Updates to the Noise Exposure Legislation

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Change highlights: Noise exposure – Part 16 in the OHS Code

OHS information for work site parties and service providers

This bulletin introduces changes in Noise – Part 16 of the Occupational Health and Safety (OHS) Code.

IMPORTANT
This is an overview of updates effective March 31, 2023. Consult the law directly to make sure you comply with all applicable requirements.

KEY INFORMATION

- Part 16 covers requirements intended to protect workers from exposure to occupational noise hazards.
- Key changes include:
  - Revising wording to improve clarity.
  - Updates to technical standards and terminology to reflect current technology.
  - A reduced action limit for conducting a noise exposure assessment.
  - A new requirement for fit testing of hearing protection.
  - Clarification of the competency of persons conducting noise assessments.

Noise exposure assessment

The threshold for conducting a noise exposure assessment is reduced from 85 decibels (dBA) to 82 dBA to ensure noise is assessed before the occupational exposure limit is exceeded. The noise exposure assessment must be conducted in accordance with the updated CSA Standard Z107.56-18, *Measurement of noise exposure*.

The threshold level of a noise dosimeter used to conduct an assessment has been changed to align with the referenced CSA standard for noise assessments. The technical standards that sound level meters, integrating sound level meters and dosimeters must meet have been updated to the most current versions.

Established competency requirements for the person conducting the noise exposure assessment are now specified. The person conducting the assessment must be:

- Trained in conducting noise exposure assessments.
- Trained in the calibration, operation, and maintenance of the equipment used in conducting noise exposure measurements.
- Able to demonstrate an understanding of the method used for measurement.

Results recorded

Revised wording clarifies that employers must ensure the noise exposure assessment includes a record of the tasks carried out by the worker whose noise exposure is being evaluated.

Employers must also retain records for at least three years from the date of the assessment. This now aligns with chemical exposure assessment record retention timelines. Previously, employers were required to keep these records for as long as they operated in Alberta.

Noise management program

The elements required in a noise management program have been streamlined and updated to remove duplication and improve clarity. The new wording more closely aligns with the elements in the CSA Standard Z1007-16, *Hearing Loss Prevention Program Management* as an industry best practice for setting up programs to prevent hearing loss.

The revised requirement clarifies that the entire noise management program must be reviewed annually, not just elements of it.

Fit testing of hearing protection

A new requirement has been added for employers to ensure workers are fit tested for the hearing protection devices they use and wear. Fit testing of the devices must meet the updated CSA Standard Z94.2-14 (R2019), *Hearing Protection Devices – Performance, Selection, Care, and Use*.

This change is intended to prevent noise induced hearing loss. The effectiveness of hearing protection is greatly reduced if the equipment does not fit correctly or is not inserted or worn correctly.

Alberta

Go to: https://c 22-01

Agenda

Session Overview

1. Recognizing noise hazards and understanding the basic physics of sound
2. Health effects of noise and the mechanics of hearing and hearing loss
3. Part 16 of the Code – what is says and the changes that are coming
4. Measuring hearing loss and how audiometric testing is completed
    - Knowing when you need to do an assessment
    - Knowing how to do it properly, noise mapping versus noise dosimetry
5. Assessing noise hazards including noise assessment devices and procedures
6. Controlling noise hazards and the proper selection, use and care of hearing protective devices (HPDs).
    - Fit-testing of HPDs
7. Hearing Conservation - know what a noise and hearing conservation program (NHCP) looks like
8. Employee education and training to ensure success in managing the risk of noise exposure
9. Employer’s actions to take to ensure compliance with the updated Part 16 of the Code

Recognizing Noise Hazards

Noise is any unwanted sound.

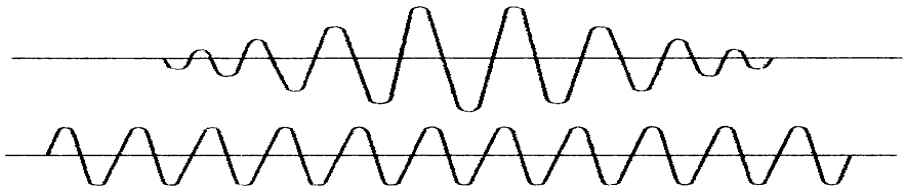
Noise can be an irritating nuisance or a disabling hazard.

Recognizing noise hazards is the first step in controlling workplace noise.

The Physics of Sound

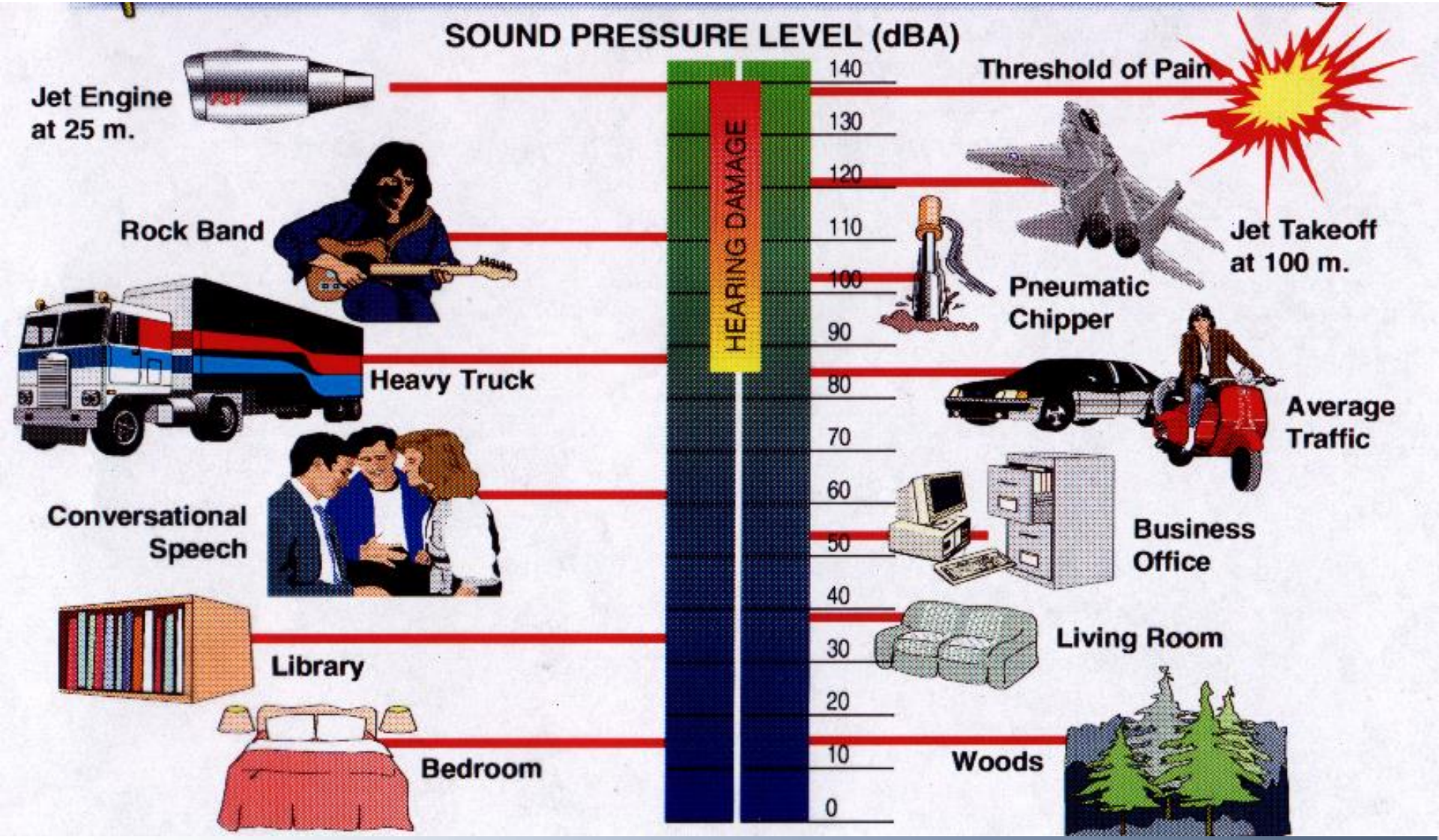
Sound is a slight rapid variation in atmospheric pressure caused by some disturbance or agitation of the air.

Sound vibration causes alternating high and low pressure impulses to travel outward in the form of longitudinal waves.

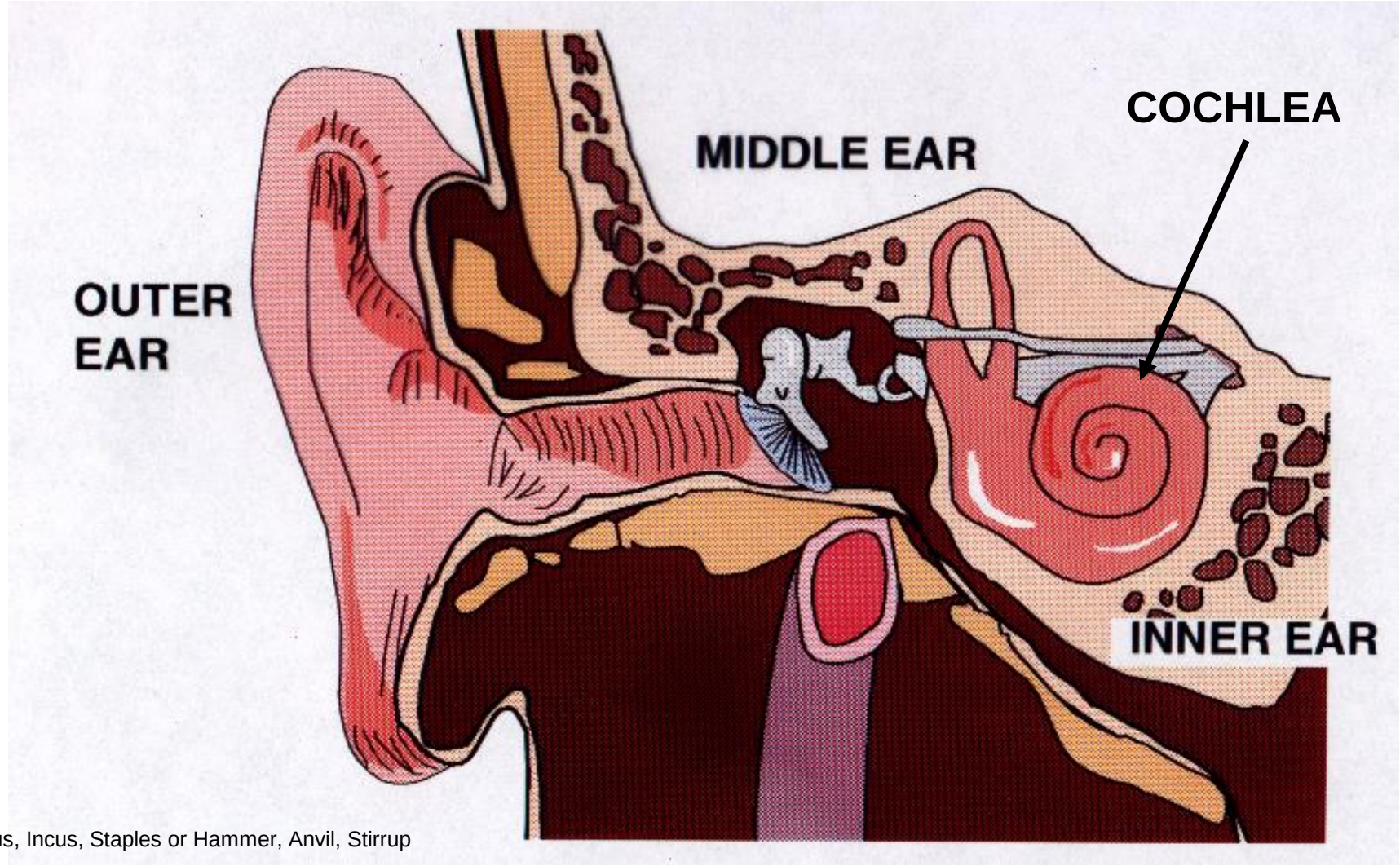


The human hearing system is remarkably sensitive and can interpret these minute alternating pressure waves as sound.

Common Noise Sources



The Mechanics of Hearing



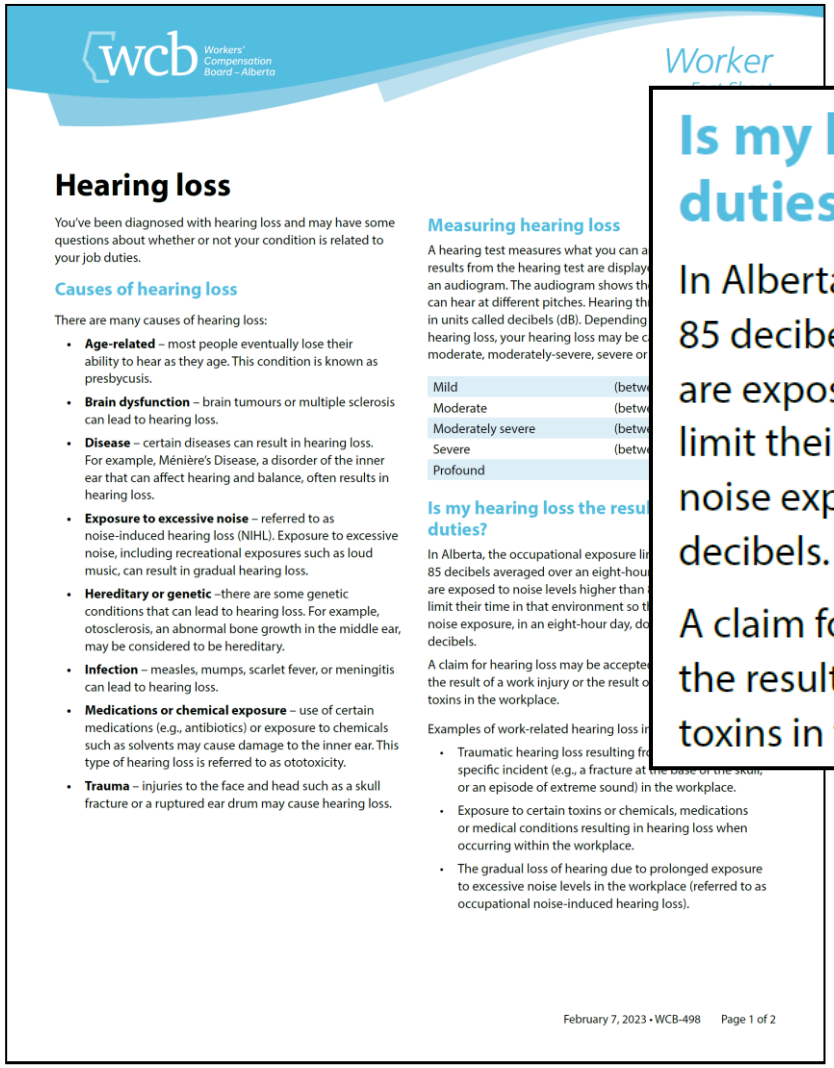
Malleus, Incus, Staples or Hammer, Anvil, Stirrup

Reasons People Lose Their Hearing

1. Appreciation of hearing not learned until hearing is lost.
2. Hearing loss progresses slowly over time (not noticeable).
3. Pain rarely accompanies overexposure.
4. Noise is not perceived as a physical threat.
5. The threat posed by lower cumulative doses is not recognized.
6. Failure to recognize overexposure occurs even when protection is used.
7. Belief exists that hearing loss goes with the job.
8. False belief hearing loss can be restored using hearing aids.
9. Site of injury cannot be viewed.
10. Lack of understanding of the role hearing assumes in old age.

Hearing loss remains a problem in Alberta workplaces

WCB and Hearing Loss Claims



wcb Workers' Compensation Board – Alberta

Worker

Hearing loss

You've been diagnosed with hearing loss and may have some questions about whether or not your condition is related to your job duties.

Causes of hearing loss

There are many causes of hearing loss:

- **Age-related** – most people eventually lose their ability to hear as they age. This condition is known as presbycusis.
- **Brain dysfunction** – brain tumours or multiple sclerosis can lead to hearing loss.
- **Disease** – certain diseases can result in hearing loss. For example, Ménière's Disease, a disorder of the inner ear that can affect hearing and balance, often results in hearing loss.
- **Exposure to excessive noise** – referred to as noise-induced hearing loss (NIHL). Exposure to excessive noise, including recreational exposures such as loud music, can result in gradual hearing loss.
- **Hereditary or genetic** –there are some genetic conditions that can lead to hearing loss. For example, otosclerosis, an abnormal bone growth in the middle ear, may be considered to be hereditary.
- **Infection** – measles, mumps, scarlet fever, or meningitis can lead to hearing loss.
- **Medications or chemical exposure** – use of certain medications (e.g., antibiotics) or exposure to chemicals such as solvents may cause damage to the inner ear. This type of hearing loss is referred to as ototoxicity.
- **Trauma** – injuries to the face and head such as a skull fracture or a ruptured ear drum may cause hearing loss.

Measuring hearing loss

A hearing test measures what you can a
results from the hearing test are displaye
an audiogram. The audiogram shows th
can hear at different pitches. Hearing th
in units called decibels (dB). Depending
hearing loss, your hearing loss may be c
moderate, moderately-severe, severe or

Mild	(betwe
Moderate	(betwe
Moderately severe	(betwe
Severe	(betwe
Profound	

Is my hearing loss the resul
duties?

In Alberta, the occupational exposure li
85 decibels averaged over an eight-hou
are exposed to noise levels higher than
limit their time in that environment so t
noise exposure, in an eight-hour day, do
decibels.

A claim for hearing loss may be accepte
the result of a work injury or the result o
toxins in the workplace.

Examples of work-related hearing loss ir

- Traumatic hearing loss resulting fr
specific incident (e.g., a fracture at the base of the skull,
or an episode of extreme sound) in the workplace.
- Exposure to certain toxins or chemicals, medications or medical conditions resulting in hearing loss when occurring within the workplace.
- The gradual loss of hearing due to prolonged exposure to excessive noise levels in the workplace (referred to as occupational noise-induced hearing loss).

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Is my hearing loss the result of my work duties?

In Alberta, the occupational exposure limit (OEL) for noise is 85 decibels averaged over an eight-hour day. Workers who are exposed to noise levels higher than 85 decibels should limit their time in that environment so that the overall average noise exposure, in an eight-hour day, does not exceed 85 decibels.

A claim for hearing loss may be accepted by WCB when it is the result of a work injury or the result of exposure to noise or toxins in the workplace.

The Mechanics of Hearing Loss

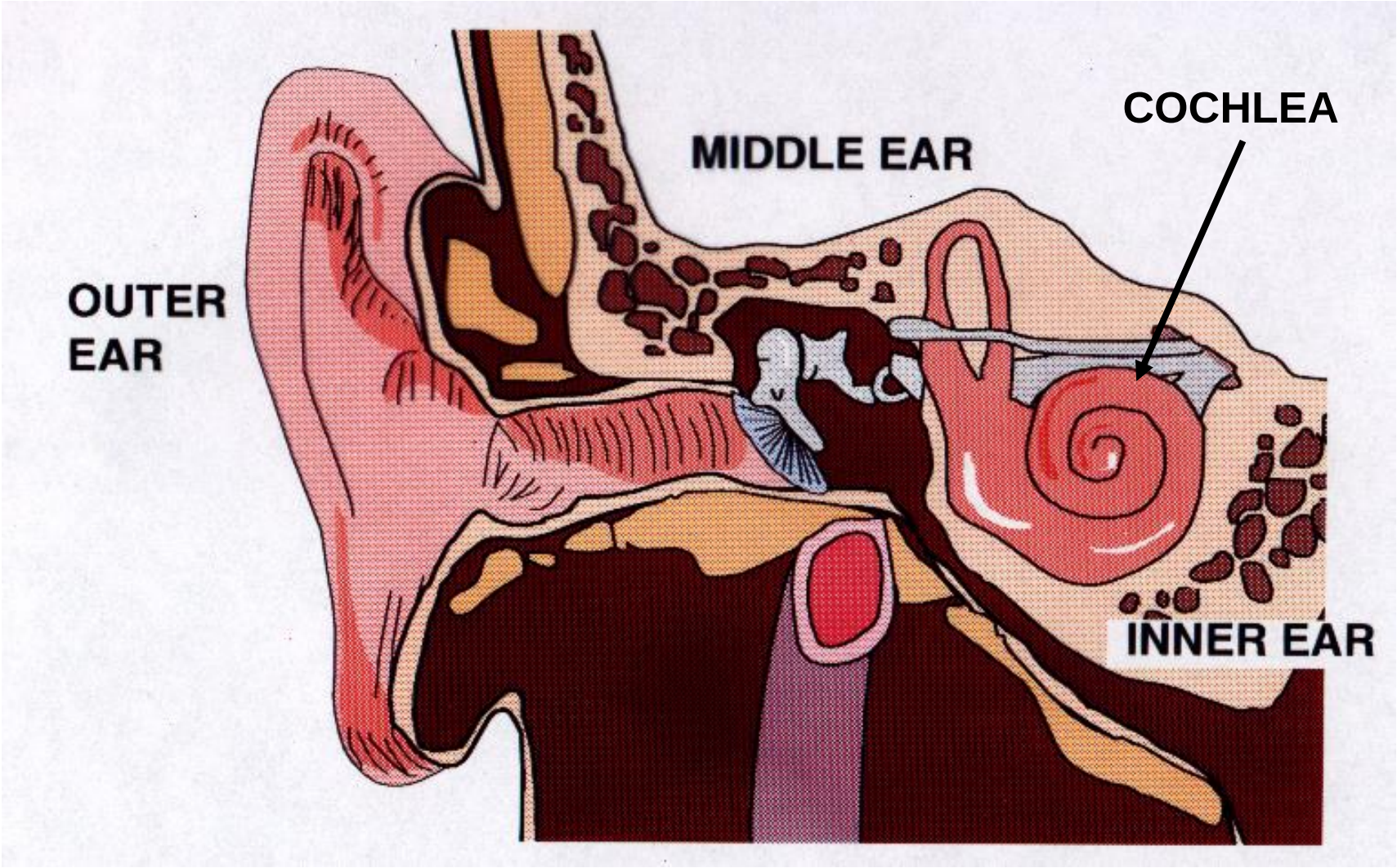
There are three different types of hearing loss.

Acoustic Trauma

Conductive

Sensorineural (noise-induced hearing loss)

The Mechanics of Hearing



Noise-Induced Damage

Normal Cochlea with Undamaged Hair Cells

Noise-Exposed Cochlea with Damaged Hair Cells (Arrows)

Health Effects of Noise Exposure

Temporary and permanent hearing loss

The impairment of communication caused by hearing loss can result in other health effects.

Immediate effects include:

- ↑ heart rate;
- ↑ blood pressure;
- ↓ digestive processes;
- ↑ muscular tension; and

  psychological disorders.

Part 16 of the Code

Duty to reduce

216 An employer must ensure that all reasonably practicable measures are used to reduce the noise to which workers are exposed in areas of the work site where workers may be present.

Noise control design

217 An employer must ensure that the following are designed and constructed in such a way that the continuous noise levels generated do not exceed 85 dBA or are as low as reasonably practicable:

(a) a new work site or work area;

(b) significant physical alterations, renovations or repairs to an existing work site or work area;

Part 16 of the Code

Worker exposure to noise

218 An employer must ensure that a worker's exposure to noise at a work site does not exceed

(a) the noise exposure limits in Schedule 3, and

(b) 85 dBA L_{ex}.

Part 16 of the Code

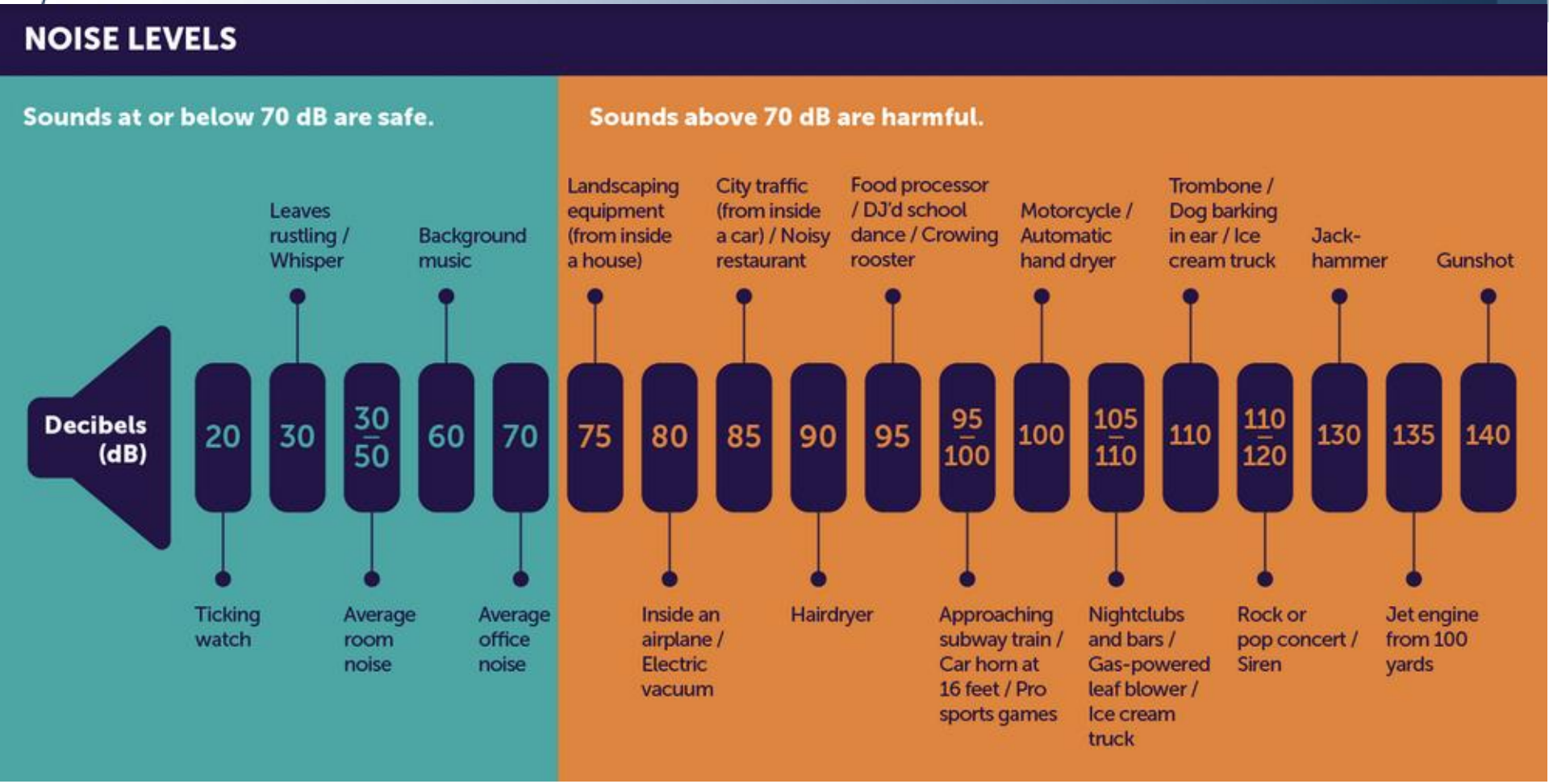
Noise exposure assessment

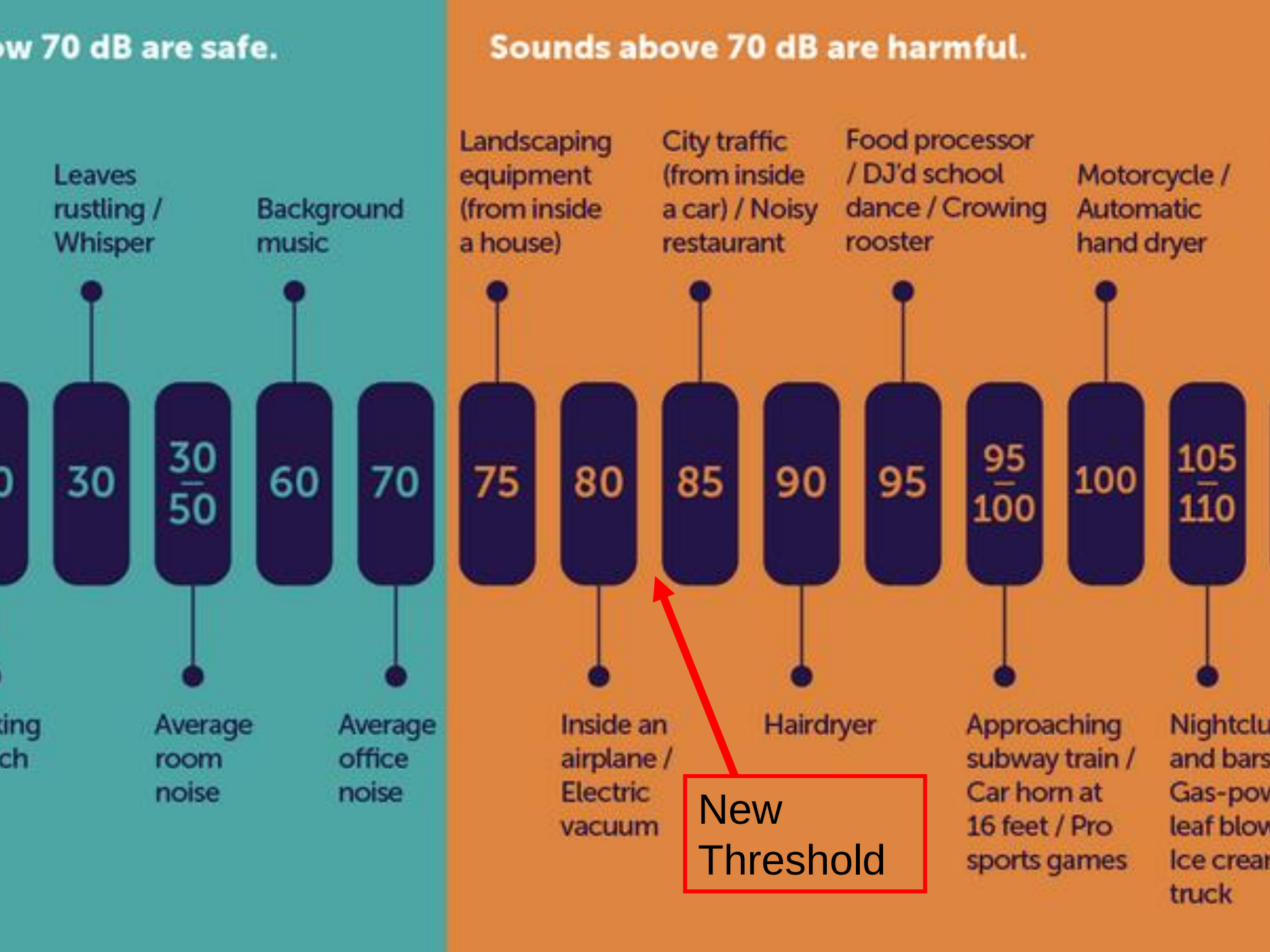
219(1) If workers are, or may be, exposed to noise at a work site or work area in excess of 82 dBA L_{ex}, an employer must ensure a noise exposure assessment is conducted in accordance with CSA Standard Z107.56-18, *Measurement of noise exposure*.

219(2) An employer must ensure a noise exposure assessment at a work site is performed using

(a) a noise dosimeter meeting the requirements for a Type 2 instrument as specified by ANSI/ASA S1.25-1991 (R2020), *Specification for Personal Noise Dosimeters*, or IEC

Part 16 of the Code




ow 70 dB are safe.
Sounds above 70 dB are harmful.
Leaves rustling / Whisper
Background music
Landscaping equipment (from inside a house)
City traffic (from inside a car) / Noisy restaurant
Food processor / DJ'd school dance / Crowing rooster
Motorcycle / Automatic hand dryer
30
30 – 50
60
70
75
80
85
90
95
95 – 100
100
105 – 110
Average room noise
Average office noise
Inside an airplane / Electric vacuum
Hairdryer
Approaching subway train / Car horn at 16 feet / Pro sports games
New Threshold

Part 16 of the Code

Noise exposure assessment

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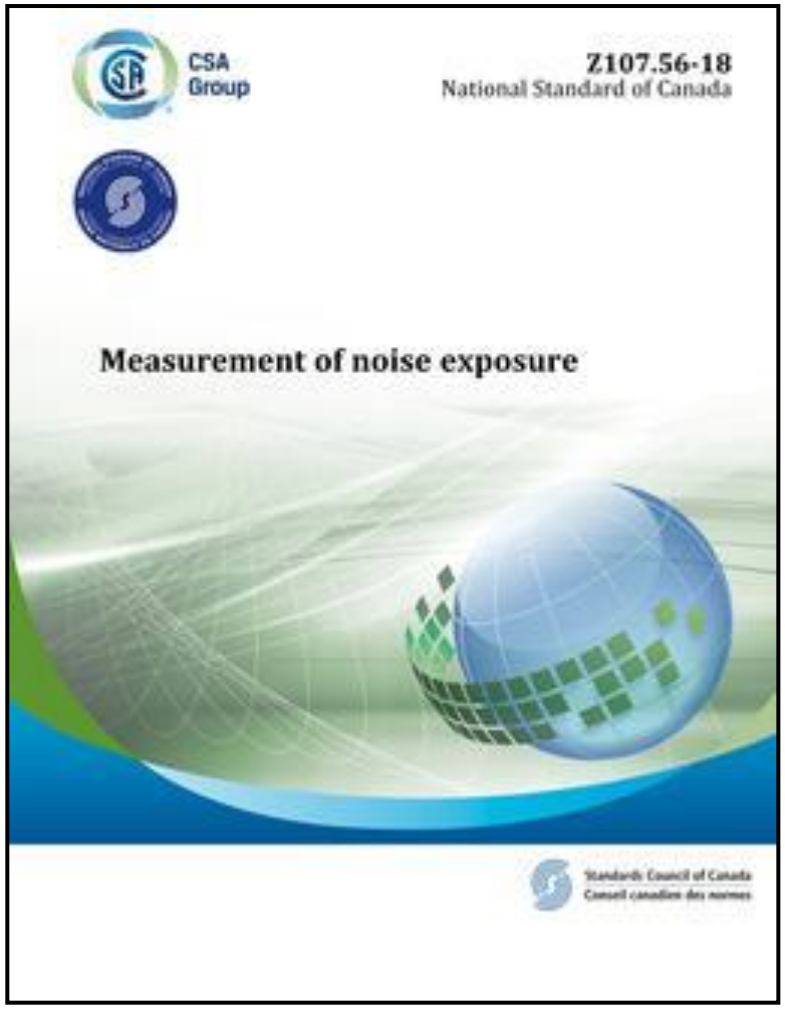
Noise Assessment



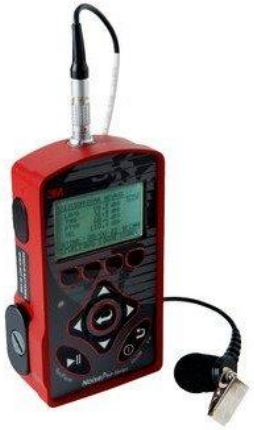
Noise Assessment

Preliminary Survey

- used to identify areas/job functions that require a more detailed investigation

Formal Survey

- used to document worker exposure in potentially high noise areas
- used to identify who are noise exposed workers



Part 16 of the Code

219(3) An employer must ensure that a noise exposure assessment is

(a) conducted and interpreted by a competent person who

(i) is trained in conducting noise exposure assessments,

(ii) is trained in the calibration, operation and maintenance of the equipment used in conducting noise exposure measurements, and

(iii) can demonstrate an understanding of the method used for measurement,

Part 16 of the Code

221 If a noise exposure assessment confirms that workers are exposed to excess noise at a work site, an employer must develop and implement a noise management program that includes

(a) procedures for addressing noise at the work site,

(b) identification of the work area at the work site where noise may exceed the noise exposure limits,

(c) procedures for measuring worker exposure to noise,

(d) procedures for educating workers in the hazards of exposure to excess noise,

(e) the methods of noise control to be used,

Part 16 of the Code

(f) training workers in the correct use of noise control measures and hearing protection devices,

(g) the selection, use and maintenance of hearing protection devices to be used and worn by workers,

(h) posting of suitable warning signs in any work area where the noise level exceeds 85 dBA,

(i) the requirements for audiometric testing and the maintenance of audiometric test records, and

(j) an annual review of the noise management program that includes consideration of the data received under section 223(6).

Hearing Conservation Program

A written hearing conservation program includes the following elements;

- noise exposure monitoring;
- engineering, administrative and PPE controls;
- audiometric evaluation; and
- employee education and training.

Noise Control – Hearing Protection

222 An employer must ensure that hearing protection devices used and worn by workers at a work site or work area

(a) meet the requirements of CSA Standard Z94.2-14 (R2019), *Hearing protection devices — Performance, selection, care, and use*, and

(b) are fit tested in accordance with CSA Standard Z94.2-14 (R2019), *Hearing protection devices — Performance, selection, care, and use*.

Noise Control – Hearing Protection

Look for the CSA Class markings on all hearing protective equipment

Special consideration is needed if using US OSHA NRR-rated hearing protective equipment

Noise Control – Hearing Protection

Table 2
Selection of hearing protection devices
[See subsection 222(1)]

Maximum equivalent noise level (dBA Lex)	CSA Class of hearing protection	CSA Grade of hearing protection
≤ 90	C, B or A	1, 2, 3, or 4
≤ 95	B or A	2, 3, or 4
≤ 100	A	3 or 4
≤ 105	A	4
≤ 110	A earplug + A or B earmuff	3 or 4 earplug + 2, 3, or 4 earmuff
> 110	A earplug + A or B earmuff and limited exposure time to keep sound reaching the worker's ear drum below 85 dBA L_{ex}	3 or 4 earplug + 2, 3, or 4 earmuff and limited exposure time to keep sound reaching the worker's ear drum below 85 dBA L_{ex}

Part 16 of the Code

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(b) are fit tested in accordance with CSA Standard Z94.2-14 (R2019), *Hearing protection devices — Performance, selection, care, and use*.

Fit-testing – Quantitative and Qualitative

Figure 1

Figure 2

Figure 3

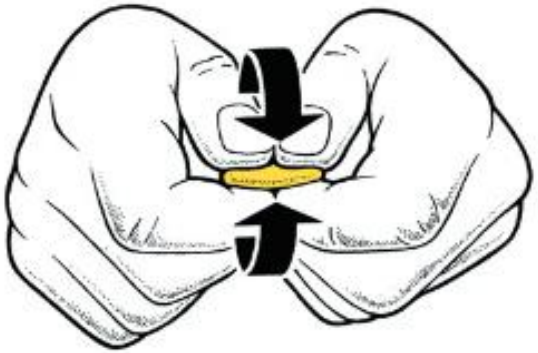


Figure 4

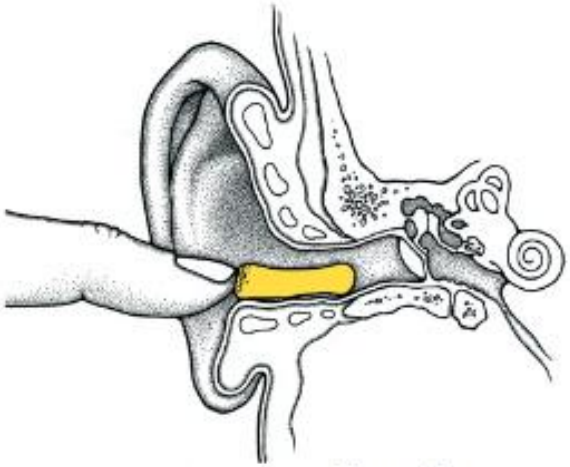
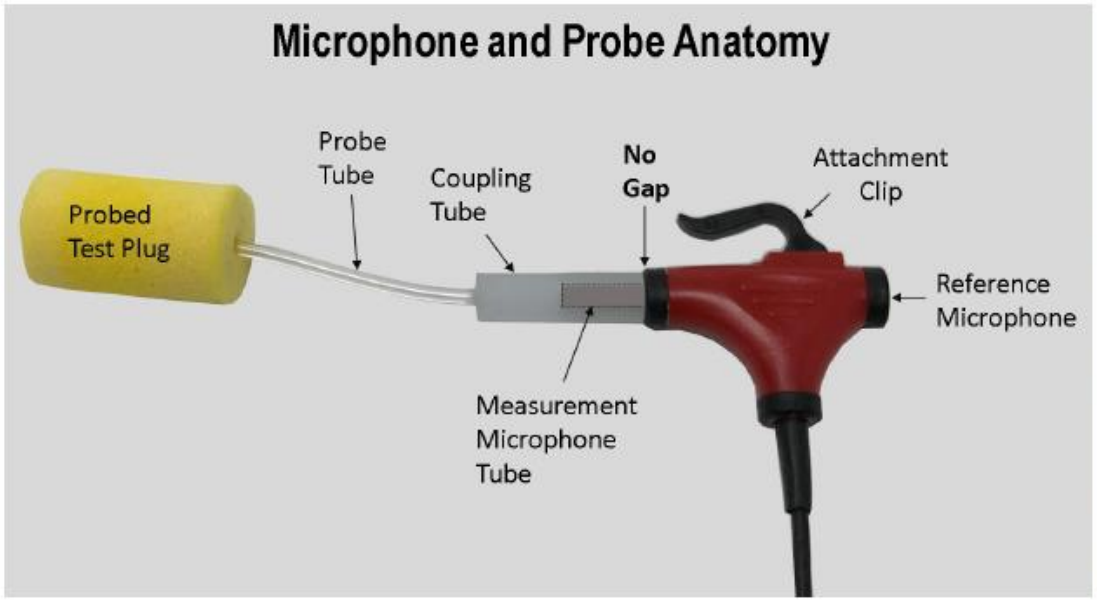


Figure 5

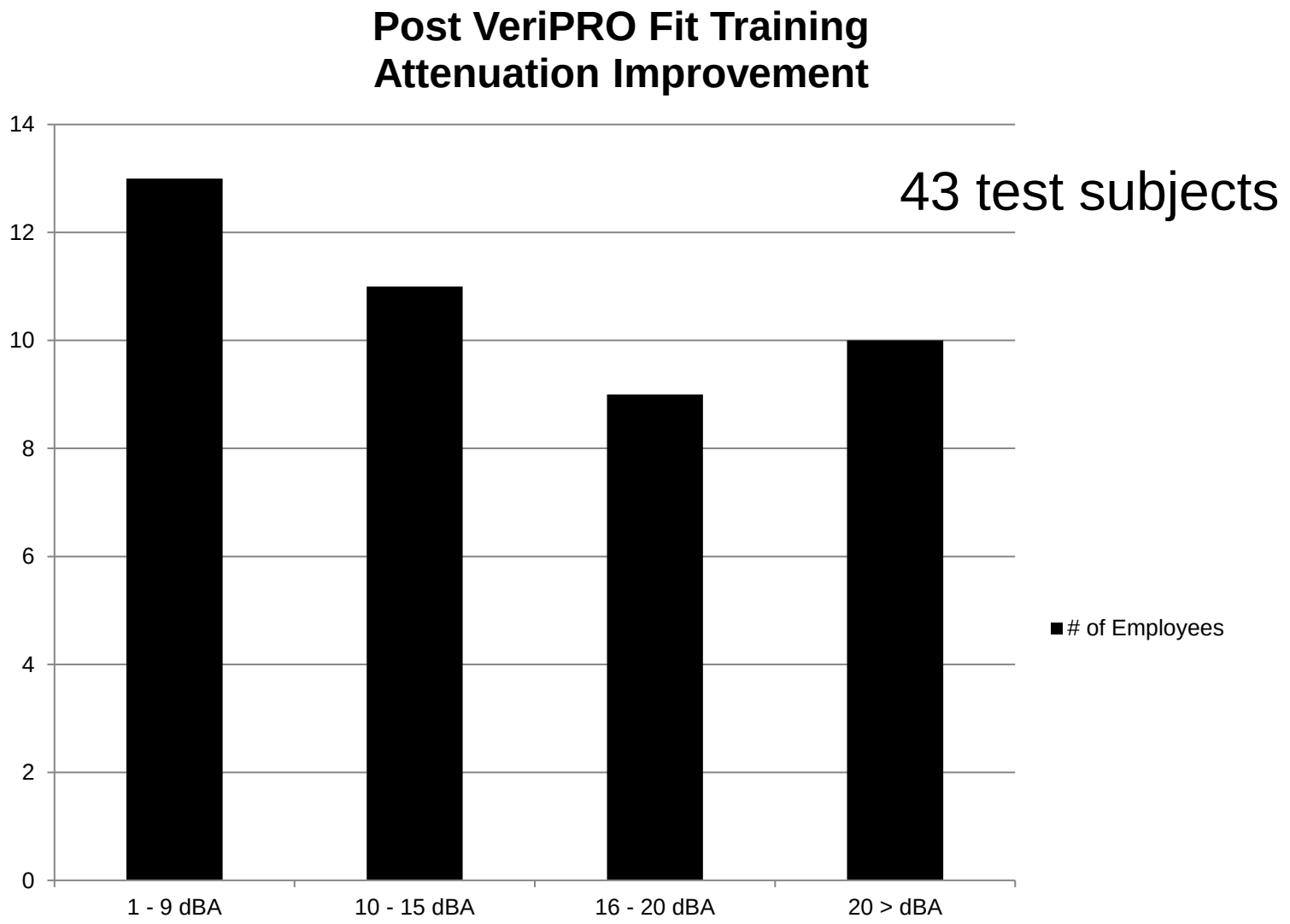
Fit-testing – Quantitative

Fit-testing – Quantitative



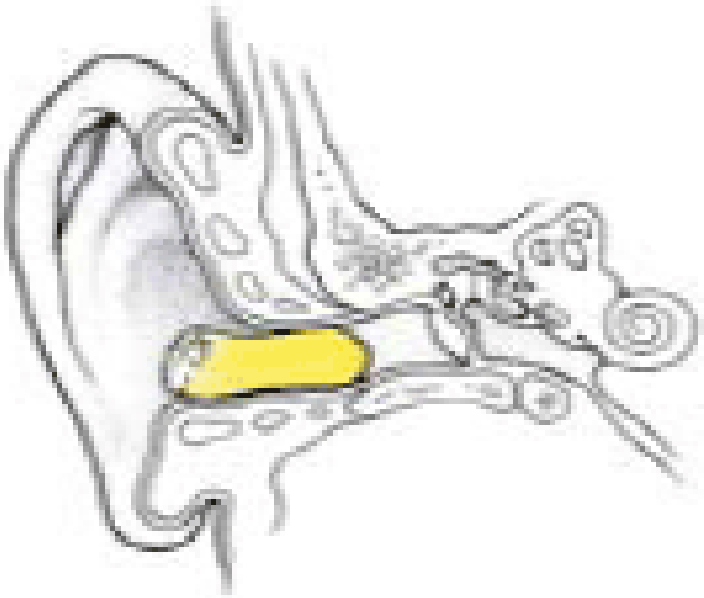
Fit-testing – Quantitative

Does qualitative fit-testing work?

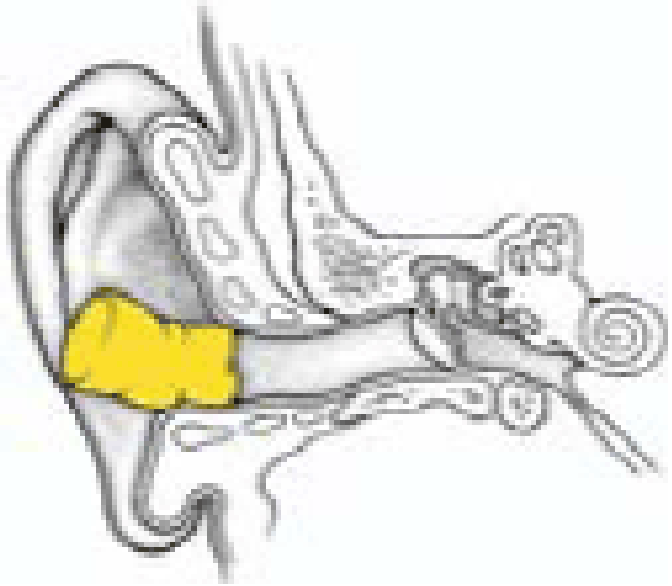


43 test subjects

Fit-testing – Qualitative



Good



Poor

Fit-testing – Qualitative

Improper

Poor

Correct

Audiometric Testing

223(1) An employer must provide, at the employer's expense, the following audiometric tests for a worker who is or may be exposed to excess noise at a work site or in a work area:

(a) an initial baseline test as soon as reasonably practicable, but not later than 6 months after the worker is employed or within 6 months after a worker is or may be exposed to excess noise because of a change in the worker's duties or process conditions;

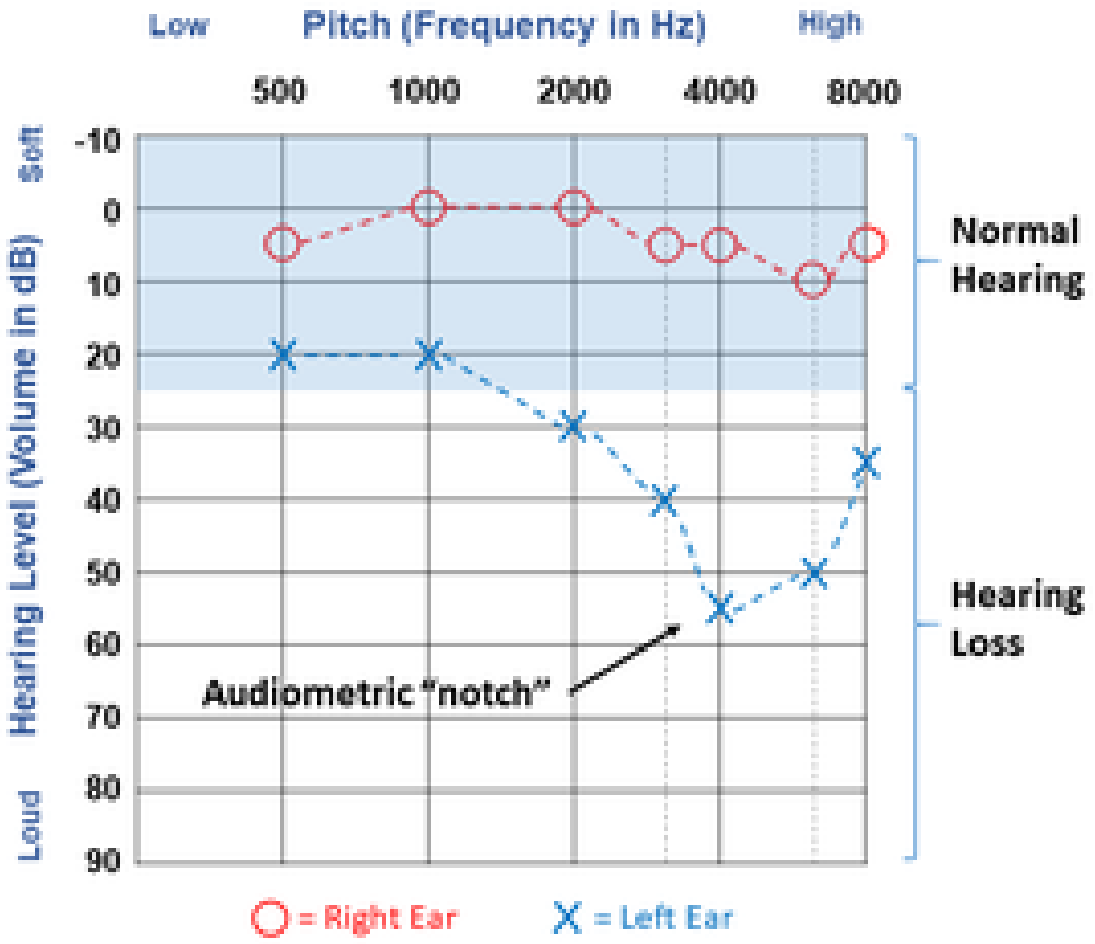
(b) a test not more than 12 months after the initial baseline test;

(c) a test at least every 2nd year after the test under clause (b).

Measuring Hearing Loss

Audiometric Testing

Audiometric Testing



Audiometric Testing

A case history is taken during a baseline hearing test. This can identify reasons why you may be at high risk for hearing loss, such as:

poor blood circulation;

diabetes;

heart disease;

high blood pressure;

stroke; and

smoking.

Employer's Action Planning

1. Get out all of your old noise data

2. Undertake area instantaneous noise measurements during all normal and upset conditions in all work areas

3. If any levels above 82 dBA are measured:

    - Undertake noise mapping of the work area
    - Complete a program of noise dosimetry on affected employees
    - Introduce (or re-introduce) a noise and hearing conservation program
    - Fit-test all employees working in the high noise areas

Questions??

Please feel free to contact me directly

ehs[p]

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