
**Operational
Policy**

**Subject
Noise-Induced Hearing Loss**

Policy

Noise-induced hearing loss (NIHL) resulting from occupational exposure to noise is recognized as an occupational disease under the *Workplace Safety and Insurance Act, 1997* (WSIA). Workers with NIHL due to the nature of their employment are entitled to benefits.

Purpose

The purpose of this policy is to:

- recognize NIHL as an occupational disease,
- establish initial entitlement guidelines to support timely and consistent adjudication of NIHL claims involving sufficient occupational exposure to noise, and
- provide additional guidance on entitlement to health care and non-economic loss benefits in allowed NIHL claims.

Guidelines

Definitions

In this policy,

audiogram means a graph that displays the results of a pure tone hearing test. An audiogram shows the level, pattern, and type of hearing loss (i.e., sensorineural, conductive).

audiologist means a regulated health professional, registered with the College of Audiologists and Speech-Language Pathologists of Ontario, whose scope of practice includes assessing hearing function and prescribing and fitting hearing aids and other hearing assistive devices.

A-weighted decibel (dBA) means decibels measured using a noise level meter equipped with an A-weighting filter. A-weighting adjusts for the sensitivity of the human ear by de-emphasizing low frequencies, providing a single number measure of noise levels that reflects how noise is actually experienced or perceived.

decibel (dB) means a unit of measurement of sound.

hearing assessment means an evaluation of a person's hearing, conducted by a qualified regulated health professional, including a review of the person's medical history, the administration of hearing tests, and any additional diagnostic tests or procedures required to determine the presence, nature, and level of hearing loss.

hearing loss means a reduced ability to hear sounds at or greater than 26.25 dB in each ear, as determined by an average hearing threshold calculated across the four key speech frequencies of 500 hertz (Hz), 1000 Hz, 2000 Hz, and 3000 Hz.

hearing protection devices (HPDs) means ear plugs, earmuffs, or both, worn by a person to help protect against noise.

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noise exposure threshold (NET) means the combination of the time-weighted average occupational noise exposure, measured in dBA over an 8-hour workday, and cumulative duration of exposure (in years) that is generally sufficient to establish a causal link with NIHL.

noise-induced hearing loss (NIHL) means a permanent bilateral sensorineural hearing loss which may include mixed hearing loss comprised of both sensorineural and conductive loss.

tinnitus means a symptom typically experienced as a sensation of ringing, whistling, buzzing, whooshing, or humming in the ears.

Standard of proof in NIHL claims

The standard of proof that applies to all issues under this policy is balance of probabilities. Applying this standard, the decision-maker must be satisfied, based on the available evidence, that something is more likely than not to be true.

In NIHL claims, the decision-maker applies the standard of proof by gathering and assessing all available evidence relevant to the issue(s), including the worker's medical history, hearing assessments, past and current audiograms, employment and exposure history. The decision-maker then weighs this evidence to make findings of fact based on balance of probabilities.

If the evidence for and against an issue is evenly balanced, the decision-maker must resolve the issue in favour of the person claiming benefits. For more information, refer to 11-01-13, Benefit of Doubt.

The standard of proof and benefit of doubt apply to each issue under consideration rather than the final entitlement decision.

Work-relatedness in NIHL claims

For all initial entitlement decisions, the NIHL must be determined to be work-related, and therefore is due to the nature of one or more employments in which the worker was engaged.

The test for determining work-relatedness is whether it is more likely than not that the worker's exposure to noise during a specific period(s) of employment with an employer was a significant contributing factor in the development of their NIHL.

It is not necessary for the worker's occupational exposure to be the sole, primary, or predominant cause of the NIHL to allow the claim for initial entitlement. When it is established that the occupational exposure has significantly contributed to the development of the NIHL, there will be entitlement even if there is also a history of non-occupational noise exposure or the presence of other non-work-related contributing factors.

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The decision-maker will assess every hearing assessment and audiogram submitted to determine whether the quality of the information is sufficient. They may accept the assessment or determine that the assessment cannot be used for a NIHL determination.

Any hearing assessment conducted on or after XXX, X, 2026 must be a complete assessment which includes both air and bone conduction testing. The hearing assessment, including any associated audiogram, must be completed in accordance with the practice standards of the applicable regulatory college or recognized professional association.

Hearing assessments should be reported using the WSIB's Hearing assessment, which includes hearing test results. Hearing assessments not submitted using the WSIB's standardized form may be acceptable if they contain the same required information.

If a hearing assessment or audiogram is incomplete or non-compliant with the WSIB's Hearing assessment, the decision-maker may return the documents that were submitted to the health professional and request proper completion.

Evidentiary requirements for initial entitlement

Initial entitlement will generally be allowed when all three of the following evidentiary requirements are satisfied:

1. The worker has hearing loss

The worker's average hearing loss must be 26.25 dB or greater in each ear.

2. The hearing loss is consistent with NIHL

The worker has permanent bilateral sensorineural (includes mixed) hearing loss which is either symmetrical (affecting both ears equally) or has an asymmetry (affecting one ear more than the other) that is consistent with NIHL.

3. The NIHL is due to occupational noise exposure

The worker's occupational exposure to noise that meets the NET is generally sufficient to have significantly contributed to the development of the NIHL. The NET is where the worker was exposed to:

- a time-weighted average occupational noise level of 90 dBA, measured over an 8-hour workday, for a cumulative duration of at least 5 years, or
- a combination of occupational noise level (dBA, 8-hour time-weighted average) and cumulative duration of exposure (in years) that is equivalent.

If the worker's exposure falls below the NET, the decision-maker assesses the totality of the evidence to determine whether sufficient work-related exposure can be established.

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Hearing loss is present when a worker has an average hearing level that is equal to or greater than 26.25 dB in each ear, as demonstrated by a properly conducted audiogram.

The average hearing level in each ear is calculated using the thresholds at the four key speech frequencies: 500 Hz, 1000 Hz, 2000 Hz, and 3000 Hz.

If the worker's average hearing level is below 26.25 dB in either ear, the worker is not considered to have an occupational disease.

2. Determine whether the hearing loss is consistent with NIHL

Hearing loss is consistent with NIHL when the worker's hearing assessment identifies permanent bilateral sensorineural or mixed hearing loss. Conductive hearing loss results from damage to the outer or middle ear which is not compatible with NIHL.

To assess sensorineural hearing loss, both air and bone conduction values are used when calculating the average hearing loss. A large air-bone-gap with air conduction values that are 15 dB or greater than bone conduction values is indicative of either mixed or only conductive hearing loss.

To determine the sensorineural component in a mixed hearing loss, only bone conduction values are used. Where a sensorineural component is not established, this means that there is only conductive hearing loss.

Asymmetrical hearing loss

NIHL often presents as symmetrical hearing loss (affecting both ears equally) but can also be asymmetrical. Asymmetrical hearing loss is loss that is greater in one ear than the other.

Asymmetry is consistent with NIHL when the difference in average hearing loss is 15dB or less between ears. For example, an individual with an average hearing loss of 27 dB in the right ear and 42 dB in the left ear has a difference in average loss between ears of 15 dB. As each ear has an average loss greater than 26.25 dB, and the asymmetry does not exceed 15 dB, the difference is considered consistent with NIHL.

When the degree of asymmetry exceeds 15 dB, the decision-maker must be satisfied that the worker was exposed to occupational noise exposure that itself was asymmetrical (e.g., repeated noise exposure to sirens or engine noise on one side) to support that the asymmetry is consistent with NIHL.

Consistency of audiogram pattern with NIHL

The pattern of an audiogram may be relevant when determining whether the worker's hearing loss is consistent with NIHL.

Where the audiogram pattern is consistent with NIHL (e.g., the classic “notch” or “dip”), it supports a finding that the worker’s hearing loss is due to noise exposure. Where the audiogram pattern is not consistent with NIHL, it may suggest the hearing loss is due to something other than noise. For example, an upward or reverse sloping audiogram may suggest an alternate cause of the hearing loss, such as Meniere’s Disease.

Audiogram patterns may require more scrutiny when,

- the hearing loss is asymmetrical, with a difference between ears of more than 15 dB,
- there is evidence suggesting an atypical audiogram pattern or a plausible non-noise-related cause of the hearing loss (e.g., age-related hearing loss)
- there are multiple audiograms post exposure employment, or
- the worker’s occupational noise exposure does not meet or approach the NET.

3. Determine whether the NIHL is due to occupational noise exposure

Claims that meet or exceed the NET

Occupational exposure to noise is generally considered sufficient to have significantly contributed to the development of NIHL when it meets or exceeds the NET: a time-weighted average noise level of 90 dBA, measured over an 8-hour workday, for a cumulative duration of at least 5 years.

As occupational noise levels increase, NIHL may develop over a shorter duration of exposure. Conversely, lower levels of occupational noise may require a longer duration of exposure to produce the same effect. According to International Organization for Standardization (ISO) 1999 (2013) data, the following combination of noise level (dBA, 8-hour time-weighted average), and duration of exposure (in years), are considered equivalent to a time-weight average of 90 dBA for 5 years:

- 84 dBA for 40 years
- 85 dBA for 28 years
- 86 dBA for 20 years
- 87 dBA for 14 years
- 88 dBA for 10 years
- 89 dBA for 7 years
- 91 dBA for 3.5 years
- 92 dBA for 2.5 years
- 93 dBA for 1.8 years
- 94 dBA for 1.25 years

Claims that do not meet the NET

Where a worker’s occupational exposure to noise does not meet the NET, initial entitlement for NIHL may still be considered if the evidence supports that the worker’s exposure to noise, alone or in combination with other factors, significantly contributed to the development of their NIHL.

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These relevant factors may include:

- Medical evidence from a specialist trained in ear conditions, such as an Otolaryngologist, that indicates increased susceptibility to NIHL.
- Occupational exposure to noise combined with occupational exposure to ototoxic substances.
- The nature of the exposure included continuous noise accompanied by intermittent, abrupt, or explosive sounds.

Asymmetrical noise exposure

In all circumstances, when the average hearing loss between ears exceeds 15 dB, the decision-maker must be satisfied that the occupational noise that the worker was exposed to was asymmetrical (e.g., repeated noise exposure to sirens or engine noise on one side) to produce the asymmetrical loss.

Considering non-work-related factors that may overwhelm occupational noise exposure

Even when the noise exposure meets the NET, where there are overriding non-work-related factors that overwhelm the exposure (e.g., age-related hearing loss, ototoxic medications), it may be determined that the worker's hearing loss is more likely to not be attributable to their employment exposure.

For example, where a hearing assessment and audiogram are submitted to the WSIB for a worker who is eighty years old and has been out of occupational noise exposure, the decision maker considers whether the hearing loss is related to their employment exposure in light of the effects of age-related hearing loss. In doing so, the decision-maker assesses factors such as the audiogram pattern, level and duration of past occupational noise exposure (i.e., whether exposure was at or near, or well above, the NET), and severity of the worker's hearing loss.

Employment noise exposure evidence

To determine whether a worker's NIHL is work-related, decision-makers assess the relevance and weight of different types of evidence.

Employment noise exposure evidence that is reliable and reflective of the worker's actual exposures are generally given greater weight which include:

- **Personal noise exposure monitoring** conducted with an external microphone and a professional, properly calibrated noise dosimeter that meets Canadian professional noise dosimeter standards for regulatory use. Its reliability may be reduced if the data is short-term or collected under atypical conditions.
- **Workplace-specific noise surveys** conducted by the employer or provincial government and reflect the worker's actual duties, work area, and time period of employment.

General or industry-wide data such as provincial government reports on noise levels in similar industries or occupations or noise-level data from other reliable databases may also support conclusions about likely exposure, particularly when more specific evidence is unavailable.

HPD use

HPD use should not be factored into the assessment of whether a specific period(s) of occupational noise exposure with a particular employer has met the NET or an equivalent noise exposure, as HPDs do not alter the underlying noise hazard in the workplace.

HPD use, on its own, is not sufficient to determine that the NIHL is not work-related if the overall evidence supports the worker's occupational exposure to noise met or exceeded the NET.

However, HPD use may strengthen a conclusion that the NIHL is not work-related when considered alongside other evidence suggesting that the employment was not a significant contributor to the hearing loss, such as,

- occupational noise exposure that was brief, intermittent, or limited in duration or level (lower than the NET), or
- non-occupational exposure to noise that could reasonably account for the hearing loss.

Exposure in non-covered employment

Occupational exposure to noise that occurs from non-covered employment is not work-related exposure. These exposure periods are excluded when determining whether a worker's employment exposure meets the NET or was otherwise sufficient to have significantly contributed to the development of NIHL.

These periods include exposure that occurred:

- while the worker was self-employed and had not taken out optional insurance for coverage with the WSIB. Refer to, 12-03-02, Optional Insurance, for more information.
- while the worker was employed by an employer who did not operate in a mandatorily covered industry and had not opted to acquire coverage by application with the WSIB. For more information, refer to, 12-01-02, Employer by Application.
- outside of Ontario where the worker would not have continued to be covered under the WSIA for that out-of-province employment. Refer to, 15-01-08, Out of Province, for additional information.

Entitlement to health care

When a worker's NIHL claim is allowed, the worker is entitled to such health care as may be necessary, appropriate, and sufficient as a result of the NIHL. For more information, refer to 17-01-02, Entitlement to Health Care, and 17-07-04, Hearing Devices.

Permanent impairment and non-economic loss (NEL) benefits

A worker with initial entitlement for NIHL has a permanent impairment and is entitled to a NEL benefit based on the degree of their work-related permanent impairment.

The degree of permanent impairment is determined using the prescribed rating schedule, the American Medical Association Guides to the Evaluation of Permanent Impairment, Third Edition (Revised) (AMA Guides). For more information, refer to 18-05-03, Determining the Degree of Permanent Impairment.

Hearing loss averages are expressed in whole numbers (not rounded) for permanent impairment calculations using the AMA Guides. Under the AMA Guides, the degree of permanent impairment for hearing loss averages of 26.25 dB in each ear is rated at 1%; whereas, when the average hearing loss in each ear exceeds 91.7 dB, this is considered a total hearing impairment with a maximum rating of 35%. For additional information on how the NEL benefit is calculated after the degree of the work-related impairment is determined, refer to 18-05-04, Calculating NEL Benefits.

Exclusion of non-covered exposure in determining permanent impairment

When determining the degree of work-related permanent impairment resulting from occupational exposure to noise, all exposure that occurred during covered employment is included. This encompasses both the exposure period(s) that is attributable to the employer who significantly contributed to the development of NIHL for initial entitlement to NIHL, and any other prior noise exposure periods where the worker had coverage under the WSIA. All non-covered exposure is not compensable and is removed from the permanent impairment determination.

To calculate the compensable portion of the impairment, the WSIB:

1. determines the extent of the total permanent impairment in accordance with the AMA Guides. (e.g., 12%)
2. calculates the total duration of the worker's noise exposure across **all employment** (e.g., 20 years)
3. identifies the portion of that exposure that occurred in **covered employment** (e.g., 10 years).
4. Determines the percentage of covered employment exposure ($10 \div 20 = 50\%$).
5. Applies that covered employment percentage to the total permanent impairment ($12\% \times 50\% = 6\%$).

The resulting NEL benefit is based on the compensable impairment of 6%, which reflects only the permanent impairment attributable to the occupational exposure to noise in covered employment.

Pre-existing conditions not related to non-work-related noise exposure

For guidance on how to determine the degree of work-related permanent impairment resulting from noise exposure for those workers who also have a pre-existing condition

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(unrelated to noise exposure) affecting the same body area, refer to 18-05-03, Determining the Degree of Permanent Impairment.

Further occupational noise exposure resulting in a significant deterioration

If a worker with an allowed NIHL claim experiences a significant deterioration in their hearing impairment, an additional NEL benefit is only assessed if the worker has further occupational exposure.

For clarity, if a worker does not remain in or return to occupational noise exposure, any subsequent change in hearing impairment is not considered work-related and is not eligible for additional NEL entitlement.

Permanent impairment for NIHL-related tinnitus

Where a claim for NIHL has been allowed, entitlement to a NEL benefit for tinnitus (unilateral or bilateral) may be considered when,

- there is documented information of ongoing tinnitus for a minimum duration of two years, confirmed by an audiologist or another qualified, regulated health professional, and
- the tinnitus must be associated with the NIHL and not solely attributable to other causes.

Earliest eligibility for tinnitus

If tinnitus symptoms were present before the date of accident, the earliest eligibility date on which a NEL benefit may be considered is two years after the date of accident, provided the tinnitus remains ongoing. However, if tinnitus symptoms were first present after the date of accident, the earliest eligibility date is two years from the documented onset of symptoms, provided the tinnitus remains ongoing.

Determination of the degree of work-related permanent impairment for tinnitus

An impairment rating at 2% may be granted for ongoing tinnitus.

In rare cases, the ongoing tinnitus may be severe. The history and extent of the condition must be documented by an audiologist or another qualified, regulated health professional. The evidence is assessed to determine a possible increase of the 2% rating to a rating between 3-5%.

The permanent impairment ratings for NIHL and tinnitus are combined using the AMA Guides Combined Values Chart to calculate the NEL benefit.

Date of accident

For NIHL claims, the date of accident is the earlier of,

- the date of the audiogram that first confirms the presence of a hearing loss impairment that coincides with sufficient occupational exposure, or

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- the date a loss of earnings first occurs due to a hearing loss impairment that coincides with sufficient occupational exposure.

Where the date of accident recorded at the time of claim registration differs from the above, it may need to be adjusted to reflect the above at the time of adjudication.