

Chapter 3

Compensation for Noise-induced Hearing Loss

3.1 Workers' Compensation

Workers' compensation is a form of social security (Strydom, 2001). "Social security" is defined as a system of assistance guaranteed by the state, granted to people in need when their normal source of income has been interrupted or ended. It includes assistance to people suffering from industrial injuries or diseases (Barker & Holtzhausen, 1997).

The extent of social security legislated in a country depends on the definition of social security that is accepted locally and is strongly influenced by the national social policies, but especially by the country's political history and population composition, which lay the foundation for the country's socio-economic conditions (Strydom, 2001).

Social security is a complex entity and different types exist. In general four types form the major distinctions within social security:

- private savings, where people voluntarily save for unexpected contingencies;
- social assistance, which is non-contributory benefits provided by the state;
- social relief, made up of short-term measures to tide people over; and
- social insurance, which can be either joint contributions by the employer and the employee to a pension fund or only contributions by the employer or government for social insurance covering accidents at work or unemployment. Workers' compensation is therefore a form of social insurance (Strydom, 2001).

Typically social insurance systems are regulated by legislation that ensures that membership of the relevant fund is compulsory for most employees in an industry and that it is financed through regular contributions.

3.2 History of Workers' Compensation

Workers' compensation had its origins in the Industrial Revolution in the United Kingdom, the US and Canada. The workers' only remedy for recovering damages for occupational injuries was through civil action in courts and only if negligence on the part of the employer could be shown (Dobie, 2001). Often access to the legal process was not readily available or affordable to most workers and in addition if a worker dared to institute a civil action against his or her employer, his or her job would be at risk (Strydom, 2001).

Historically, worker compensation accepted the principle of vicarious liability, in terms of which an employer was also held liable for the negligence of its workers. Employers began to insure their risks with insurance companies and governments passed legislation to offer workers the choice of methods of recovery. According to this legislation workers could either approach the courts through a civil suit and accept the possibility that they might not succeed or make use of compensation legislation to recover limited compensation (RAF, 2002). This form of legislation accepted "no-fault" on the part of the employer, in this way providing the employer with a trade-off between workers and employers in terms of which a worker gave up his civil right to litigate against the employer to recover damages and replaced it with the guaranteed right to early compensation that would cost the worker nothing (Dobie, 2001). Employers were protected from litigation but were required to pay a premium for such protection (Strydom, 2001). The first legislation in South Africa to adopt the "no-fault" principle was passed in 1905 (RAF, 2002). This principle was absorbed into workers' compensation legislation and incorporated into South African legislation early in the last century (Fultz & Pieris, 1999).

The development of workers' compensation and occupational health legislation and standards in South Africa has always been prompted by labour activity. Although there were progressive advances in legislation in the early part of the last century as a result of the pressure exerted by the labour force, working conditions were still poor and

enforcement of legislation lacking. The reason for the slow improvements was that the state was concerned with minimising conflict and disruption of productivity, while ensuring that conditions did not deteriorate too badly; at the same time, the employers were concerned with maximising profits. This meant that the employer undertook improvements in occupational health and safety (OHS) only insofar as these were profitable while the union movement was trying to make work safer for workers (Zwi, Fonn, & Steinberg, 1988).

There were many difficulties that prevented the early trade union movements from improving occupational health and safety conditions, but they were mainly related to the fact that black South Africans were excluded from political structures of government and from legal status as workers, as well as from access to trade unions and industrial bargaining structures (Zwi et al., 1988). Some progress occurred in the updating of occupational health and compensation legislation in the period during and immediately after the World War II because many industries became highly dependent on black labour owing to the development of secondary industry stimulated by the war economy. The progress was suppressed again in 1948 by the enforcement of apartheid (Van Zyl, 1999).

The influence of the unique historical factors in South Africa on the development of occupational health legislation was further evidenced by the Truth and Reconciliation Commission (TRC) in the post-apartheid era from 1994 onwards. The TRC aimed at restorative justice to deal with the legacy of human rights abuse. The TRC's Sub-committee for Repatriation and Rehabilitation was responsible for making recommendations to government concerning the necessary legislation initiatives needed to develop institutional justice in order to address the rights of victims by reforming state institutions to ensure that human rights abuse did not recur (Hermanus, 2007). The culmination of the reparation programmes of the TRC was the new constitution.

The preamble to the South African Constitution (1996) states:

This Constitution provides a historic bridge between the past of a deeply divided society characterised by strife, conflict, untold suffering and injustice, and a future founded on the

recognition of human rights, democracy and peaceful co-existence and development opportunities for all South Africans, irrespective of colour, race, class, belief or sex.

Revision of laws in post-apartheid South Africa included legislation regulating labour relations and conditions of work, much of which legislation preceded the interim Constitution in 1993, and the adoption of the final Constitution in 1996. The Constitution currently contains a Bill of Rights that contains a clause that has bearing on occupational health and safety. The Bill of Rights entitles “everyone... to an environment that is not harmful to their health or well being” and that “...promotes...sustainable development”. Healthy and safe working conditions are among the first expectations for sustainability and create the expectation that risks in the workplace will not deprive workers of their livelihoods or of their quality of life (Hermanus, 2007; RSA, 1993).

The provisions of the Occupational Health and Safety Act of 1993 (OHSA) and the Mines Health and Safety Act of 1996 (MHSA) give expression to the constitutional rights of the worker (Hermanus, 2001). The OHSA and the MHSA make a radical break with past approaches and they were drawn up partly in response to pressures applied by trade unions.

The above Acts are based on concepts such as enabling legislation, goal setting (as opposed to prescriptive legislation), self-regulation, internal/external responsibility systems, health and safety management systems, risk management and the “hierarchy of controls” (for the control of occupational hazards), and stakeholder participation (Hermanus, 2001).

3.3 Occupational Health in Mining

In 1972, Lord Roben chaired a committee of inquiry into health and safety at work in Britain. The findings of this committee called for more comprehensive and systemic approaches to health and safety. The Roben’s report influenced the thinking of the

International Labour Organization (ILO) and the design of legislation in many countries, such as Britain, Australia, New Zealand, Norway and Sweden (Hermanus, 2007).

In South Africa, the Leon Commission of inquiry into Safety and Health in the Mining Industry, which published its report in 1995, was also influenced by Roben's report (Stanton, 2003). The Leon Commission recommended that legislation be promulgated to address occupational health in mines, and that mine employers take urgent steps to improve monitoring standards and practice, medical surveillance, and the control of health risks (Hermanus, 2007; Stanton, 2003).

The burden of occupational disease associated with past practice is still evident in the workforce today and has not yet run its course. The targets and milestones which the mining stakeholders agreed to at the Mine Health and Safety Summit of 2003 were aimed at addressing the major health and safety concerns in the sector, and are driving more systematic efforts to address the causes of fatalities, injury and ill health (Hermanus, 2006; Hermanus, 2007).

Occupational health legislation in South Africa is currently divided into two tracks: one for the mining industry and one for the non-mining industries, and can be summed up under the following Acts:

- Occupational Health and Safety Act, 85 of 1993 (OHSA) – preventions of accidents at work and maintenance of health and safety standards;
- Mines Health and Safety Act, 29 of 1996 (MHSA) – same as OHSA but for mines;
- Compensation for Occupational Injuries and Diseases Act, 130 of 1993 (COIDA) – provides compensation for disability caused by occupational injuries and diseases sustained or contracted by employees in the course of their employment; and
- Occupational Disease in Mines and Works Act, 78 of 1973 (ODMWA) – provides mandatory reporting and payment of benefits to employees who develop certain occupational lung diseases.

The types of occupational diseases and injuries that are predominantly compensated for in the mining industry are dependent on the commodity being mined and the resultant disease or injury. The main diseases/injuries compensated for in South African mines are:

Asbestos mining – Asbestosis is an irreversible, progressive lung condition resulting from the inhalation of asbestos fibres over an extended period. The latency period for asbestosis is usually at least 10 years, and the higher the exposure the greater the chances of developing the disease. Asbestosis has resulted in the most significant insurance claims in the world and has been responsible for the collapse of a major British insurance group and the loss of an international law suit at the World Trade Organisation (Stephens & Ahern, 2001).

Coal mining – Pneumoconiosis and Silicosis – Studies show that up to 12% of coal miners develop these fatal diseases whose symptoms include loss of lung function and chronic Bronchitis (Stephens & Ahern, 2001).

Uranium mining – lung cancer – The latency period can be over 20 years. Most studies find relative risks of lung cancer to be between two and five times higher in uranium workers than in other workers (Stephens & Ahern, 2001).

Gold mining – Deep gold mines have risks associated with high blood pressure; heat exhaustion; myocardial infarction; and nervous system disorders. The processes of extraction of the gold from ore using mercury can cause mercury intoxication and amalgamation (Malm, 1998). Gold mining in South Africa has further complexities related to the impact of the high prevalence of HIV/AIDS, which interacts with the exposure to all health stressors, especially exposure to silica dust, which increases the risk of pulmonary tuberculosis (TB) (Corbett, Churchyard, Charalambos, Samb, Moloji, Clayton, Grant, Murray, Hayes, De Cock, 2000; Sonnenberg, Murray, Glynn, Shearer, Kambashi, Godfrey-Faussett, 2001).

3.4 Disability

The calculation of the amount to be paid to a worker is dependent on an assessment of the degree of disability (DME, 1996; DME, 2003). Workers' compensation, as discussed earlier, is based on the way in which social and political factors shape the compensation law, guided by, and within the boundaries of, accepted international standards and frameworks. A country's legal system determines how impairment is translated into financial compensation (Barnes & Shipman, 1998; ILO, 2004).

Workers' compensation laws typically provide for payment to the worker on the basis of their pay rate and the severity of the injury that is translated into a compensable amount. If the hearing loss causes complete disability (the victim is unable to continue work), the claim is rated to be total permanent disability. Since NIHL does not usually cause total disability, the rating is usually a percentage assessment of the handicap caused by the hearing loss, providing a "percentage loss of hearing" as a presumed permanent partial disability (Dobie, 2001). There is little agreement as to the formula used to calculate handicap or impairment. However, some of the international standards and classification frameworks of health and safety practices that have informed the development of compensation legislation for occupational injury and their particular approaches are as follows.

3.4.1 World Health Organization (WHO)

The WHO classification has evolved since its inception in 1980 to the currently accepted format that was ratified by WHO member countries in 2001. The International Classification of Functioning, Disability and Health (ICF) is a classification from individual and societal perspectives. The basis of the classification is two lists: one of body functions and structure, and one of activities and participation in the activities. Since an individual's functioning and disability occur in a context, the ICF also includes a list of environmental factors. The ICF defines impairment as any loss or abnormality of physiological, psychological or anatomical structure or function (WHO, 2001).

3.4.2 International Labor Organization (ILO)

The ILO framework (ILO, 2004) does not prescribe standards for assessing the injury for the purposes of compensation, since that is left to individual countries to determine. The ILO framework rather refers to three methods to determine the benefits to be paid for permanent or partial disability:

- a. the physical impairment method: where compensation is calculated with reference to the estimated degree of physical and mental impairment resulting from the disability. Rating charts or injury charts attribute percentage rates to a list of disabilities;
- b. the projected loss of earnings method: where a pension is calculated by estimating the extent to which the earnings are likely to be reduced by the disability; and
- c. the loss of earnings method: where a pension is paid according to the estimated actual loss of earnings resulting from the disability.

3.4.3 American Medical Association (AMA)

The AMA's "Guide to the Evaluation of Permanent Impairment" outlines how the US has interpreted the definitions that inform the assessment for compensation, and these definitions have influenced many other countries' interpretation of compensation (AMA, 1995). The AMA defines "impairment" as the loss, loss of use, or derangement of any body part, system or function. Permanent impairment occurs when the impairment has become static after a period of time sufficient to allow optimal tissue repair. The AMA adds that impairment is a condition that interferes with an individual's activities of daily living, which include spoken or written communication and social activities. The AMA defines "disability" as an alteration of an individual's capacity to meet personal, social or occupational demands. Finally, the AMA guidelines also define the effect of an occupational injury or disease as a "handicap" when the disease or injury presents obstacles to accomplishing life's basic activities.

The discussion thus far has provided a background to the history and development of compensation for occupational diseases and injuries, with particular reference to the South African context and especially in the mining industry. NIHL is the condition that is the most prevalent in compensation claims for occupational diseases or injuries in the South African context and the method of determining the percentage of disability caused by NIHL takes into account the principles mentioned in the foregoing discussion.

3.5 NIHL Compensation

As mentioned in the section on NIHL, the current method of determining hearing loss is by means of the audiogram. The way in which different countries use the information on an audiogram to arrive at a percentage of disability varies. The variation in the specific method used for determining the percentage of disability from NIHL is influenced by the answers to the following questions:

- What frequencies on the audiogram are deemed important?
- What degree of hearing loss is deemed sufficient to warrant eligibility for compensation?
- Are the frequencies at around 4000 Hz taken into account in the calculation?
- Is the effect of the hearing loss on the perception of speech sounds taken into account?
- Is compensation seen to include rehabilitation and/or retraining for another job?
- Is the loss of earnings seen to be an important aspect of compensation?
- Are other aspects such as the victim's quality of life seen to be important in determining the compensation due for NIHL (e.g. tinnitus)?
- Is the liability for the cause of the NIHL apportioned among employers?
- Is the contribution of aging to the hearing loss taken into account?

The way that these questions are answered by the policy makers in different countries determines the legislation that determines NIHL compensation and this varies from country to country and in some cases even from province to province in a country, as well as according to how international standards and socio-political influences are interpreted within the norms and values of the different societies as discussed previously. The

following overview of the various methods and emphases in different countries gives a basis for comparison with the South African context of compensation for this study. Table 12 summarises how the questions above impact on the calculation of compensation for NIHL in the various regions of the world. The discussion that follows further elaborates and compares the differences.

Table 12 Differences in compensation criteria in various countries.

Compensation criteria	Europe	Canada	United States	Australia	South Africa
Frequencies on the audiogram used for calculation	1KHz, 2KHz and 3KHz	0,5KHz, 1KHz, 2KHz and 3KHz	0,5KHz, 1KHz, 2KHz and 3KHz	0,5KHz, 1KHz, 2KHz, 3KHz, 4KHz, 6KHz and 8KHz	0,5KHz, 1KHz, 2KHz 3KHz and 4KHz
Eligibility for compensation	40dBHL at 2KHz	Ontario-average 35dBHL British Columbia-15dB deterioration at 3 or 6 KHz	Median expected level for age, gender, exposure level, duration of exposure used	S. Australia-5%PLH shift from baseline Victoria & W. Australia-10% PLH shift form baseline	10% PLH shift from baseline.
Frequencies at around 4000 Hz taken into account in the calculation	Only 3KHz	Only 3KHz	Only 3KHz	Only 3KHz	Only 3KHz
Perception of speech sounds taken into account	Yes	No	Yes	Yes	Yes
Compensation includes rehabilitation and/or retraining	Yes	No	Yes	No	No
Loss of earnings included in compensation	No	Yes	In some states	No	No

Presence of Tinnitus compensated	Yes	No	No	No	No
Liability apportioned among employers	No	No		Yes	Yes
Contribution of aging taken into account	No	Yes	Yes	No	No

3.5.1 Europe

In Europe the emphasis for NIHL management is on prevention and rehabilitation reflecting the importance put on high levels of social security and the effects of efficient first world standards. The legislation requires employers to provide annual screening audiometry as in other countries. However, the referral for compensation is more liberal than for example in developing countries since it occurs if there is a greater than 40 dB loss at 2 KHz or if the sum of the hearing threshold levels at 1, 2, and 3 KHz deteriorates by more than 30 dB. This emphasis on the lower frequencies reflects the high level of consideration of the quality of life of the recipient of the compensation. The prerequisite for a compensation claim is that the worker must have worked in conditions of greater than 85 dBA noise levels for two years or more. Some countries within the European Union have unique ways in which the legislation is interpreted. In Germany, for example, the emphasis of assessment for an NIHL compensation claim is on the speech recognition threshold (SRT) and pure-tones are only used if the claimant is not German speaking and therefore unable to understand the test stimuli. The calculation of the disability only uses 1, 2, and 3 kHz, together with calculation tables that are weighted at 1 kHz (Barnes & Shipman, 1998; EU, 2003). This compensation calculation may impact unfairly on the amount paid to NIHL victims since the emphasis on the low and mid frequencies, where the speech recognition frequencies are most prevalent, may not compensate for the effects of the typical high frequency loss found in NIHL.

3.5.2 United States (US) and Canada

The legislation governing NIHL compensation in the US and Canada differs from state to state and from province to province. Some of the models are discussed below.

The compensation model used by the province of Ontario, Canada to calculate the compensation paid to a worker for NIHL distinguishes between a non-economic loss (NEL) and a future economic loss (FEL). The NEL is calculated using 45 years of age as the calibration age, i.e. C\$1000 is added for every year that the claimant is younger than 45 and deducted for every year that he is older than 45 years of age. The compensation amount is paid to all equally, regardless of earnings, which is not the case in other countries nor South Africa where the current earnings form the basis of the calculation. If a worker loses his job because of NIHL, the FEL is paid. Rehabilitation is not included in the Ontario system and only financial compensation is legislated unlike European countries. The rebuttal system is unique to Ontario where an employer can rebut the responsibility for the NIHL in court. The existence of the system means that very good records are kept to provide information for the rebuttal. The other unique characteristics of the Ontario compensation system are that the compensation is reduced in relation to older age to calibrate for the role that presbycusis plays, to a maximum of 2.5 dB after 60 years of age. This may be indicative of a more conservative socio-political approach. However, tinnitus is also compensated in Ontario by adding 2% to the NEL not a common phenomenon in the legislation which may reflect a greater emphasis on worker rights. The referral for compensation occurs in Ontario is when the hearing threshold levels average 35 dB (Barnes & Shipman, 1998).

British Columbia approaches NIHL compensation slightly differently. A worker in British Columbia can claim for NIHL and will receive both NEL and a loss of earnings (LOE) amount. The age calibration in this province subtracts 1% per year above or below 45 years but to a maximum of 20%. In British Columbia, the highly unionised workforce has managed to influence the legislation to include mandatory annual audiometry for medical surveillance a reflection of the impact of the socio-political influences of society on

compensation outcomes. British Columbian legislation requires that rigorous personal exposure records are kept, and referral for compensation occurs when a 15 dB deterioration in hearing threshold levels occurs at 3 or 6 kHz. The frequencies 0.5, 1, 2, and 3 kHz are used to calculate the permanent disability, and hearing loss present at pre-employment is subtracted for the compensation calculation (Barnes & Shipman, 1998).

In the US the main federal law governing NIHL compensation is the OSHA 29 CFR:1910.95 section of the Occupational Safety and Health Act. Most American workers are covered by this regulation, which sets the permissible exposure limit (PEL) of noise in the workplace at a time weighted average of 90 dBA and uses a 5 dB exchange rate for higher levels of exposure. The Mine Safety and Health Administration 30 CFR:62.100 and the federal Railroad Administration 49 CFR:229.115 provide legislation for the protection of workers in some of the other industries.

The determination of the percentage of hearing loss uses the median-ratio method. The basic premise of the median-ratio method is that the relative amounts of noise-induced threshold shift and the age-related threshold shift for the average of the frequencies at 500 Hz, 1000 Hz, 2000 Hz and 3000 Hz at the median for a given age, gender and exposure level and duration of noise exposure are used to calculate the percentage of the presenting hearing loss to be allocated to NIHL (Dobie, 2001). The diagnosing audiologist therefore requires a detailed history of noise exposure levels, audiometric history and employment history to allocate and calculate liability and eventually compensation accurately. Some states have additional legislation governing hearing conservation and rehabilitation of NIHL victims.

3.5.3 Australia

The Australian legislation uses a Percentage Loss of Hearing (PLH) to calculate the compensation due to a worker. Permanent disability is calculated using hearing threshold levels at 500 Hz, 1000 Hz, 1500 Hz, 2000 Hz, 3000 Hz, 4000 Hz, 6000 Hz, and 8000 Hz. PLH for each frequency is obtained from actuarially designed tables and all the

percentage hearing losses are added to give an overall figure (Barnes & Shipman 1998). The South African system is based on the Australian system and is therefore very similar, with the exception that 1500 Hz is not routinely tested in South African practice and is therefore excluded from the South African system.

The criteria for making occupational deafness claims vary between different areas in Australia; for example, in South Australia the level at which compensation claims can be made is 5% PLH above the baseline, while in Victoria and Western Australia it is 10% above the baseline. This is also different from South Africa, where claims can only be made at 10% PLH intervals.

3.5.4 South Africa

NIHL is a scheduled compensable disease in terms of Schedule 3 of the Compensation for Occupational Injuries and Diseases Act (COIDA) (COIDA, 1993) in South Africa. The earliest calculation method used to calculate disability was known as the “three average formula” and was used under the claims code known as “Instruction 63”.

The influences of the political changes in the country in 1994 prompted the adoption of Instruction 168 in January 1995. Calculation of permanent disability was described as the decibel loss from the audiogram in the four frequencies 500, 1000, 2000 and 3000 Hz. The four decibel values for each ear were totalled separately (known as the decibel sum of the hearing threshold levels (DSHL)). Tables were then used to calculate the percentage impairment in each ear and put into the following calculation to determine the binaural impairment:

Binaural impairment (%) = (5 x hearing impairment of the better ear) + (1 x hearing impairment of the poorer ear) divided by 6.

A further table then determined the percentage of permanent disability. The liability for the NIHL and compensation insurance lay with the employer with whom the employee

was engaged when the condition was diagnosed. 50% binaural impairment was regarded as 100% permanent disability and with each 2% permanent disability deterioration the worker's results were resubmitted to the Compensation Commissioner and he was paid the difference from the previous compensation.

The description of Instruction 168 shows how the post-apartheid attempts at reparation through this legislation resulted in complex methods with the potential for errors that were often a deterrent to submission of claims for NIHL compensation. The frequencies used for calculation only took into account lower frequencies and the frequency known to be most affected by noise; 4000 Hz, was not included. The effects of the hearing loss on the perception of speech may have been taken into account in some way by using the lower frequencies, but the tables used were arithmetically based and not weighted for beneficence of speech perception. As the redress of the infringement of human rights progressed, the need to address the historical impact on workers' hearing, and to address the compensation for NIHL with new and fairer ways, became a priority. As a result, the legislation governing NIHL compensation changed in 2001 to a system similar to that of Australia where a PLH is used to calculate the permanent disability. The new legislation is known as "Instruction 171" (DME, 2003). Instruction 171 requires that, in addition to the four frequencies used by Instruction 168, the hearing loss at 4000 Hz is included in the calculation of Percentage Disability (PD). This is achieved by calculating an initial or baseline PLH from the better of the two initial screening baseline audiograms.

The hearing threshold levels from the better of the two audiograms are used with the weighted actuarially designed PLH tables to calculate a PLH for each of the following five frequencies: 500, 1000, 2000, 3000, 4000 Hz. The tables are weighted to favour the speech frequencies. The sum of the values for each frequency is the PLH.

When Instruction 171 was introduced, a baseline audiogram had to be carried out for all current employees and had to be carried out according to legislated standards to ensure reliability. If hearing loss was identified on the baseline audiograms that had not been previously or fully compensated the worker was compensated under Instruction 168. New

employees now also are required to have a baseline audiogram performed according to the same criteria for reliability. All subsequent audiograms are compared to the baseline PLH (DME, 2003).

Deterioration by 10% or more from the baseline PLH is compensable. Permanent disablement is calculated by halving the value of the PLH. A 100% hearing impairment is therefore equal to 50% permanent disability (DME, 2003). The new regulations allow for apportionment of liability by the employer causing the NIHL while the previous legislation meant that the employer in whose employ the worker was at the time of the diagnosis carried the liability for the worker irrespective of how long the worker had been in his employ. The apportioning of liability for NIHL requires that employers keep all documentation available and correct to facilitate fair compensation practices (Barnes, 2006; RMA, 2003).

3. 6 Costs of NIHL Compensation in South Africa

The costs of NIHL compensation that the employer must insure against this liability for are reported to be very high. A report by the main insurer for the mining industry, Rand Mutual Assurance (RMA), which insures approximately 80% of the workforce in South African mines, stated that, for the approximately 340,000 insured miners, there were approximately 50,000 occupational injury and disease claims per annum. Some 12% of these claims were for NIHL and they averaged an amount of R15000 per person (Begley, 2004).

These costs quoted are almost double the costs reported by the Mine Health and Safety Council (MHSC) in 2003 summarised in table 13.. The costs peaked during the change of legislation, since the purpose was to compensate all past NIHL sufferers and start with a clean slate. If the money spent on compensation was spent on prevention, the rights of the worker as stipulated in the Constitution would be adhered to and the quality of life of the workers and their families would be improved.

Table 13 Compensation for NIHL in South Africa.

Year	Number of Cases	Compensation Paid
1999	6106	R72 321, 385
2000	4965	R65 004, 865
2001	5654	R88 259, 410
2002	14 457	R102 308, 555

(Source: Mine Health and Safety Council website www.mhsc.org.za)

3.7 Asbestosis Compensation

The abovementioned figures of compensation fees paid for NIHL disability appear to be extremely high, especially when one considers that NIHL is preventable and that the money paid in compensation would have been better spent on ensuring that prevention methods were in place. The improved quality of life of workers and of their family members who live with the consequences of NIHL as well as the ethical and moral implications of improved human rights for workers appear to be a more appropriate use of the large sums of money spent on compensation.

The protracted landmark asbestosis cases which ended in 2003 should raise alarm bells for occupational health managers and mining house managers. In the asbestosis cases the courts ruled that mining houses had to pay approximately R448 million rand in damages to workers from asbestosis mines in South Africa. The spotlight that was put on the health effects of asbestos mining as a result of the legal wrangles of the asbestosis cases and has resulted in the mining of asbestos being banned in many countries (Ross & Murray, 2004). Only limited types of asbestos are mined in some countries and the asbestos industry has not only collapsed but has become the disdain of human rights activists and moral protagonists. The impact of asbestos mining does not reach miners only but also people living in the areas of asbestos mines and those exposed to asbestos

from non-industrial sources. The health effects of asbestos are dramatic and include asbestosis, mesothelioma and lung cancer (Ross & Murray, 2004).

The same legal teams that fought the asbestosis cases are currently in a lawsuit with one of the main mining houses in South Africa concerning cases of silicosis in miners who were exposed to high levels of dust during their working careers. The underlying premise of the asbestosis cases was the notion that the knowledge about the effects of asbestosis had been stifled by the mine owners and occupational health specialists to ensure that the profits and economic viability of the mines were not compromised. The risks to the workers' health were ignored despite scientists and human rights activists calling for a halt to this type of human rights abuse from as far back as the 1960s (McCulloch, 2005).

The health effect of noise exposure is not as dramatic as the effects of asbestosis and silicosis because partial disability and not death is caused. However, the same pattern of legal cases calling for reparation and restitution for infringements of human rights, may result in huge costs to the mining houses, and the potential collapse of the industry would have devastating results for the country. The outcome of the silicosis cases is awaited with anxiety by mining houses because the precedence set by the asbestosis and the silicosis cases could open the floodgates for claims for silicosis followed by NIHL claims.

It therefore appears to be vital to the mining industry that the attitudes and practices surrounding NIHL compensation are addressed. The current study potentially provides useful information for the field.

3.8 Alternative measures for compensation

Since socio-political factors influence the legislation regarding compensation for occupational health injuries and disease, the implication is that social security legislation cannot be static and needs to change as the social, economic, and political factors change (Hermanus, 2007). Continued efforts towards attaining a workplace environment that provides sustainable mining must also be the goal of legislation. Awareness of new

or alternative methods of measurement and determination of compensation therefore need to be informed by research.

The current study provides a possible alternative to current modes of practice that is potentially more sensitive to damage caused by noise and more applicable for the management of NIHL prevention and compensation through the use of Distortion product otoacoustic emissions (DPOAEs) (Hall & Lutman, 1999; Lutman & Hall, 2000). The following chapter discusses DPOAEs and their use in NIHL with the aim of further developing the background to the current study.