

commission 15 days prior to the date of hearing shall not be acceptable as evidence except upon good cause for failure so to file, established to the satisfaction of the commission.

(6) Upon receipt of report the commission shall promptly serve copy upon the employer or carrier.

(7) The filing of reports under this provision shall be permissible whether or not injury occurred on or before June 10, 1943.

**Ind 80.23 Common insurance of employer and third party.** In all cases where compensation becomes payable and the insurance carrier of an employer and of a third party shall be the same, or if there is common control of the insurer of each, the insurance carrier of the employer shall promptly notify the parties in interest and the industrial commission of that fact.

**Ind 80.24 Statement of employe.** When an employe gives a statement signed by him, which in any way concerns his claim, a copy of such statement must be given to the employe. Failure on the part of the employer or insurance carrier to do so will preclude the use of such statement in any manner in connection with that claim.

**History:** Cr. Register, March, 1956, No. 3, Eff. April 1, 1956.

**Ind 80.25 Loss of hearing; determination.** Until otherwise directed the commission as a matter of policy adopts the report of the medical subcommittee of the advisory committee on workmen's compensation legislation of the industrial commission, dated April 5, 1954, for determination of loss of hearing in workmen's compensation cases, to be hereafter decided, regardless of the date of injury.

\*Such report is herewith attached.\*

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**\* Report of Medical Subcommittee to Advisory Committee on  
Workmen's Compensation Legislation**

I. Under what circumstances does noise constitute a hazard to hearing?

a. **Question:** What frequency and intensity?

**Answer:** The committee members stressed the importance of both intensity and frequencies in evaluating the noise problem. It was pointed out and pretty well agreed that no definite level could be set for hazardous noise intensity at this time. Furthermore, it was noted that most answers to this question in the literature were in the form of qualified statements. In addition to the pressure levels, the type (frequency) and the length of exposure as well as individual susceptibility must be considered. In general it was agreed that sound below an intensity of 90 decibels<sup>1</sup> as measured on the C scale of an approved sound level meter, would not be harmful to workers' hearing regardless of the length of exposure. It is the energy per octave band that determines the hazardous noise level.

b. **Question:** How can noise best be measured?

**Answer:** The measurement of noise is primarily the function of acoustical engineers and properly trained personnel. Noise should be scientifically measured by properly trained individuals using approved calibrated instruments, which at the present time include sound level meters, octave band analyzers (see I. a.) and oscilloscopes, the latter particularly for impact type noises.<sup>2</sup>

<sup>1</sup>This over-all level of 90 decibels as given by this committee is a tentative guide for use in loss of hearing cases. It is not intended to set any standards for safety codes. It is felt that when the results of investigations of larger national groups reveal more authoritative levels, the above figure may be modified or replaced. Reference: Aram Glorig, M.D., Symposium on Noise, University of Michigan, Ann Arbor, Feb. 5-8, 1952.

<sup>2</sup>C. R. Williams: Industrial Noise Measurement—Science of Art? Proceedings of the Third Annual Noise Abatement Symposium at Armour Research Foundation of Illinois Institute of Technology, Vol. 3, October 10, 1952.

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## II. How can hearing loss be measured?

a. *Question:* What type of test is best?

*Answer:* Discussion followed as to what was meant by "hearing loss." It was pointed out that losses of hearing ability for high frequency tones (4000 and above) could be observed in many audiograms. However, it was unanimously agreed by the members of the committee that such high frequency losses do not constitute any disability for hearing ordinary conversational voice, and it was felt that hearing loss as used in this discussion should be confined to losses occurring in the frequencies ordinarily used for speech conversation. It was recognized by members of the committee that testing the individual by means of speech audiometry (for consonants and vowels) would most directly reveal the hearing ability of the individual for ordinary speech. At the present time, however, numerous problems present themselves in the routine performance of these tests. For example: speech audiometers, while available, as yet are neither standardized nor routinely found in otologists' offices. Language problems make these tests difficult in many instances. National authoritative bodies such as the Council on Physical Medicine of the American Medical Association and the American Academy of Ophthalmology and Otolaryngology have not as yet published a list of approved speech audiometers or accepted methods for their use in determining hearing disability. Until such time as their recommendations are officially published, it is agreed that pure-tone air conduction audiometric tests be used for evaluating hearing acuity. It was recommended that the readings of the three frequencies of 500, 1,000 and 2,000 cycles per second be used in computing loss of hearing, but that in the performance of the pure-tone air conduction audiogram, all frequencies between 250 and 8,000 cycles per second on the audiometer be used for diagnostic purposes.

b. *Question:* What formula is most suitable?

*Answer:* It was pointed out that the findings of pure-tone air conduction audiometry are used for computing percentage loss of hearing by the American Medical Association Method of 1947, (Reference: Journal of the American Medical Association, February 9, 1947), the 0.8 Method of Fletcher or its modification or the Fowler Method. All of these methods have met with objections. The committee agreed that no consideration should be given for losses in frequencies below 500 cycles per second or above 2,000 cycles per second. Furthermore, it was felt that losses averaging 16 decibels or less in the frequencies between 500 and 2,000 cycles per second do not constitute any practical hearing disability. A table for evaluating hearing disability based upon average readings of the frequencies 500, 1,000, 2,000 of pure-tone air conduction tests has been formulated and is hereby attached.

c. *Question:* Should age be considered, and if so, what portion of loss should be ascribed to age regardless of exposure to noise at work?

*Answer:* The committee agrees that an allowance should be made for loss of hearing which accompanies advancing age (presbycusis). Beginning at the age of 50,  $\frac{1}{2}\%$  should be deducted and an additional  $\frac{1}{2}\%$  for each year thereafter. This would amount to  $2\frac{1}{2}\%$  at 54, 5% at 59,  $7\frac{1}{2}\%$  at 64 and 10% at 69.

## III. How long must one be removed from a noisy environment before a final estimate of hearing loss can be made?

What is the greatest percentage of improvement which can be expected after removal?

*Answer:* It was agreed that there is a certain amount of recovery of hearing ability which may be expected after removing an individual from a prolonged exposure to a noisy environment. Just how much recovery will take place will depend on the number of years of exposure, the degree of hearing loss and individual susceptibility.

The members of the committee subscribe in principle to the statement of policy of the subcommittee of the Academy of Ophthalmology and Otolaryngology which is as follows:

"Hearing loss produced by prolonged exposure to loud noise may be considered permanent if it still persists after the individual has been removed from the noise environment for a period of six months."<sup>3</sup>

Therefore, those individuals who have removed themselves for six months or longer from their noisy working areas can have a final determination made of their hearing status. Those individuals who continue to work in noisy environments should have the audiometric and hearing evaluations made after a 48-hour removal from the noisy areas and where several examinations are made under similar conditions at closely spaced intervals the best audiometric record

<sup>3</sup>Reference: A guide for Conservation of Hearing in Industry. American Academy of Ophthalmology and Otolaryngology, Subcommittee on Noise in Industry of the Committee on Conservation of Hearing.

should be used in computing the hearing status of the individual. In addition, five decibels should be deducted from the average decibel ratings of the 500, 1,000 and 2,000 frequencies to allow for the "recovery factor." This result shall be the final permanent loss as of the time of such examinations and deductions.

IV. What cases of occupational loss of hearing can be improved by hearing aids and to what extent?

*Answer:* The improvement resulting from the use of a hearing aid in these cases is too variable to warrant its consideration as a corrective factor. Many of these individuals cannot wear a hearing aid with any degree of satisfaction. Any benefit which might be obtained in any individual case from the use of a hearing aid should not be considered in arriving at a percentage of hearing loss or disability.

V. Which test is most suitable for pre-employment examinations? What formula is recommended (as to frequencies and intensities)?

*Answer:* The use of the pure-tone air conduction audiometer is recommended for recording the hearing acuity of workers in pre-employment examinations. The audiometer should be one accepted and approved by the Council on Physical Medicine of the American Medical Association. The audiometer should be routinely and periodically calibrated. The pre-employment record should include a satisfactory history and physical examination as it may pertain to the hearing status and must include the pure-tone air conduction audiometric record. Otological examinations and evaluations should be made where indicated. All frequencies between 250 and 8,000 cycles per second found on the audiometer should be recorded.

VI. Is treatment of any value in reduction of the hearing loss due to noise?

*Answer:* The hearing loss resulting from industrial noise exposure cannot be improved by any known medical or surgical treatment.

VII. In general, what examinations can and should be made to determine the nature of loss, i.e., whether due to noise or to other cause?

*Answer:* By history, physical examination, otological and audiometric examinations.

**HEARING DISABILITY TABLE**

Average Decibel Loss	Per Cent of Compensable Hearing Loss	Average Decibel Loss	Per Cent of Compensable Hearing Loss
17	.8	49	53.3
18	2.2	50	55
19	3.6	51	56.7
20	5	52	58.3
21	6.7	53	60
22	8.3	54	61.7
23	10	55	63.3
24	11.7	56	65
25	13.3	57	66.7
26	15	58	68.3
27	16.7	59	70
28	18.3	60	71.7
29	20	61	73.3
30	21.7	62	75
31	23.3	63	76.4
32	25	64	77.8
33	26.7	65	79.2
34	28.3	66	80.6
35	30	67	82
36	31.7	68	83.4
37	33.3	69	84.8
38	35	70	86.2
39	36.7	71	87.6
40	38.3	72	89
41	40	73	90.4
42	41.7	74	91.8
43	43.3	75	93.2
44	45	76	94.6
45	46.7	77	96
46	48.3	78	97.4
47	50	79	98.8
48	51.7	80 and over	100

Members of the medical advisory committee wish to emphasize that the above recommendation and test procedures cannot be regarded as final. The present answers and conclusions are based upon the "best" scientific information available at this time. Revisions will be required from time to time as additional knowledge accumulates and better technical methods and instruments are developed.

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Answer Jan 19 1950 Reg

**Ind 80.26 Loss of vision; determination.** The following rules for determining loss of visual efficiency shall be applicable to all cases settled after December 1, 1941, irrespective of the date of injury, except that, in the examples for computations of compensation payable and of the percentage of permanent total disability, the computation of the percentage of visual impairment must be applied to the provisions of the workmen's compensation act as they existed at the date of the injury.

(1) **MAXIMUM AND MINIMUM LIMITS OF THE PRIMARY COORDINATE FACTORS OF VISION.** In order to determine the various degrees of visual efficiency, (a) normal or maximum, and (b) minimum, limits for each coordinate function must be established; i.e., the 100% point and the 0% point.

(a) *Maximum limits.* The maximum efficiency for each of these is established by existing and accepted standards.

1. **Central Visual Acuity.** The ability to recognize letters or characters which subtend an angle of 5 minutes, each unit part of which subtends a 1 minute angle at the distance viewed is accepted as standard. Therefore a 20/20 Snellen or A.M.A. and a 14/14 A.M.A. are employed as the maximum acuity of central vision, or 100% acuity for distance vision and near vision respectively.

2. **Field Vision.** A visual field having an area which extends from the point of fixation outward 65 degrees, down and out 65 degrees, down 55 degrees, down and in 45 degrees, inward 45 degrees, in and up 45 degrees, upward 45 degrees, and up and out 55 degrees is accepted as 100% industrial visual field efficiency.

3. **Binocular Vision.** Maximum binocular vision is present if there is absence of diplopia in all parts of the field of binocular fixation, and if the 2 eyes give useful binocular vision.

(b) *Minimum limits.* The minimum limit, or the 0% of the coordinate functions of vision, is established at that degree of deficiency which reduces vision to a state of industrial uselessness.

1. **Central Visual Acuity.** The minimum limit of this function is established as the loss of light perception, light perception being qualitative vision. The practical minimum limit of quantitative visual acuity is established as the ability to distinguish form. Experience, experiment and authoritative opinion show that for distance vision 20/200 Snellen or A.M.A. Chart is 80% loss of visual efficiency, 20/380 is 96% loss, and 20/800 is 99.9% loss, and that for near vision 14/141 A.M.A. Reading Card is 80% loss of visual efficiency, 14/266 is 96% loss, and 14/560 is 99.9% loss. Table 1 shows the percentage loss of visual efficiency corresponding to the Snellen and other notations for distant and for near vision, for the measurable range of quantitative visual acuity.

2. **Field Vision.** The minimum limit for this function is established as a concentric central contraction of the visual field to 5 degrees. This degree of contraction of the visual field of an eye reduces the visual efficiency to zero.

3. **Binocular Vision.** The minimum limit is established by the presence of diplopia in all parts of the motor field, or by lack of useful binocular vision. This condition constitutes 50% motor field efficiency.