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# Compensation Process for Noise Induced Hearing Loss

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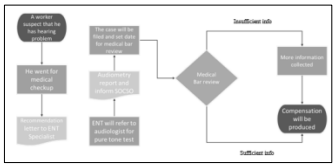

**Abstract**

Noise exposure from worksite can cause a lasting effect of noise induced hearing loss (NIHL). The effect may vary according to industries with manufacturing and construction industries among heavily affected. However, the total number of compensation cases is still low compared to the affected population of construction industry workers. This might due to inefficient and slow compensation process. This paper aim to evaluate the current compensation process for NIHL, with in-depth discussion about the procedure adopted to find alternative ways to expedite and improve the compensation process involving noise induced hearing loss (NIHL) cases. Although the compensation methodologies is not relatively new, the current practice today still leaves gaps in processing compensation cases efficiently and promptly. In this study, compensation process for NIHL cases were reviewed. Data were collected through articles, regulation and law acts. It was complemented with research visits to social security and insurance providers. The result demonstrates that while the current process adopted is workable, it still inefficient to cater the population of affected.

*Keywords*: Noise induced hearing loss; noise exposure; construction industry



## 1.0 INTRODUCTION

Noise induced hearing loss (NIHL) is one of most prevalent occupational health problems among construction workers[1] but also preventable[2,3]. The occurrence of NIHL has not dropped dramatically and has been reported to have increased despite the presence of pertinent standards[4,5,6]. NIHL remains a significant public health problem despite the widespread attention to hearing conservation[7]. In general, noise levels have declined and hearing protector usage has increased in recent times, but hearing protection is still under-used in noisy industries resulting in a never ending disease cycle[6,8,9].

Noise induced hearing loss, remains endemic in many industries and is the second most reported occupational disease and injury in the USA[1,10,11]. It is estimated to be the most prevalent disabling condition affecting approximately 10% of global population [12,13]. NIHL ranks among the most significant occupational health problems in many countries[1,7,14,15,16,17,18,19]. In Malaysia, 200 NIHL cases approximately reported monthly by a majority from manufacturing industry [20].

The annual number of workers' compensation claim for NIHL increased more than tenfold in a decade with annual cost exceeding $50 million in this past ten years[8].

Worker's compensation is a form of social security[21,22]. Compensation had its origins in the industrial revolution in the United Kingdom, the US and Canada[21,23].

The calculation of the amount to be paid to a worker is dependent on an assessment of the degree of disability[24,21,25,26]. A country's legal system determines how impairment is translated into financial compensation[27,28].

In addition, studies have shown that hearing loss leads to higher compensation cost paid annually. In Sweden and US approximately US$100 and US$ 200 million were spent respectively compensation hearing loss[29,30,31]. Malaysia; on the other hand, spent RM 7 million to compensate NIHL cases from 2010 to 2012[35].

## 2.0 GLOBAL PREVALENCE OF OCCUPATIONAL HEARING LOSS

NIHL is deemed to be a continuing risk globally. NIHL is sensor neural hearing loss by long term exposure to loud noises, especially high frequency sounds[33]. Occupational hearing loss is usually bilateral, through occasionally unilateral. By causes, NIHL is the most common. Data collected during the period 1990 to 2000 showed that 29% of the European workforce were

exposed at least half or more of their working time to loud noise[34]. The number of compensating cases of NIHL in Great Britain in 2003 to 2013 totalled to 2320 claim cases as reported by Health and Safety Executive in 2014. The number of reported cases has decreased from 120 cases in 2013 from 150 cases in 2011 respectively. The reason for decline during this period was not discussed.

Statistic in Malaysia has shown an approximate 1047 claim cases reported from 2006 to 2012[35], Many that were affected came from manufacturing industries, construction and electricity, gas, water and sanitation services sector. According to Korean Ministry of Labor in 2007, 2148 claim cases were reported from 2000 to 2007. Apart from a musculoskeletal disorder and cerebrodia vascular diseases, NIHL is the frequent occupational diseases compensated in Korea, which responsible for 10-20% of cases every year until 2000[36].

16500 claim cases were reported in Australia from 2002 in 2007[37]. Notably, this number of compensating cases of NIHL in Australia were decreasing each year. This is primarily due to a reduction in the number of claims made in the manufacturing industry[38]. Likewise, in New Zealand, 4081 compensation cases were reported in 2004 to 2005[39]. The cost of NIHL has increased by an average 20% each year. While these growth rates for claim does not necessarily mean that the actual incidence is increasing, they do indicate that there are significant financial burden[39].

## 3.0 LAWS AND REGULATION

Legislation and standards have been developed to control the level of sound to which workers are exposed. Legislation in most jurisdictions around the world is based upon specifying the limit for continuous and peak noise that a worker may be exposed to, the measures that must be undertaken if noise exposure is above the limits, and requirements for monitoring and minimization of hearing loss.

In Malaysia, the law and regulation for Noise Induced Hearing Loss is mentioned under Employees Social Security Act 1969, Factory and Machinery Act (Noise Exposure) 1989, Occupational Safety and Health (Act 514) 1994. On the other hand, compensation was mentioned also in Workmen Compensation Act 1952 and under the Social Security Act (SOCSO) 1971. Local workers are no longer covered under the Workmen's compensation Act 1952 and has been covered under the Social Security Act (SOCSO) 1971 since July 1992[40,41,42,43,44].

## 4.0 SOCIAL AND SAFETY NETS IN MALAYSIA

Compensation for occupational diseases in Malaysia, which include hearing loss are being handled by two bodies; SOCSO and private insurance.

SOCSO or Social Organization Security (SOCSO) established in 1971 under the Ministry of Human Resources to implement and administer the social security schemes under the Employees' Social Security Act 1969, namely Employment Injury Scheme and Invalidity Scheme. Effective on 1st July 1985, SOCSO had evolved into a statutory body[20]. It is founded to provide social security protection to all employees and their dependents through social security schemes base[20].

There are twenty four insurance companies being selected as insurer to issue an insurance policy under the Foreign Worker's Scheme[45]. Appointed insurance panel:

(1) Allianz General Insurance Malaysia Berhad
(2) Berjaya General Insurance Berhad
(3) Kurnia Insurance (Malaysia) Berhad
(4) Lonpac Insurance Berhad
(5) Malaysia Assurance Alliance Berhad
(6) May bank General Assurance Berhad, Malaysia
(7) Malaysia National Insurance Berhad
(8) Syarikat Takaful Malaysia Berhad
(9) Takaful National Sdn Bhd
(10) Tahan Insurance Malaysia Berhad
(11) Jerneh Insurance Berhad
(12) May bank Takaful Berhad
(13) Multi-Purpose Insurance Berhad
(14) MUI Continental Insurance Berhad
(15) QBE Insurance (M) Berhad
(16) RHB Insurance Berhad
(17) Royal & Sun Alliance Insurance Berhad
(18) Takaful Ikhlas Sdn Bhd
(19) The Pacific Insurance Berhad
(20) Tokio Marine Insurance (M) Berhad
(21) Uni. Asia General Insurance Berhad
(22) AmAssurance Berhad
(23) AXA Affin Assurance Berhad
(24) Commerce Assurance Berhad

(Jabatan Tenaga Kerja Sabah, 2015)

## 5.0 COMPENSATION PROCESS

No single descriptor can completely capture all dimensions of hearing loss since it is notoriously a multidimensional phenomenon[46]. However, a single number scale is useful for the purpose of the workers compensation process as a way to estimate the severity of a worker's hearing loss translated into financial benefit. The most widely used single number descriptor of hearing loss is AMA's binaural hearing impairment[46,47].

SOCSO adopted AMA method to determine the percentage of hearing loss impairment[47]. This is to have one standard set of uniform assessment for the calculation of impairment by medical professionals, and compensation process. Furthermore, although hearing impairment is being noted in a). Employees Social Security Act 1969 (Fifth Schedule; Occupation Disease; No. 18); b). Occupational Safety and Health Act 1994, c). Social Security Act 1971 SOCSO, d). Workmen's compensation Act 1952 (Second Schedule; Occupational Disease; No. 18), the calculation for percentage of hearing loss impairment is not being specifically addressed.

In 1942, the AMA developed a method for estimating called "hearing handicap". Revision was being conducted in 1947, 1959 and 1979 and have been fundamentally constant until today[46]. In determining impairments, the following step should be taken: (1) test each ear separately with a pure tone audiometer and record the hearing levels at 0.5, 1.0, 2.0 3.0 kHz.

**Table 1** Frequencies on the audiogram used for calculation for different countries

| Compensation Criteria | Australia | Canada | Korea | Europe | Saudi Arabia | United States | South Africa | Malaysia |
|---|---|---|---|---|---|---|---|---|
| Frequencies on the audiogram used for calculation (in KHz) | 0.5, 1, 2, 3, 4, 6 and 8 | 0.5, 1, 2 and 3 | 0.5, 1,2,3,4,6 | 1, 2 and 3 | 0.5, 1, 2, 3. Then 25 must be subtracted from the previous result | 0.5, 1, 2 and 3 | 0.5, 1, 2, 3 and 4 | 0.5 , 1, 2 and 3 |

(2), add the four hearing levels (dB) for each ear separately, this is called the Decibel Sum Hearing Levels DSHL (3), convert DSHL to monaural impairment percentage (4), convert the monaural impairment percentage to binaural impairment percentage and finally, (5) convert binaural impairment percentage to determine impairment of the whole person. Generally, compensation amount is a summation of whole person impairment, types of salary and years of contribution.

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[3]. The following overview of the various frequencies adopted in different countries gives a basis for comparison with the context of compensation in this study. Table 1 tabulated different countries calculation criteria for frequencies on the audiogram. Above all, there are more variety of methods and emphases across the different countries, however the author feels that while the variation is interesting to be examines, and it is out of scope for this particular study.

## SOCSO Process

The NIHL Compensation case is diagnosed and controlled mainly by Social Security Organization (SOCSO). SOCSO have published (i) Guideline on Impairment and Disability Assessment of Traumatic Injuries (ii) Occupational Disease and Invalidity (iii) Guidelines on the Diagnosis of Occupational Disease and (iv) Guideline on interpretation Disability Employment for Medical Board/Appellate Medical Board SOCSO to evaluate compensation cases. The process of determining monetary awards for workers compensation claim is typically based on applying the impairment rating to a schedule for lump sum payments, or to extended payments based on the percentage of the worker's salary[35,48]. Figure 1 shows the flow chart for compensation proses as practiced in SOCSO

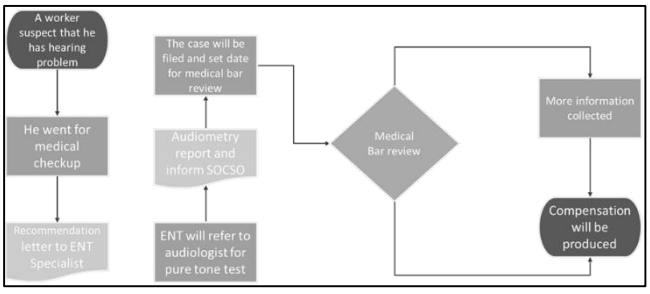


**Figure 1** Compensation process

## Private Insurance Process

Private insurance is able to offer compensation for foreign workers. The process is less complex as it requires a medical report from Specialist Doctor that declare the workers is having hearing loss. Basically, there is no specific formula is required, rather, that impairment ratings are based on medical evidence[49,50].

Workers are entitled to a sum of monetary compensation for any cases of hearing loss. For hearing loss in both ears, workers able to compensate 75% of the policy taken by the employer. Subsequently, workers are entitled to 15% of the total policy for hearing loss in one ear. While SOCSO approved the purchasing of hearing aid, private insurance does not declare the same plan.

## Comparisons between Processes

To compare between the two schemes (SOCSO and Private Insurance) is like comparing apples and oranges. However, in order to find out an effective way of compensation, the similarity between the two schemes is discussed and any variation is highlighted. Based on this comparison, the constructive and workable method can be properly emphasized while correction and improvement can be done for process that are not workable. Factors that influence the scheme are analysed. This to determine which factors give impact to the compensation process.

In SOCSO process, the amount of compensation depends on whole person impairment, age and salary. The process can be more than 3 months for one case significantly due to delayed submission of documentation between parties involved. The whole process is justifiably correct, but does not reflect the total compensation for hearing loss. Likewise, in the process adopted by private insurance, the amount is sorely dependant of the policy taken with no disregards towards the severity level of hearing loss.

While the calculation is true for both schemes, the habits and nature for each worker should be discussed as well in the calculation. There are studies that have shown smoking can worsen the hearing loss effect[51,52,53]. The author believes that workers that are smoking have to be compensated lesser as this is not an occupational factors. Equally, the same action for workers that have dangerous hobbies like shooting, concert and party goers as this to have a synergistic effect towards hearing loss[54,55]. While this can be considered harsh, it's a subtle method of inspiring workers to have better healthy life.

Furthermore, each scheme only takes into account the effect of noise exposure to which it applies and gives neither theoretical nor practical recognition of the greater damage that can be caused when other factors combined. Both temperature and physical work force also founded to increase susceptibility towards temporary threshold shift[54,56]. Essentially, the condition of the workplace can influence the hearing loss in workers. The author believes that workers that are exposed to harsh temperature and strenuous physical work are entitled to higher compensation

amount. This indirectly a reminder to employer to provide better workplace for their workers.

Although workers' compensation statutes generally make the employer completely immune from any liability (such as for negligence) above the amount provided by the workers' compensation statutory framework, there should be exceptions as other factors can also affect the hearing ability of workers. Likewise, workers should be able to restrain themselves from participating in dangerous activities and habits or to bear their own consequences. A modification in the method of calculating the compensation amount is mutually beneficial towards both workers and employers.

### Impact of Compensation

Workers suffering from NIHL are denied the ability to converse normally with others and are endangered in the work environment as their ability to perceive audible warnings is seriously compromised[57,58]. For many in the early stages of NIHL the tinnitus is the most distressing symptom[59,60,61]. Not only hearing loss places a significant impact on individual physically and mentally, it has substantial social and interpersonal consequences as well[59].

The negative consequences of hearing loss may alter the worker's life. It greatly influences the quality of the afflicted individual's life through limiting interpersonal communication[59,62]. Untreated hearing loss can cause embarrassment, social stress, tension, and fatigue. This is true not only for the person with the hearing loss, but also for family members, friends, and colleagues[63]. Likewise, the afflicted individual's may have tendency to avoid certain social activity which can affect the spouse's social life and cause irritation[59,64]. Compensation, bring monetary relief in term of hearing aid. It improves the hearing ability so the affected person can feel connected with daily life.

Moreover, hearing loss can give major impact on the work performance. It can manifest as high level of lateness and absenteeism or even lower productivity[56]. Experienced workers may have to retire early due to hearing loss which be a great loss to the industry. Monetary compensation help the affected individual's financial burden with the now limited offer of employment and in some cases, even a job promotion.

## ■6.0 CONCLUSION

Both processes have substantial reasons for their way of calculating. SOCSO and Private Insurance is bound by law and regulation. Nothing wrong with the process of compensation today. However, it does not truly show the real value of noise induced hearing loss. Noise induced hearing loss is a disease which caused by multiple factors. While it is reasonable to rely on one determinant factors, the true value of compensation should be studied. Overcompensation leads to wasteful of public resources and not fair for other people who also have NIHL but cannot be compensated due to no more funds. Undercompensate will further burden towards workers with NIHL and they deal with their daily life and their disability to adapt to their surroundings. To conclude, study shown that the process is insufficient in covering all aspects which govern the factors for hearing loss and require more research to find the real value of compensation for noise induced hearing loss.

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