then vowels become inaudible. At a one-metre distance, even at the maximum 'safe' level of 85dB, shouting is necessary. Above 95-100dB even shouting is inadequate.⁴³

⁴¹ Ibid p175

⁴² Noise-Induced Hearing Loss of Occupational Origin: A Guide for Medical Practitioners. Pub OSH 1994

⁴³ Medical-Legal Evaluation of Hearing Loss by Robert A. Dobie p163

It is worth noting here that a noise source within an enclosed space, where there is additional reflection of sound from interior walls, will have a greater effect when at a similar distance outdoors where the sound intensity decreases naturally by wave spreading and dissipation.⁴⁴

4.2 Government and employer responsibility for prevention of occupational noise induced hearing loss

4.2.1 Monitoring and control of noise

The legislation to control noise in workplaces in New Zealand has existed since 1992. An OSH publication in 2004 stated that: "From 1 April 1993, the Health and Safety in Employment Act has required employers to identify and control hazards such as noise. NIHL is defined as "Serious Harm" in the Act. An employer who knowingly causes "serious harm" is liable to fines of up to \$100,000 and/or 12 month's imprisonment... OSH has undertaken cost-benefit studies of the various means of controlling excessive noise. The studies indicate that hearing protection, properly worn and maintained, is a more expensive option in the long term than isolation of the noise source and engineering controls."⁴⁵

The Department of Labour website states that "Section 6 of the HSE Act requires employers to take all practicable steps to ensure the safety of employees at work, and to provide a safe working environment. Regulation 11 of the Health and Safety in Employment Regulations 1995 states that levels of noise exposure that should not be exceeded. The regulation further states that hearing protection is only a valid means of control when *all other* practicable steps have been taken to reduce noise below acceptable levels."

However, in 2005 the chair of the National Occupational Health and Safety Advisory Committee, in its report to the Minister of Labour, stated: "Effective occupational disease and injury surveillance systems are an essential part of an effective national occupation health and safety strategy. If we cannot measure occupation disease and injury, we cannot validly identify priorities, or

⁴⁴ Ibid p14.

⁴⁵ Noise-Induced Hearing Loss of Occupational Origin. The publication refers to Sutton's Law. "Mr Sutton was an American who robbed banks. When arrested and asked why, he replied: 'Because that's where the money is.' Noise control is best aimed at the greatest noise source."

prevent occupation disease and injury occurring, or measure how effective any prevention strategies are.

“Sadly, the systems used in New Zealand for the surveillance of occupational disease and injury fail to meet these basic expectations and fall far short of internationally accepted practice, especially for the surveillance of occupational disease.”⁴⁶

4.2.2 Research programmes currently in process

In 2009, it was noted in a preliminary report of research by Dr Ian Laird at Massey University that there is relatively poor compliance with the New Zealand OSH regulations around noise in the workplace.⁴⁷

There are several research programmes currently underway at Auckland, Massey, Otago and Canterbury Universities exploring aspects of NIHL or sound injury deafness. Among the research subjects, due for completion in 2010-2011, are:

- i. developing more accurate methods of monitoring hearing damage in the workplace
- ii. identifying the potential contributions of other occupational hazards to NIHL
- iii. the value of personal protection such as ear plugs in the construction industry
- iv. a survey of interventions used by industry to reduce noise exposure and prevent NIHL
- v. cultural aspects of noise management and prevention of NIHL

[Appendix VI: Summary of research currently in progress]

A further study nearing completion analyses noise and hearing loss in a pulp and paper mill in Kawerau and gives an indication of the success of strong management commitment to monitoring noise levels, engineering controls and hearing protection.⁴⁸ Of 265 staff who had worked consistently over at least 10

⁴⁶ Ibid p23

⁴⁷ Submission to the Transport and Industrial Relations Committee on the Injury Prevention, Rehabilitation and Compensation Amendment Bill by Professor Peter Thorne and Dr David Welch, Dept Audiology, Auckland University.

* Appendix IV Summary of research currently in progress 20 November 2009 from Dr John Wallaart, ACC.

⁴⁸ Noise-Induced Hearing Loss: Epidemiology, Noise Exposure and Prevention – ACC Reference Group by University

years (1997-2007) with an average age of 50.2 years in 2007, there was no statistical change in the audiometric profile of the cohort over that period. That is, there was no statistical difference in the audiometric profile of the cohort over that period, although several individuals showed small changes in their audiograms over time.

The ACC regulations do not address the issue of hearing safety as being an integral component of a **workplace culture**.

While the legislation to control noise in workplaces in New Zealand has existed since 1992, the regulations allow for it not to be fully applied. Rather than reducing the noise at source such as using different engineering methods, for example, an employer may be allowed to rely on having staff use personal hearing devices on the grounds of 'practicability'.

The regulations as they presently exist do not meet international best practice standards. For example:

- 1) New Zealand lacks measures such as a system of action levels with a lower level of 80dB(A) during training, and an upper level of 90dB(A) where noise control becomes mandatory.⁴⁹
- 2) Current New Zealand practices are based on the concept of hearing conservation rather than **noise management programmes**,⁵⁰ which have a focus on the elimination and isolation of noise i.e. reducing noise at source. The aim is to prevent noise exposure at source, rather than to treat subsequent hearing loss as a remedial action.

4.3 Personal employee responsibility for prevention of noise induced hearing loss

While personal hearing protection (ear muffs and ear plugs) is regarded as being of value in contributing to prevention of sound injury deafness, it is unable to provide full protection. This is well established by international studies, which note that personal hearing protection is most effective when used in conjunction with noise control and prevention.⁵¹

of Auckland, UniServices Ltd. (October 2009).

⁴⁹ Final Report to ACC on NIHL, p32 (Thorne, 1996)

⁵⁰ Ibid p81

⁵¹ Final Report on NIHL for ACC by Professor Peter Thorne. (2006)

There are strong provisos around the use of personal hearing protection. Hearing protectors need to be individually fitted and appropriate for the person – it is not a case of ‘one size fits all for every situation’. They require regular maintenance and must be used at all times around the noise. Even half an hour without them may result in hearing damage, even if they have been worn for the remaining 7½ hours.

The DoL Guidelines to General Practitioners states:

“Hearing protection is the last of the hierarchy of control methods. It is only acceptable as a temporary measure while other, more permanent measures are introduced...

“Hearing protection suffers from the same problems as other personal protective equipment. Problems commonly encountered are:

1. People often neglect to use the protection for small jobs.
2. The person finds the devices hot and uncomfortable to wear.
3. The use of other protective equipment (e.g. respirator masks) makes their wearing impracticable.
4. In high-noise areas, the hearing protection need only be dispensed with for a very brief time for the exposure standard to be exceeded.

“Protective equipment has design limitations. For example, low frequencies are not well excluded. Also, most personal protective equipment seems to be designed for northern European males. This means that Asians, Polynesians and women often have difficulty in getting equipment that fits correctly.”

Some workers may already be required to wear helmets or hard hats, and goggles, and breathing apparatus, and the addition of hearing protectors creates further discomfort and are not perceived as important because they do not prevent immediate harm. In some instances hearing protectors can add to the safety issues as the worker may not hear warning calls or other information essential between colleagues, and they are often removed for the sake of immediate safety.

As Professor Thorne notes in his Final Report to ACC: “Best [international] practice appears to place hearing protection on the lowest rung on the hierarchy of noise control measures.”

For situations such as small construction businesses or farmers, correct use of personal hearing protection is essential. The rate of claims to ACC from agricultural workers and builders, for example, suggests that ACC – along with the Department of

Labour – has failed to successfully implement its objectives for prevention of injury by providing adequate education on the necessity for, and correct use of, personal hearing protection.

There is a need for national education on the causes and risks of noise related hearing loss related to employment situations, for example, recreational exposure to toxic noise ranging from musicians to motorcycle riders.⁵²

4.4 Summary

International studies on noise-related hearing loss are consistent in their conclusions that the only effective method of prevention is removal or management of the source of the injury. In New Zealand, the government has charged the Department of Labour with requiring employers with this responsibility. This is recognized in the New Zealand legislation by the Health and Safety in Employment Act. Employees do not have primary responsibility for prevention of sound injury, although they do have a responsibility to implement whatever precautions including personal hearing protection are available to the maximum extent possible.

⁵² Dobie p177-8

5. ISSUES

The most serious impact and consequences of these changes to the ACC Act are:

- 1) **Safety.** The changes will undermine issues of safety in all aspects of the life of a person with sound injury – such as failing to hear warning sounds in the workplace or at home or when crossing a road, for example
- 2) **Legal.** The government is making it legal for employers to undermine individual safety by setting an acceptable sound injury threshold of up to 5.9% hearing impairment from sound injury.

The original intention of the Accident Compensation Act was to aim for a nil threshold for all injury. The purpose of the ACC Act states clearly that it is to “...enhance the public good by... minimizing both the overall incidence of injury in the community, and the impact of injury on the community, through – (a) establishing as a primary function of the Corporation the promotion of measures to reduce the incidence and severity of personal injury.”

5.1 Safety

This change to the Act will undermine issues of safety in all aspects of the life of a person with noise-induced hearing loss, and makes it legal for employers and the government to do so.

- i. While noise control legislation was enacted by the Health and Safety in Employment Act 1992, it has been inadequately implemented in many workplaces. Nor does it meet best practice international standards.

Because the government has failed to adequately implement existing legislation in noise toxic workplaces, workers who are hearing impaired as a result have been penalized by incurring a noise-related hearing loss and are now doubly penalized by the government as ACC avoids responsibility for their rehabilitation, including hearing aids.

- ii. The adoption of a 6% level of noise induced hearing loss before ACC will accept a claim permits employers to allow employees an acceptable rate of up to 5.9% injury. This gives tacit permission to employers to pay less attention to on-site noise management.

As a likely consequence, employers will be exposed to litigation if they operate with this belief and employees are harmed. Remedies would not be limited to rehabilitation but would include all those available to the civil courts including lump sum payment, treatment costs, and compensation for loss of current and potential earnings.

The ACC Act was designed specifically to prevent this burden on the Court system and on the individuals and businesses concerned as the results – the judgments – are often a lucky dip, as proven by the US litigation precedents. Construction companies or large factories, for example, may well not wish to contemplate the costs of this. The ACC Statement of Intent for 2010-2013 states that “The no-fault nature of the Scheme has two substantial benefits to the country. First, the costs of litigation required in other jurisdictions are effectively removed...” (p4)

- iii. The reason that primary responsibility for hearing protection on noisy worksites properly sits with employers and not with workers has been discussed above: there is no hearing protection against loud noise that is fully effective, as has been repeatedly established by international studies.

In a very noisy workplace, even a few minutes exposure to an excessively loud sound – as short as 15 minutes – can cause permanent damage to the fine hair cells of the inner ear, although the damage may not show up for some years. Additionally, noisy worksites are often dangerous worksites and the use of hearing protectors can prevent workers from hearing warning calls from other workers. The only truly effective method of preventing noise induced-hearing loss is for employers to ensure their machinery meets specified levels of noise safety, and if the legislation had been appropriately implemented this would now be a reality. It is of note that the partial implementation of the legislation has resulted in a recent drop in claims for noise-induced hearing loss.

- iv. The consequences of this failure of the government and employers to meet their obligations are serious for the worker. On a worksite, as his/her hearing impairment grows, the worker unknowingly becomes more unsafe, as he/she does not know he cannot hear warning calls or normal conversations that refer to potential dangers. The risk of accidents to everyone increases in many situations.

Since the vast majority of the people affected are men in manual labouring occupations – often Maori or Pacific Islanders – their income and that of their families is affected. Low-income people are frequently unable to afford hearing aids, including by repaying WINZ loans, and the Ministry of Health has only one fifth of the funding it needs to meet demand.

- v. The safety aspects apply not only to workplaces. Road safety can be affected. Caring for young children whose cries for help may not be heard is a risk. The list is endless as hearing loss weaves through every strand of a person's life.

5.2 Legislation – New Zealand

The ACC Act was designed for all people in New Zealand who suffer an accident or work-related injury, regardless of its nature or cause, to receive rehabilitation and compensation, as they need. In exchange, New Zealanders gave up their right to sue. The Act is based on the principle of equity, that is, equal access for anyone regardless of his or her disability, age, gender, race or occupation.

The proposed changes to ACC are denying this legal principle. Two other Acts – the New Zealand Bill of Rights Act 1990 and the Human Rights Act 1993 – make it unlawful to discriminate against anyone in New Zealand on these grounds. The Human Rights Commission submission to the proposed Amendment to the IPRC Act stated: “The driving issue behind this Bill appears to be a narrowly defined notion of cost containment – which would be more appropriately characterized as cost shifting – yet the changes it introduces have the potential to derogate from basic human rights principles relation to rehabilitation” and noted that the changes also appear to “erode processes designed to monitor and advise on the prevention of injury.”⁵³

The basis of the ACC Act is universal rehabilitation for all when needed. These changes to the ACC Act are contrary to the purpose of the Act and are in fact illegal.

5.2.1 Discrimination on the grounds of disability

Setting a 6% threshold – or any kind of threshold – on an injury or disability is discriminatory. ACC is attempting a new definition of the word ‘injury’, where rehabilitation is paid on the basis of **degree** of injury rather than on the **fact** of the injury itself. A person does not have, say, 3% or 5% or 6% of a broken

⁵³ Human Rights Commission submission 2.3

limb. So how can they have 3% or 5% or 6% of a noise induced hearing loss? Noise-induced hearing impairment is an injury that has become a permanent disability.

A broken leg may not fully repair, and the claimant may seek a compensatory payment in addition to their rehabilitation costs. But claimants with noise-induced hearing loss are **not** asking for compensation. Their only request is to continue the right to receive an initial rehabilitation cost for a hearing aid with an upgrade every 6 years if needed.

The imposition of a 6% loss of hearing before being eligible for rehabilitation amounts to intra-ground discrimination as it imposes different criteria for those claiming rehabilitation as opposed to other forms of injury.⁵⁴ It also has the effect of disempowering people already in the scheme who believe they will be able to replace their worn hearing aids as needed.

It appears that the law has stated that significant hearing loss, through no fault of the worker, is to be tolerated and enshrined in law, which in effect is legalizing discrimination.

5.2.2 Discrimination on the grounds of age

The latest figures from Statistics NZ show that in 2006 the proportion of workers over 65 had grown from 6 percent in 1991 to 12 percent in 2006 and is projected to increase.⁵⁵ This is not surprising; for most people who continue working past 65 this is an increasing economic necessity, not a choice. The automatic deduction of age-related hearing loss from a noise induced hearing impairment, regardless of whether age-related deafness exists or not, places additional hardship on an already financially stressed group of people. Given the amount of time it takes for noise induced hearing loss to become apparent, older people will be disproportionately affected. 95% of claimants for sound injury are men, the majority of whom have spent at least the early years of their working lives in trades and occupations where noise was an unavoidable occupational hazard. As a result of their sound injury, they are unable to engage in occupations (and therefore receive the appropriate income) that

⁵⁴ Human Rights Commission submission 6.5

⁵⁵ Statistics NZ media release 25 May 2010

reflect their qualifications and experience, or to participate fully in family or community life.

In addition, those who have already been receiving hearing aids from ACC may be denied them when they return for the replacement they have been told is their right.

Refusal to supply hearing aids prevents them from engaging in a normal lifestyle.

5.2.3 Discrimination on the grounds of race

Maori and Pacific Islands people have the lowest number of ACC claims⁵⁶ yet Maori employment in industries with high noise levels is high. In the Kawerau Pulp and Paper Mill study, 50% of the cohort were of European ethnicity and 49% were Maori.

Since Maori also have a higher incidence of hearing loss from other causes, the use of clinically unfounded hearing loss scales and categories will further exclude them from access to rehabilitation. Greville's report (2005) records the higher incidence of hearing loss among Maori (12.1%) than non-Maori (9.6%), and the fact that 80% of hearing loss claims come from non-Maori as opposed to 5% from Maori.⁵⁷

New Zealand's stated position on Human Rights is outlined on the Ministry of Foreign Affairs and Trade website: "In selected areas of the multilateral agenda New Zealand plays a part as a good international citizen as an expression of our national values. The promotion and protection of human rights is one such area."⁵⁸

5.3 Flouting of New Zealand's legal process

5.3.1. Process for changes to legislation

The New Zealand legal process requires that proposed changes to legislation must be advertised and due regard given to a proper opportunity for public

⁵⁶ ACC website

⁵⁷ Hearing impaired and deaf people in New Zealand: an update on population numbers and characteristics, by Anne Greville, PhD. (2005)

⁵⁸ www.mfat.govt.nz/Foreign-Relations/1-Global-Issues.index.php

consultation. While the proposed legislative changes did state the introduction of a 6% threshold and allowed for submissions to a Select Committee hearing, there has been no indication in the proposed changes that there was any recognition given to a single one of the points raised in the submissions.

In addition, the proposal to introduce part-payment for noise-induced hearing loss/age-related hearing was not signaled in the proposals. Subsequently the Minister has allowed only four weeks for submissions and the Department of Labour, which was the delegated authority to manage the process, refused to grant extensions.

A bare minimum application of due process has been observed as is required, which calls into doubt the legality of the changes. The consultation process should have reflected that this issue affected many New Zealanders, who are in fact, communication impaired and require a longer period of time to respond.

5.3.2 Review of changes to legislation by Treasury

It is also a requirement as part of due process that all changes to legislation be reviewed by Treasury's Regulatory Impact Analysis (RIA) team and a Regulatory Impact Statement (RIS) issued. Prior to implementation of the amended IPRC Amendment Act, it was reported to the Cabinet Social Policy committee that **“the RIA team has assessed the RIS as inadequate because it is incomplete in a number of key areas, and states the following examples: quantification of impacts: a number of the proposals that remove ACC entitlements will shift the costs onto other government agencies or private individuals and these costs have not been quantified”** and **“the RIA consultation requirements have also not been met. While departments have been consulted on the proposals, key concerns have not been adequately addressed. Other affected stakeholders, such as business, do not appear to have been consulted on this set of proposals.”**⁵⁹

There is no evidence to show the quantification of impacts or consultation requirements have been completed. For example, it is proposed that when

⁵⁹ Proposals for the Injury Prevention, Rehabilitation and Compensation (IPRC) Amendment Bill 2009 to the Cabinet Social Policy Committee from the Office of the Minister for ACC. (2009)

ACC applies part funding to noise-induced hearing loss decisions, the claimant may seek the balance from the Ministry of Health. However, there are not only waiting lists for hearing aids which vary for up to a year in some district health areas, but already during the 2008-2009 funding year the MoH had a **26%** shortfall in its hearing aids budget. As this government has capped Health funding there will be no additional funds available for hearing aids.

There has been no indication from government or from ACC of any arrangement to take up the additional costs for providing hearing aids to claimants rejected by ACC, or for case management for patients who need assistance to co-ordinate the funding sources. At present the MoH pays a maximum of \$500 towards a hearing aid and negotiations with ACC are incomplete, although the amendments are already being enacted i.e. there is no provision for claimants who need to pay the shortfall in costs for hearing aids. Nor are there procedures in place for claimants who need to negotiate several funding bodies with different criteria for provision of funding and services in order to receive their entitlements.

Nor have the related businesses – audiologists and hearing aid manufacturers – been properly consulted on the viability of the changes to regulated service and hearing aid provision costs.

ACC claimants are going to non-profit community agencies for support and advice, which are not funded to provide this service, rather than to the statutory agency that is charged with their rehabilitation.

5.4.1 International Labour Organisation (ILO) Convention 17

New Zealand has ratified international minimum standards for injured workers as laid down in ILO Conventions. In particular ILO Convention 17 requires that a ratifying government provide all necessary treatment for people injured in accidents at no cost to the injured person. New Zealand will be in breach of its obligations if entitlements are reduced as the legislation proposed.

5.4.2 United Nations Convention on the Rights of Persons with Disabilities

New Zealand ratified the United Nations Convention on the Rights of Persons with Disabilities in 2008. In the 2010 Budget, government allocated “\$2.34

million to help promote, protect and monitor the rights of people with disabilities in line with the UN Convention on the Rights of Persons with Disabilities”.⁶⁰

The Report of the Secretary-General to the UN General Assembly 64th session on the Millennium Development Goals from the Convention on the Rights of Persons with Disabilities states in paragraph 57 that:

“In particular, the Convention states that the issue of accessibility for persons with disabilities is critical. This includes access to the physical environment and infrastructure, information and social services, particularly education and health care, as well as all participatory processes. Therefore, a logical step in both the development process and in advancing the rights of persons with disabilities in economic and social development is that the issue of accessibility should permeate all policies and activities in realizing the Millennium Development Goals for persons with disabilities.”

The UN Convention also imposes on ratifying States an obligation to “safeguard and promote the right to work including for those who acquire a disability during the course of employment by taking appropriate steps to... promote vocational and professional rehabilitation, job retention and return to work programmes...”⁶¹

New Zealand will be in breach of its obligations if entitlements are reduced as the legislation proposes.

5.5 Summary

Because the government has failed to implement existing legislation for prevention of noise- induced hearing loss, hearing impaired claimants will be doubly penalized by being denied the rehabilitation to which they were formerly entitled. This has ongoing implications for workplace and personal safety.

The implementation of a 6% threshold hearing loss for noise-induced hearing loss sets up an acceptable level of up to 5.9% and further reduces employer and government responsibility for noise control in workplaces.

⁶⁰ <http://www.hrc.co.nz/home/hrc/newsandissues/chiefcommissionerapplaudsinitiativesindisabilitysector.php>

⁶¹ Article 27: Work and Employment : subs (f)

The changes to the Accident Compensation Act ignore existing NZ Human Rights legislation and flout international human rights commitments, and introduce legally sanctioned discrimination on the basis of disability, age and race.

6. SOCIO-ECONOMIC EFFECTS: THE NATIONAL BURDEN OF UNTREATED NOISE-INDUCED HEARING LOSS

Despite the lack of research into the costs to all New Zealanders of untreated hearing loss, and particularly that of sound injury deafness, there is nevertheless clear evidence that there are substantial economic and therefore social implications.

“Hearing is one of our primary senses. Together with vision and touch, hearing enables humans to interact with our environment at all levels. Of the three primary senses, hearing is the foundation sense used for communication between people. A loss of hearing acuity fundamentally limits the ability of the individual to communicate, and through this, limits their ability to interact with society. **This has social and economic consequences both for the individual and for society.**”⁶² (Our emphasis)

Throughout ACC’s Proposals to the Cabinet Social Policy Committee, the consultation documents for submissions to the amendments to the ACC Act and to the regulations, and in various media releases and statements from the Minister for ACC as well as in ACC’s own news releases, it has been consistently and erroneously stated that Australian insurance schemes use a 6% claim threshold for compensation for noise-induced hearing loss on the basis that 6% is not a significant hearing loss.

The facts are otherwise. Two major reports commissioned by the Australian Senate – *Listen Hear! The economic impact and cost of hearing loss in Australia* by Access Economics (2006), and the Report to the Senate from the Community Affairs References Committee ‘*Hear Us: Inquiry into hearing health in Australia*’ (May 2010) both make it clear that a 6% hearing loss is a significant burden for an individual that compromises their health and employment capabilities, and that the socio-economic costs of not providing rehabilitation are extensive. In addition, the Australian thresholds are for compensation (lump sum payments) not for rehabilitation; the threshold for rehabilitation is determined by clinical need and the eligibility for hearing aids is based on need and clinical evaluation on a case-by-case basis.⁶³

Given ACC’s much-quoted reliance on the Australian experience, the lack of comparable data from New Zealand, and the relative similarity of social and economic conditions between the two countries, it is possible to draw some realistic conclusions on what the national financial burden of untreated sound injury deafness is for New Zealand.

⁶² Listen Hear! The economic impact and cost of hearing loss in Australia. A report by Access Economics Pty Ltd (2006)

⁶³ Submission to the IPRC Amendment Bill from The Hearing Sector, 2009

6.1 ACC's financial rationale for the changes

Despite claims to the contrary, ACC is not an organization that is financially stressed. While ACC has \$10billion in liabilities, in the last year it has posted a billion-dollar surplus; in 2009 it had \$11.1billion in assets with \$13.4billion forecast for 2010; and the ACC investment team has \$10billion under profitable management.^{64 65} The writer confirmed these figures with ACC on 16 August 2010.⁶⁶

Sir Owen Woodhouse, Chair of the founding ACC Commission, said recently in response to the proposed amendments, that the scheme was designed as "part of the social welfare system, not as an 'insurance' scheme in which all future costs of this year's accidents needed to be funded immediately... any losses stemmed from a decision by the last National Government in 1998 to allow private sector competition for accident insurance, which required transforming the Accident Compensation Corporation on to the same funded basis as private insurers."⁶⁷

The claim threshold of 6% was established purely on the amount of costs ACC decided to save, rather than on a scientific-medical basis or according to the principles of providing social rehabilitation as required by the ACC Act. It is extraordinary that ACC chose the figure of 6% not on the basis of client need but by calculating the annual savings they wanted to make⁶⁸. Moreover, they based their proposed savings on their own figures that included "rehabilitation, maintenance and costs from work-related accidents *in addition to* long term acquired NIHL" (our italics), so the figures they quote for the costs of NIHL are not only inaccurate but are artificially inflated. Although the ACC consultation document on the proposed changes states the growth in claim costs as being 57% between the years 2005 and 2009, the annual rate of growth between 2005-6 and 2008-9 was only 3.64%.⁶⁹

As noted above, this figure was set and has been implemented without due consideration for transfer of costs to other affected social agencies. There are considerable variances in the estimated costs of covering the ACC shortfall between

⁶⁴ NZ Herald 19/10/2009 and 26/10/2009

⁶⁵ ACC Statement of Intent 2010-2013

⁶⁶ Email from Laurie Edwards, Lead Advisor, Media and Public Relations, ACC.16 Aug 2010

⁶⁷ NZHerald 19/10/2009

⁶⁸ "When asked where the figure of 6% came from for the threshold, ACC told the ACC Hearing Loss Reference Group meeting in Auckland on October 30 the figure was arrived at by a mathematical calculation that showed if the threshold was set lower, claims would cost ACC money. Client need was not the issue." NFD Submission to the Transport and Industrial Relations Committee on the Injury Prevention, Rehabilitation and Compensation Amendment Bill, 2009.

⁶⁹ Submission of the NZAS on Regulations for NIHL under the ACC Act 2001. (June 2010 p13)

MoH and ACC. Initially ACC said the transfer of costs to the MoH would be about \$500,000 a year. ACC's own projected savings as a result of the proposed changes are put at \$3-\$4million a year.⁷⁰

During the next nine years (to March 2019) employers are being required to fund all possible claims for the next 36 years (to 2046).⁷¹

This estimated cost does not recognise the changing rate of exposure of workers to noisy industry. In comparable western societies such as the US and Australia, it was noted: "at the beginning of the twentieth century, work was predominantly manual and easily undertaken by people with communication disorders like hearing loss. In the United States, only 20% of people were employed in white-collar jobs where communication skills formed an essential part of the job requirement.

"However, as the twentieth century evolved the nature of work changed again... by the end of the twentieth century 62% of the labor force made their livelihood using skills based on their communication abilities.

"The Australian Bureau of Statistics shows a similar trend [and] observes that 54% of people born 1927-1931 worked in the services industry compared with 74% of people born 1957-1961... a person without communication skills was not only likely to be unemployed, but unemployable in the modern era."

This observation is confirmed by Greville's research in 2001⁷² that noted a fall in the number of people working in noise toxic industries. Preliminary results for NZ research currently underway also suggest the rate of employment in such industries is declining.⁷³

ACC is using historical claims patterns for hearing loss in order to project population trends for the future, on the assumption that approximately 6.25% of the population aged 64-66 will be experiencing work-related hearing loss. However, these proportions will decrease with time – from 77% of injury-related hearing loss claims that are currently funded from the Residual Claims Account (i.e. pre-1999 injury) to 9–10% funding of hearing claims by 2042 from that account.⁷⁴

⁷⁰ Submission on the IPRC Amendment Bill by NFD. 2009

⁷¹ Proposals to the Cabinet Social Policy Committee for the IPRC Amendment Bill 2009

⁷² Hearing impaired and deaf people in New Zealand: population numbers and characteristics (Oct 2001) by Anne Greville

⁷³ Submission to the IPRC Amendment Bill 2009 from NFD

⁷⁴ Submission to the IPRC Amendment Bill from the Hearing Sector

“Given acceptance of the tenet that Australians [and New Zealanders] must stay productive longer into their working lives, and the ever-escalating costs of health services for our ageing Australian [and New Zealand] population, any disorder or problem that places limitations on productivity and healthy ageing is of concern.”⁷⁵

Actual costs to ACC for noise-related hearing loss

- i. The Minister for ACC has publicly claimed that the cost of funding hearing aids is \$80 million a year. This is misleading. His own documented figures from his original Proposal to Cabinet for the changes to the IPRC Amendment Act give the cost of hearing aids for 2009 as somewhere between \$55mil and \$65mil depending on the ACC source.⁷⁶ The figure of \$80mil quoted in the same document is the projected cost for the year 2014.
- ii. Of note: The actual (2009) and estimated (2014) costs include all claims for hearing loss from all sources including trauma, and treatment injury such as side effects of some chemotherapeutic treatments for cancer, and some antibiotics. ACC has failed to maintain records that would enable differentiation of cause for hearing loss claims.⁷⁷
- iii. The rate of growth in claimants since 2007 has been steady at 15% per year.⁷⁸ In 2009 ACC accepted 42.09% of claimants with entitlements (4844 claims); in 2008 the figure was 44.95% (4251).⁷⁹
- iv. As a result of the voluntary agreement (the ACCORD) in 2007 between ACC a The rate of growth in claims since 2007 has not increased. The actual costs of hearing aids are less than was projected – as a result of the 2007 ACCORD (the voluntary agreement with audiologists and hearing aid manufacturers) there has been a reduction in the cost per hearing aid of 22% since 2007 and audiology fees have not increased since 2001.
- v. The effects of the ACCORD are reflected in the cost savings. ACC’s costs for FY09 were projected in December 2006 to be approximately \$78million. Actual payments were between \$55 to \$65million as noted above, i.e. \$13-\$25 million less than estimated.⁸⁰

⁷⁵ Listen Hear! pp8-9

⁷⁶ Submission to the IPRC Amendment Bill from the NZAS

⁷⁷ Memo re Hearing Loss Projection Model for ACC from Swee Chang, Actuary. 7 February 2010

⁷⁸ ACC Report “Summary of Audiology Claims June 2009” ref HIMADA submission on the regulations

⁷⁹ Email from Phil Wysocki, ACC to Karen Pullar, Oticon, 17 June 2010

⁸⁰ Submission to the IPRC Amendment Bill from the Hearing Sector, 2009

Historical data of claim numbers and costs therefore do not provide an accurate basis for actuarial predictions of future costs.

Additionally, recent research from Auckland University shows potential for treatment that may repair the damage to noise-induced hearing loss and remove the burden of ongoing rehabilitation.⁸¹

The projected figures of \$600 million for existing claims and the estimated \$806 million for future claims are therefore questionable.

6.2 National costs of noise induced hearing loss

6.2.1 Lost earnings

Despite its legal obligation to do so, ACC has not maintained a full and accurate record of claims for noise-induced hearing loss. However, it is recorded that over 55% of ACC claimants are known to be workers in low paid manual occupations.⁸² (30% had no recorded occupation.)

This is consistent with international research. The HUNT study of socioeconomic inequalities in hearing loss demonstrated “a clear relation between occupational class and high frequency hearing loss among men that was consistent with the results of comparable studies. These relations probably, in full or in part, reflect the effects of harmful occupational noise.”⁸³ As an occupational group that is already economically disadvantaged, this is the group **least** likely to be able to afford to buy hearing aids and related support services.

The University of Auckland interim report on NIHL for the ACC Reference Group given in October 2009 clearly shows the highest rate of currently employed claimants for NIHL (19,565) during the years 1996-2006 is in the 45-59 year age group for both men and women.⁸⁴ The second largest group of 14,477 is in the 60-69 year age group, which reflects a rise in the number of

⁸¹ Drug discoverers need \$1m investment – press release, Auckland University, July 3, 2010

⁸² Final Report to ACC on NIHL by Professor Peter Thorne, 2006

⁸³ Socioeconomic Inequalities in Hearing Loss in a Healthy Population Sample: the HUNT Study by Anne-Sofie Helvik, Steinar Krokstad, and Kristian Tambs (2009). American Journal of Public Health, Volume 99, Number 8.

⁸⁴ Noise Induced Hearing Loss: Epidemiology, Noise Exposure and Prevention. ACC Reference Group Oct 2009, University of Auckland.

workers of former retirement age who need to keep working as they face changing employment, social and economic conditions.

That is a total of 34,042 individuals who are in active employment, but whose capacity for maximizing their income (and their ability to be taxpayers and consumers) will be increasingly compromised by their noise-induced hearing loss as the 6% minimum claim threshold is applied along with the age-related hearing loss scale.

While there are no statistical analyses available on the real financial costs of noise-induced hearing loss for New Zealanders, either as an independent category or as a subset of the general population with hearing loss, it is relevant to note that the Australian Listen Hear! report found the largest financial cost component of impaired hearing is lost wages and productivity, which accounted for over half (57%) of all financial costs.⁸⁵

The greatest financial impact is on the working years of 45-69, predominantly for men. Access Economics observed: “preliminary research in this area suggests that people with hearing loss are on the margins of the workplace and struggle to maintain their employment.”⁸⁶

6.2.2 Tax foregone

Individuals with noise induced hearing loss comprise 37% of those with hearing loss.⁸⁷ The Senate Report notes that there are two principle aspects to the impact of hearing loss on taxation revenue.⁸⁸ They include

- i. Lower workforce participation, which results in less contribution of income tax
- ii. Lower income levels. People with hearing loss are 25% less likely to be earning higher incomes than those without hearing loss.⁸⁹ This means a reduced capacity to consume goods and services with consequent reduced revenue from GST.

⁸⁵ Listen Hear! p5

⁸⁶ Listen Hear! p81-2

⁸⁷ Listen Hear! p37

⁸⁸ Senate Report p30

⁸⁹ Listen Hear! p52

Access Economics calculated the tax foregone to the Australian economy in 2005 was AUS\$2 billion. Of this two thirds was lost income tax and one third was lost consumption tax (GST).⁹⁰

There is no New Zealand data available on the tax forgone by persons with noise-induced hearing loss who are either unable to work or who are compelled to work at a lesser rate of income than their experience and qualifications would warrant. Nor is there data on lost indirect (consumption) tax, including lost goods and services tax. However, it is reasonable to assume a high degree of relative parity with the findings of the Australian study.

6.2.3 Welfare payments

Welfare payments are transfer costs, as opposed to 'real' costs. Access Economics reported the cost of welfare payments based on the number of people receiving benefits due to hearing loss in Australia 2005 at AUS\$1,328.3 million.

There is no New Zealand data available on the amount of WINZ benefits paid to support persons who are unable to work as a result of noise induced hearing loss, or who need to be placed in residential care because their sound injury prevents them from living independent lives, though Greville's 2005 study found a disproportionately higher number of hearing impaired than non-hearing impaired residents in residential care.

6.2.4 Loss of consumer spending

If ACC approves part-payment only for hearing aids and audiology services and the grant of \$500 from a successful Ministry of Health application is insufficient to cover the balance, the claimant is left with either needing to personally find funds for the balance, seeking a repayable loan from WINZ or going without.

Given the evidence that individuals with low incomes such as beneficiaries place on essentials such as rent, food and electricity ahead of medical care⁹¹

⁹⁰ Access Economics, 2006, p55

⁹¹ Submission on the regulations from NFD p1

which is frequently unaffordable, then ACC's policy will ensure that persons disabled by noise-induced hearing loss remain disabled and are prevented from contributing as taxpayers and consumers to growing the economy.

6.2.5 Increased health costs for persons with untreated noise-induced hearing loss

Research clearly establishes that individuals with hearing loss have additional health problems that may be a result of their hearing impairment.

Adult hearing loss is associated with an increased risk for a range of health conditions including diabetes, stroke, elevated blood pressure, heart attack (particularly those rating their hearing as poor), psychiatric disorder (particularly those rating their hearing as poor), affective mood disorders, poorer social relations, higher sickness impact profiles (physical and psycho-social), vibration white finger⁹² and reduced health related quality of life.⁹³

The NZ Office for Senior Citizens notes that one of the first expenditures that retirees on fixed incomes with limited discretionary income dispense with is medical insurance.⁹⁴

6.2.6 Deadweight losses

Deadweight losses include the need to raise additional revenue for administration of government systems involved as well as distortionary impacts on the economy of making the taxation and spending transfers.⁹⁵

These will increase as a result of the changes to ACC.

As a result of noise induced hearing loss, the government must fund additional revenue to:

- i) Recover loss of taxation from additional taxes needed to replace that lost to the government by policies that prevent productivity of people with sound injury deafness

⁹² "Vibration white finger is a disease affecting people who are regularly and frequently exposed to high levels of vibration, usually by vibrating power tools (e.g. road drills and chainsaws). It is permanent, and... can result in pain, extreme disability and cause people to lose their jobs. It is part of Hand Arm Vibration Syndrome (HAVS) and affects the vascular systems in the arms, hands, wrists, fingers and thumbs." www.youclaim.co.uk/VWF/Vibration-white-finger.htm

⁹³ Listen Hear! p23

⁹⁴ Submission to the IPRC Amendment Bill 2009 from the NFD

⁹⁵ Listen Hear! p6

- ii) Recover deadweight losses from the administration involved by government systems on health, welfare and spending transfers
- iii) Fund welfare payments
- iv) Fund additional health costs

As the Listen Hear! report emphasizes, all their calculations are based on conservative estimates so the real figures may be higher than their assumed deadweight loss of 28.75 cents for each dollar of taxation required.⁹⁶ For the Australian economy the annual costs per person with hearing loss total 1.4% of total GDP.⁹⁷ This represents a New Zealand equivalent of NZ\$1.87 billion.

While the direct cost to ACC for all hearing loss claims including noise induced hearing loss in 2008-9 was \$58.4 million, the loss to the economy is substantially greater when sound injury rehabilitation is not provided.⁹⁸

On average, people with hearing loss delay seeking help for up to 6 years from the time of first realizing they are having difficulties.⁹⁹ Two reasons are identified as to why people do not seek help:

- i) The growing hearing loss creates a problem that is no longer manageable in their employment or social life, and
- ii) The ongoing stress on family members of the hearing loss has become too significant to sustain without help.

The delay in seeking help suggests that persons suffering from noise-induced hearing loss are reluctant to apply to ACC for assistance and only do so when their sound injury has become a significant imposition on their lives.

6.3 Summary

As the Listen Hear! report notes, “The literature shows that devices such as hearing aids... yield significant benefits for relatively low investment.”¹⁰⁰ The largest real cost is lost productivity.

⁹⁶ Listen Hear! p67

⁹⁷ Listen Hear! p68

⁹⁸ Submission to the IPRC Amendment Bill 2009 by NFD p13

⁹⁹ Listen Hear! p25

¹⁰⁰ Listen Hear! p68

Rehabilitation of people with sound injury deafness will pay back society in an economic and social sense with higher workforce participation, higher taxation revenue, associated spin-off economic benefits, and more socially productive lives. This is wholly in line with ACC's objectives, as stated in the purpose of the Act, to provide for social rehabilitation of injured New Zealanders.

7. PSYCHO-SOCIAL EFFECTS OF UNTREATED NOISE INDUCED HEARING LOSS

Hearing impairment including noise-induced hearing loss may appear to be an invisible disability but the effects of untreated hearing loss are not and are well documented.¹⁰¹ They include:

1. Fear
2. Communication problems at work and in personal relationships
3. Increase in other physical, mental and emotional health issues
4. Profound loneliness
5. Higher likelihood of financial hardship
6. Stress on partners/caregivers and family members
7. Being bullied

7.1 Fear

Depending on the level of hearing loss, people with hearing impairment may be subject to differing levels of fear that underpin their lives. These include:

1. Fear of losing employment. Misunderstandings in communication lead to arguments and mistakes that may be costly for employers and may risk physical safety for work colleagues (and themselves) by being unable to hear warnings or safety instructions clearly. "At work you need to work harder to keep up your usual level of performance, which can lead to fatigue and lapses in your concentration."¹⁰²

There may be a perceived fear of losing employment if a person complains of excessive noise, or of not being able to hear because of noise.¹⁰³ Many individuals delay seeking treatment for hearing loss until well past their working lives due to fear of stigmatization on the job.¹⁰⁴

Noise induced hearing loss "can significantly reduce an individual's ability to undertake job tasks that require the use of auditory signals (e.g. aviation, <http://www.caa.govt.nz>) or verbal communication, placing limits on the kinds of

¹⁰¹ Final Report to ACC on NIHL by Prof Peter Thorne (2006)

¹⁰² Unattributed quotes have been made directly to the writer by people with hearing impairment.

¹⁰³ Final Report to ACC on NIHL by Professor Peter Thorne (2006) p72

¹⁰⁴ Deafness and speech – mishearing, by Felicity Bleckly, Editor of BellaOnline's Deafness Site. 2010.

employments an individual can take and reducing their utility in others.”¹⁰⁵
Untreated hearing loss results in underachievement on the job.¹⁰⁶

Further examples include a lecturer who becomes unable to hear questions from students, or a sales manager unable to hear discussion at sales meetings and conferences.

Changes in the workplace can be impossible to manage. The HTANZ submission cites the example of an ACC client with sound injury deafness whose office workplace changed from landlines to cellphones, with which his hearing aids could not interface, and ACC declined a request for appropriately useful hearing aids.¹⁰⁷

2. Fear of not finding a job. People with hearing impairment are always struggling to make sense of their environment, and when they mishear it adds to their sense of inadequacy. In a job interview, a person with hearing impairment knows that if they mishear and give a wrong answer they will not be appointed or will be seen as a risky appointee.¹⁰⁸
3. Fear of humiliation. “I found I would smile at the wrong time because I couldn’t hear – at a dirty joke perhaps – just to try and be sociable. After a while you get embarrassed so you stop smiling and responding to people. I have hardly ever heard the punch line of a joke. So when everyone is laughing you feel left out and people think you don’t have a sense of humour.”
4. Fear of being stigmatized as stupid, slow or difficult. Misunderstandings create embarrassment for the hearing impaired person and eventually social withdrawal becomes less painful.¹⁰⁹
5. Fear of being alone. Not hearing a knock at the door or footsteps outside the house. “I am never quite at rest without my hearing aids because I can’t hear if someone enters the house. It can get quite scary at nights with a high wind. Even with my hearing aids, it can be difficult to work out distinct noises, and

¹⁰⁵ Ibid p17

¹⁰⁶ Deafness and speech –mishearing, by Felicity Bleckly, Editor of BellaOnline’s Deafness Site. 2010.

¹⁰⁷ Submission to changes to the IPRC Amendment Bill from the Hearing Therapists Association of NZ (2009) p4

¹⁰⁸ Deafness and speech –mishearing, by Felicity Bleckly, Editor of BellaOnline’s Deafness Site. 2010.

¹⁰⁹ Deafness and speech – mishearing, by Felicity Bleckly, Editor of BellaOnline’s Deafness Site. 2010.

direction is really tricky. Something like a thunderstorm can be really frightening.”

6. Fear of not hearing young children. Several claimants declined by ACC have stated they have concerns with caring for young children as they may be unable to hear them if they call for help.
7. Fear of being vulnerable in a public setting – not being able to hear public announcements over loudspeakers, for example, when there are no visual cues. A hearing impaired person may be among strangers and would find it difficult to ask for help when he or she may not be able to hear the answers.

Fear creates stress-related physiological changes, which can lead to health issues as discussed below.

7.2 Increase in financial hardship

As Greville’s 2005 study indicated, there is a higher likelihood of financial hardship for people with a hearing impairment.¹¹⁰ The study found that 48% of adults with a hearing disability had a personal income below \$15,000 – 5% more than the total population. 67% had a personal income of less than \$20,000 – 13% more than the total population.

The same study refers to an earlier (2001-2) study, where an estimated 34,500 people indicated that they needed hearing aids but did not have them. For two thirds of those people, being unable to afford them was the major issue.

Professor Peter Thorne, of the University of Auckland’s School of Population Health, estimates that 16% of all hearing damage in New Zealand is caused by noise.¹¹¹ At least 55% of ACC claimants for sound injury deafness are low-income manual, trades and agricultural workers, who are more vulnerable to severe financial constraints as their hearing impairment progresses.

This is the group least able to afford hearing aids and who will comprise the primary group of claimants declined by ACC.

¹¹⁰ Hearing impaired and deaf people in New Zealand: an update on population numbers and characteristics, by Anne Greville, March 2005 p21

¹¹¹ Submission on the IPRC Amendment Bill (2009). NFD p4

Sources for NZ funding for hearing aids

1. **The Ministry of Social Development (MSD) provides small loans to beneficiaries only for hearing aids and the money is paid back slowly over time.** The MSD website says that assistance such as Advance Payments of Benefit up to a maximum of \$1,000 should not be approved for any services or item where ACC or a private insurer has paid part of the fees or charges unless there is an immediate need. Additionally, couples with assets of more than \$1617.73, and single persons with assets of more than \$970.87, are not eligible. **This eliminates the majority of ACC claimants.**
2. **The Ministry of Health currently provides no partial funding of hearing aids to ACC claimants.**
3. **DHBs:** Hospital based adult audiology services still require the client to pay the cost of hearing aids although assessment and fitting charges may be reduced or waived.
4. **NZ Veteran's Affairs** is specifically for those who have served in the NZ Military Forces overseas and been injured outside of New Zealand. Very few ACC claimants would qualify for this assistance. Currently they provide no assistance to anyone who has ACC cover.

In an American study it was found that hearing loss has an average negative financial income on households of up to US\$12,000 a year, depending on the degree of hearing loss. The use of hearing aids was shown to reduce the financial effects of hearing loss by 50%.¹¹²

The implication that poverty has a compounding punitive effect on all the psycho-social issues noted here is inescapable.

7.3 Communication problems

It is estimated that for each person with hearing impairment eight other people including family, friends and work colleagues are affected.¹¹³

¹¹² The Impact of Untreated Hearing Loss on Household Income, by Sergei Kopchkin, PhD. (2007) Better Hearing Institute.

¹¹³ Submission to the proposed regulations for ACC from the NFD

Hearing impairment inevitably decreases a person's ability to communicate. "The first and primary impact of hearing loss is on the perception of usable information by the individual. Any disruption to this cascade of sounds, as they move from the environment through the various parts of the ear to the auditory nerve, poses a threat to the individual being able to hear and in turn to learn to recognize these sounds as speech and usable language."¹¹⁴

"People who have hearing impairment often think they're being talked about because they can't hear what someone is saying when they're part of a group – people may glance at them and they don't know why. They have to rely on body language which can be misinterpreted."

Hearing impairment can be problematic for parents. One mother of three young teenagers, whose claim to ACC was not accepted and went on to win hearing aids in a contest run by Bay Audiology, reported, "The kids reckon I'm really different with my hearing aids. My loud voice was very intimidating – but now I'm much quieter. I can also hear their back-chat now."¹¹⁵ The implications of a parent not being able to hear the backchat are disturbing.

7.4 Loneliness

Loneliness is a function of social isolation. Individuals with noise-induced hearing loss are frequently:

- i. unable to participate in normal social conversations or family relationships
- ii. unable to view DVDs or many television programmes if they are not subtitled
- iii. unable to view movies or plays at theatres as they cannot hear dialogue
- iv. unable to continue attending recreational and physical activities such as bowling clubs
- v. unable to utilize their experience and continue participation in activities such as marine search and rescue services and volunteer firefighting (as cases declined by ACC have reported to the NFD)
- vi. unable to hear medical advice or information adequately

Since many of these are activities that give interest, stimulation, meaning and a sense of purpose to peoples' lives, it is hardly surprising that physical and mental health issues increase as involuntary loneliness becomes established.

¹¹⁴ Listen Hear! p16

¹¹⁵ Western Leader March 18, 2010

Loneliness intensifies as hearing impaired people lose the sounds that connect them to the world around them. The auditory background of life, much of it indiscernible, is crucial for one's sense of security in a noisy world.¹¹⁶ Human voices, traffic, birdsong, the wind in the trees, music, are part of the backdrop of everyday life. Losing some of those sounds, or changing the intensity of background noises – as happens when the higher frequencies of sound injury deafness are lost, and the lower frequency noises become dominant – can be disconcerting and unpleasant to experience.

7.5 Increase in other physical, emotional and mental health issues

i. Additional occupational health hazards typical of noisy workplaces.

Other stressors frequently accompany noisy jobs, such as dust, dirt, stench, noxious fumes, heat, vibration, and physically strenuous activity, along with shiftwork and low pay.¹¹⁷ Direct health outcomes from these sources such as breathing disorders are mainly treated in, and have their costs absorbed into, the public health system, although they may with some justification be considered a result of cumulative progressive occupational injury or disease. Claims for noise-related hearing loss and work-related accidents might be only the visible effects of poorly regulated and hazardous workplaces. “The overall assessment of health (including absence of pain) would appear to decline as a function of hearing loss.”¹¹⁸

There is a need for research on the correlation of noise-induced hearing loss with other occupationally related health problems.

ii. Use of hearing aids and their benefits on health

There is clear evidence that the use of hearing aids has positive life-changing effects on the health of people with hearing loss.¹¹⁹ Persons with hearing loss who do not have or use hearing aids have measurably higher levels of emotional instability such as tenseness, insecurity, instability, nervousness, irritability, discontentment, being temperamental, anger and frustration,

¹¹⁶ The psychosocial challenges that arise as a result of unresolved hearing impairment, by Max Stanley Chartrand, PhD. Hearing Review, 2008.

¹¹⁷ Medical-Legal Evaluation of hearing Loss, 2nd ed. Robert A. Dobie, M.D. 2001. p164

¹¹⁸ Quantifying the Obvious: the Impact of Hearing Instruments on Quality of Life (1999) by Sergei Kochkin, PhD and Carole M.Rogin, MZ. The Hearing Review, Los Angeles, CA. p9

¹¹⁹ Ibid

weariness, insomnia, thoughts of death, and depression, anxiety (heart racing or pounding), lower self esteem (“I feel I am a failure”), and loneliness.¹²⁰

They are also seen as more confused, disoriented, arrogant and inattentive.¹²¹ The adage that “blindness cuts me off from things, deafness cuts me off from people” is an unfortunate truth for people with hearing loss.

By contrast, those with hearing aids are positively related to

- i. greater earning power
- ii. improved interpersonal relationships and social life
- iii. less stigma related to their hearing impairment
- iv. reduction in difficulty related to communication
- v. reduction in anger, frustration, depressive symptoms, reduced anxiety, reduced social phobias
- vi. increased health status and less evidence of pain
- vii. improved cognitive functioning, including memory and concentration
- viii. improved mental, physical and emotional health¹²²

A Swedish study noted an association between hearing loss and increased risk of other health issues. “The psycho-social effects of stress are known to elevate output of stress hormones, leading to increased risk of diseases.”¹²³

Treatment for hearing loss is therefore a potential contributing factor to the successful resolution of other medical and psychological conditions.

7.6 Stress on partners and family members

A study of married couples where one spouse suffered hearing loss found that almost half of those questioned said the hearing impairment had adversely affected their marriages. The most common negative effect was frustration, with the suspicion that the hearing impaired person filtered out unwanted information.¹²⁴

For persons with untreated noise-induced hearing loss, where the frequencies that affect the hearing of vowels and consonant sounds of speech are lost, the strain of

¹²⁰ Ibid p6

¹²¹ Ibid p8

¹²² Ibid p11

¹²³ Hear Us: Inquiry Into Hearing Health in Australia: Report to the Senate (May 2010) p38

¹²⁴ Article: Hearing loss hard on couples. Reuters. Published on hear-it, Nov 24, 2008.

listening to conversation and making sense of half-heard words and sentences can be intense. “You don’t hear the conversation as it goes along, you hear some of the words and try to fill in the rest. Sometimes it’s a best guess and you don’t always get it right. Then you need time to think of your reply. People get impatient, and sometimes you get tired of trying to hear.”

Typical comments heard by partners and close family members include: “Her hearing isn’t that bad, she can hear when she wants to,” or “He says he doesn’t hear me half the time but he always hears me say when dinner is ready!” (The smell of food cooking could be a clue here.)

Informal carers including work colleagues undertake a range of supportive activities on behalf of the hearing impaired person which may or may not be willingly provided. They include:

- Repeating other people’s comments to the hearing impaired person
- Taking phone calls and messages
- Making medical and dental and other essential appointments

Primary carers also find their own lives become restricted as

- friends and family stop visiting because of communication difficulties
- social events such as movies and dinners become more unpleasant for the hearing impaired person, their partner may not feel they can go out as often or feel disloyal or guilty if they do go alone
- conversations are more difficult so problems or matters of mutual interest are discussed less often and mutual loneliness can ensue.

If a person has difficulty hearing speech, the speaker also experiences a problem with communication.¹²⁵ One person observed to the writer, “You can’t communicate personal matters quietly – sometimes you want to make private or intimate comments but you can’t do it without raising your voice. It creates a barrier to communication with your partner.”

As the ability to hear verbal communication diminishes, so does the ability to determine different tones of speech. “The loss of intimate communication means the loss of encouragement... and the nuances of speech that signal empathy or sympathy... divorce rates are higher, as well as estrangement from children and friends. Social dysfunction often leads to higher rates of alcoholism and substances

¹²⁵ Hear Us: Inquiry into Hearing Health in Australia p38

abuse/dependency, including much higher rates of overutilization of psychotropic drugs, as well as medical services.”¹²⁶

7.7 Bullying

Anecdotal evidence and observation by this writer during many years working in health settings reveals there is an unacknowledged and widespread culture of bullying of hearing impaired individuals.

It is an accepted fact of life for many people with hearing disabilities that people speaking to them often refuse to repeat themselves, and when they do so, or when they raise their voices, they frequently become irritable, especially if this is a recurring requirement. **As Michael Uniacke noted “for most people, blind people arouse concern, but deaf people arouse impatience.”**¹²⁷

Because of their compensatory need to rely on their other senses, those with hearing loss become particularly sensitive at reading facial expressions and body movements, and are aware when a speaker becomes irritated, frustrated, impatient or contemptuous. A raised voice is often accompanied by an expression of aggression, and facial and body gestures reflect this. This behaviour can be perceived as intimidating.

Whether intentionally or unintentionally – and being treated with contempt as being slow, dense, stupid or backward, is quite common for people with hearing impairment regardless of their age (or youth) – the outcome is that the hearing impaired person is more often subject to a culture of bullying. This applies in the workplace as well as in personal relationships.

An internet search reveals little research on the topic of bullying of hearing impaired people globally. What there is has focused mainly on Deaf children in schools or with peers. There are studies and policies on bullying of persons with disabilities as human rights issues generally, and on workplace bullying of the hearing enabled population, but none specific to persons with hearing impairment.

There is an urgent need for research into the frequency and effects of bullying on persons with hearing impairment.

¹²⁶ The psychosocial challenges that arise as a result of unresolved hearing impairment, by Max Stanley Chartrand, PhD. Hearing Review, 2008.

¹²⁷ Listen Hear! p38

8. SUMMARY

The amendments to the ACC Act and regulations cannot be justified on legal or ethical grounds as they flout the New Zealand Human Rights Act 1993, the New Zealand Bill of Rights Act 1990, the New Zealand Code of Disability Rights, and the International ILO and UN Convention on the Rights of Persons with Disabilities. The amendments enact discrimination on the basis of disability, age and race.

The amendments cannot be justified on scientific grounds, as the science does not support the basis of ACC's hearing assessment and age-related hearing loss schedules.

The amendments cannot be supported on economic grounds as the overall national costs of not treating noise-induced hearing loss are significantly outweighed by the economic benefits of rehabilitation.

Furthermore these amendments to the ACC Act cannot be justified on social grounds, as the implementation of a government policy that knowingly precludes persons with a life-altering sensory impairment from receiving rehabilitation is in contravention to human rights.

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Submissions:

Submissions to the Injury prevention, Rehabilitation & Compensation Amendment Bill November 2009:

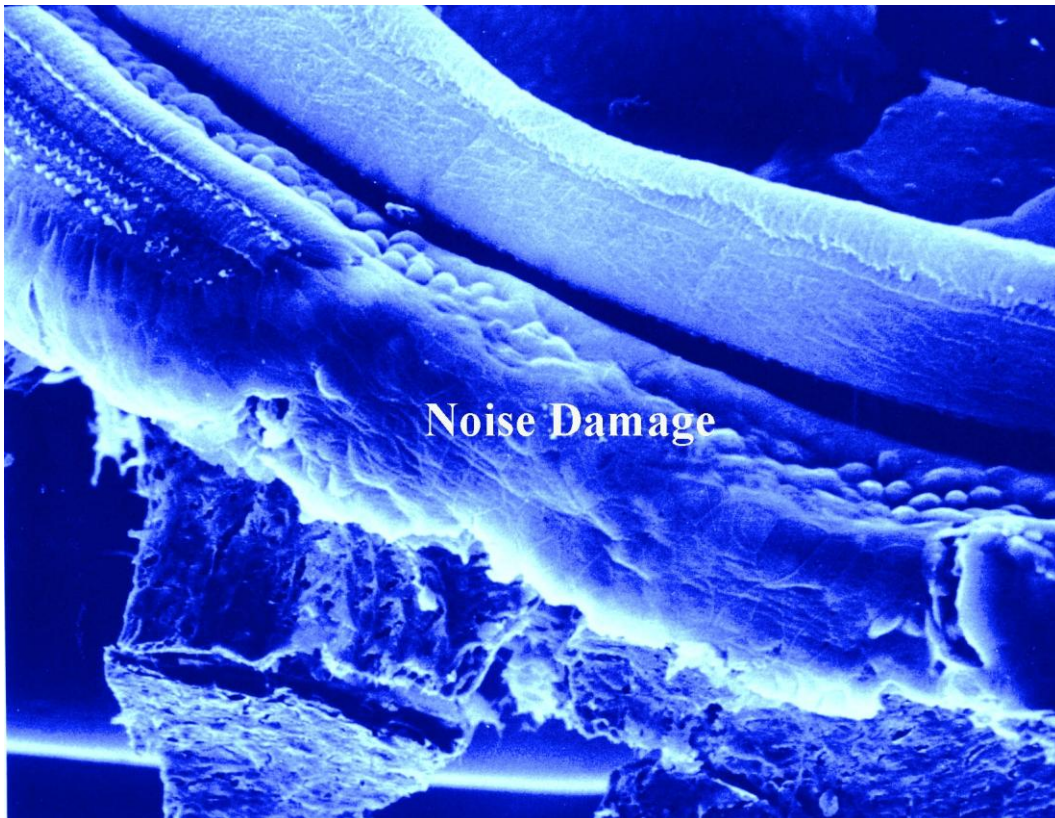
- i. National Foundation for the Deaf Inc
- ii. Professor Peter Thorne CNZM, PhD and Dr David Welch PhD, Department of Audiology,
University of Auckland
- iii. Human Rights Commission
- iv. Age Concern New Zealand: He Manaakitanga Kaumātua Aotearoa
- v. New Zealand Hearing Sector
- vi. New Zealand Hearing Association
- vii. New Zealand Audiological Society Inc
- viii. Hearing Association of New Zealand: Te Kāhui Rongo a Aotearoa
- ix. New Zealand Hearing Industry

Submissions to the Consultation on Regulations for Noise-Induced Hearing Loss June 2010

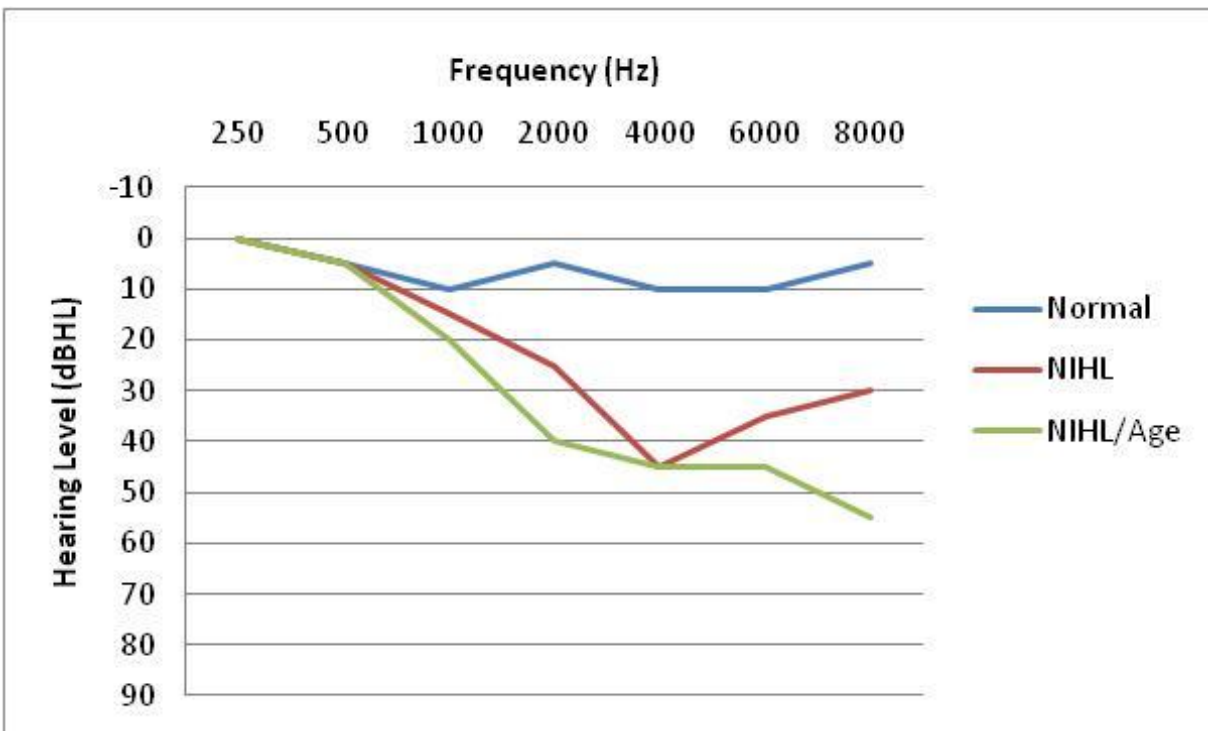
- i. National Foundation for the Deaf Inc.
- ii. Hearing Instrument and Manufacturers and Distributors Association (HIMADA)
- iii. NZ Audiological Society (NZAS)
- iv. New Zealand Council of Trade Unions
- v. NZ Amalgamated Engineering Printing and manufacturing Union (EPMU)
- vi. Hearing Therapists Association of New Zealand

10. APPENDICES

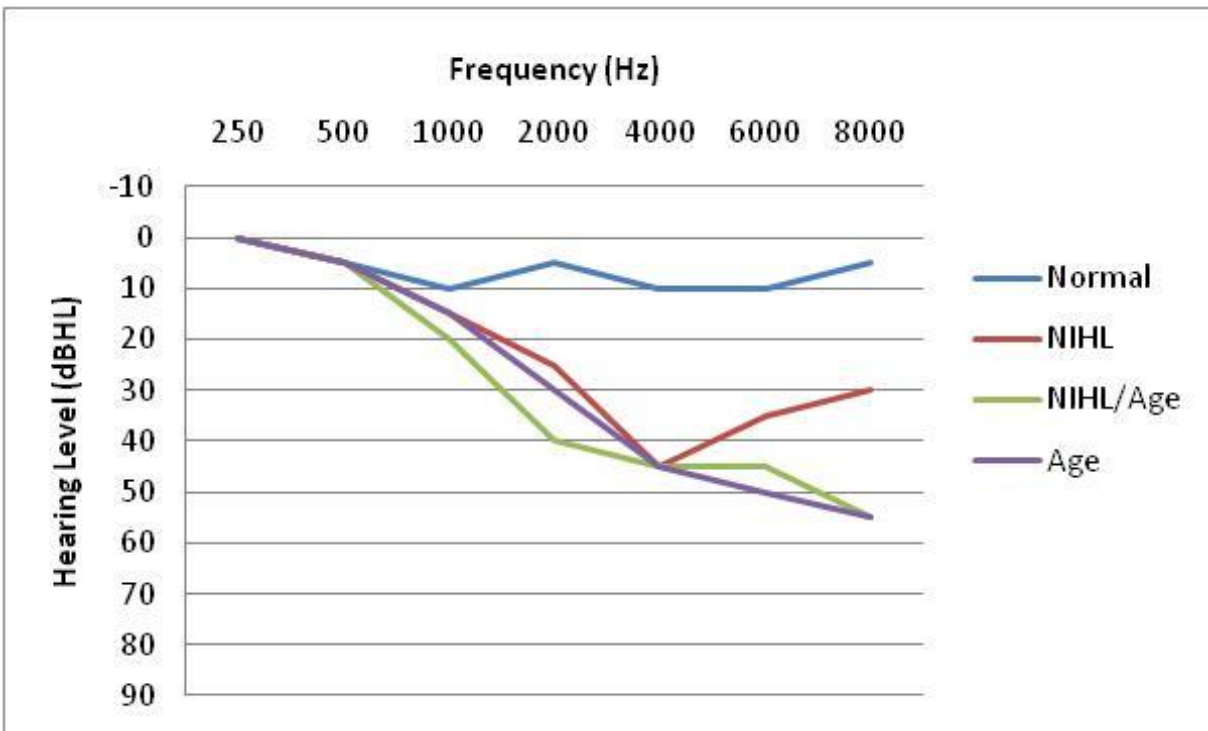
Appendix I: Photographs of healthy and noise damaged cochlea



Appendix II: Audiogram showing 'V' shaped notch characteristic of noise induced hearing loss Examples of possible audiograms from a person with normal hearing, a predominantly noise-induced hearing loss, or a mixed noise and age-related loss where the noise exposure has spread into lower frequencies.



Appendix III: Audiogram showing extended notch of progressive noise induced hearing loss and age Examples of possible audiograms from a person with normal hearing, a predominantly noise-induced hearing loss, or a mixed noise and age-related loss where the noise exposure has spread into lower frequencies and a solely age-related hearing loss.



Appendix IV

[From Noise and Hearing Loss in the Metal Manufacturing Industry – David Welch, Gareth John, Alla Grynyeych, Peter Thorne, 2010]

Noisy Equipment Top Ten

Rank	Equipment name	Mean Leq(dB(A))
1	Air gun	96.9
2	Angle grinder	93.2
3	Pedestal grinder	90.1
4	Saws	88.7
5	Roll former	85.2
6	Steelworker -punch and sheer	83.2
7	Linisher	82.5
8	Electric drill	82.1
9	Air compressor	81.8
10	Guillotine	81.6

Appendix V

[From Noise and Hearing Loss in the Metal Manufacturing Industry – David Welch, Gareth John, Alla Grynaych, Peter Thorne, 2010]

Impulse Noise Top Ten

Rank	Source of impulse noise	Mean L_{peak}(dB(C))
1	Dropping sheet steel onto surface of an ArcWriter machine	141.5
2	Sledge hammering a mild steel girder	139.6
3	Dropping a steel bar onto a concrete floor from approx 0.5m	138.6
4	Dropping a steel bar onto a concrete floor from approx 0.5m	137.5
5	Sledge hammering a steel plate on a metal work surface	132.3
6	Dropping sheet steel on top of other sheet steel from approximately 1m	131.8
7	Hammering (ball-pein hammer) a galvanised steel sheet, on a metal work surface	129.3
8	Rolling over a steel girder, on a metal stand	127.8
9	Centre punching a steel girder	125.3
10	Dropping a large, hollow, aluminium tube onto concrete floor from approximately 1m	124.7

Appendix VI:

[From Dr John Wallaart, ACC 20 November 2009]

Summary of research currently in progress

Introduction

There is a vast amount of research happening at the present time through:

- Auckland University School of Population Health (and including a team of overseas researchers):
 - Determination of the prevalence and incidence of NIHL in the New Zealand workplace and characterisation of the noise environments,
 - To identify the potential contributions of other occupational hazards and non-work related noise exposure to the incidence and prevalence of NIHL,
 - To develop more accurate methods of monitoring hearing damage in the workplace.This work is due for completion in 2010. As results become available they will be placed on the ACC IP Toolbox website.

- Massey University:
 - Evidence based literature review of the effectiveness of interventions to reduce NIHL,
 - A survey of interventions used by industry to reduce noise exposure and prevent NIHL,
 - A survey of identified high risk industry sectors and occupations,
 - A survey of workplace cultural aspects of noise management and prevention of NIHL,
 - Development of an intervention strategy for the prevention of NIHL.This work is due in 2010. As results become available they will be placed on the ACC IP Toolbox website.

In addition to the above research, there is additional applied research happening at the present time, as:

- Otago University (Dr David McBride and a team) are completing research in:
 - Agricultural families-due middle of 2010,
 - Wool harvesting-due end December 2009.

The work involved audiometry and dosimetry of the family in the agricultural sector.

A separate PhD student project is determining the effectiveness and true attenuation of ear plugs being worn in the construction area. This is due in March 2010.

- Auckland University (Dr David Welch and a team) are completing research in the Metal Manufacturing industry (mostly around the Auckland area). This work involves personal dosimetry, audiometry and an evaluation of current PPE equipment being worn in the industry.
- Canterbury University acoustics departments are carrying out applied research in the wool harvesting sector to determine if the shears can be redesigned to produce less emitted noise. This work is due in 2009. This university is also about to embark on work in other industry applications where the noise emission is a current problem.

End