



UNIVERSITY OF MINNESOTA
University Health and Safety

Hearing Conservation Program

Effective Date: April 2021

I. PURPOSE

The purpose of the Hearing Conservation Program (HCP) is to provide guidance and instruction to mitigate occupational noise exposure.

II. SCOPE

This program applies to any employee whose exposure to noise is equal to, or greater than 85 dB, measured as an eight-hour time weighted average.

III. DEFINITIONS

Action Level (AL) - The action limit is an 8-hour time-weighted average of 85 dB, measured on the A-scale, slow response, or equivalently, a dose of fifty percent.

Dose - Noise dose percent is the noise exposure expressed as a percentage of the normal allowable daily noise dose. The noise dose is a personal exposure measurement collected by an instrument called a noise dosimeter. A 100% dose is equivalent to the PEL. A 50% dose is equivalent to the Action level.

Hearing Conservation Program (HCP) - The HCP is a program to prevent occupational noise exposure which could lead to noise induced hearing loss. Employees who experience an exposure over the AL will be included in the program.

Hearing protection device (HPD) - A HPD is a device worn in or over the ears to protect from the effects of noise induced hearing loss.

Industrial Hygiene (IH) - The practice of anticipating, recognizing, evaluating and controlling environmental factors that may prove hazardous in the workplace.

Permissible exposure limit (PEL) - The PEL is an 8-hour time-weighted average of 90 decibels, measured on the A-scale, slow response, or equivalently, a dose of 100%.

Recordable standard threshold shift - A recordable standard threshold shift occurs when an employee has a standard threshold shift (STS as defined in this program) and, the employee's total hearing level is 25 decibels (dB) or more above audiometric zero (averaged at 2000, 3000, and 4000 Hz) in the same ear(s) as the STS.

Standard threshold shift (STS) - A standard threshold shift is a change in hearing threshold relative to the baseline audiogram of an average of 10 dB or more at 2000, 3000, and 4000 Hz in either ear.

IV. RESPONSIBILITIES

Employee Responsibilities

- Participate in all required training, medical evaluations, and other program activities
- Wear HPDs as recommended and/or required
- Identify and report workspaces or tasks that may require an evaluation of noise levels.

Supervisor Responsibilities

- Identify tasks that may require an evaluation of noise levels.
- Contact University Health and safety for noise monitoring.
- Ensure staff completes medical evaluation and training requirements, and are using HCDs properly
- Provide staff with a selection of recommended HPDs for both required users and for personal comfort.

University Health and Safety Responsibilities

- Assist in identification and evaluation of noise hazards in the workplace and report the findings to the affected department
- Respond to requests for noise evaluation, using recognized IH methods and professional judgement, and report the findings to the department.
- Evaluate the workplace as necessary to ensure the program provisions are being implemented
- Recommend feasible methods to mitigate noise exposures or recommend appropriate HPDs.
- Assist in coordination of audiograms.
- Recommend appropriate training methods and materials.
- Update Hearing Conservation written program every two years

Health Care Professional Responsibilities:

- Perform baseline and periodic audiograms of employees enrolled in the HCP using equipment, procedures, and staff that are compliant with OSHA standards.
- Report any potential Standard Threshold Shifts (STSs) to University Health & Safety and assist in appropriate follow-up examinations or audiograms.
- Maintain records of audiograms.

V. PROCEDURE

1. **Hazard evaluation:** Noise monitoring will be conducted whenever there is reason to believe an employee may be exposed to noise at or above 85 dBA Action Level (AL).

2. **Medical Monitoring:** Employees exposed above the AL must be included in the University HCP and complete an initial baseline audiogram. Audiograms must be repeated annually thereafter.
3. **Training:** Employees must attend hazard training initially, and annually thereafter.
4. **Control Methods:** Administrative or engineering controls should be considered the primary methods to reduce noise exposure levels. If these methods are not feasible, HPDs with appropriate protection levels will be issued and worn by staff.
5. **Hearing Protection Devices:** A variety of hearing protection must be provided for employees at no cost. HPD recommendations are made based upon noise exposure levels, the environment and comfort.
6. **Program Evaluation:** This program must be reviewed at least every 2 years.

Hazard Evaluation:

- Supervisors and other employees identify situations where hearing protection may be required, based on professional judgment, prior experience, or other considerations. Employees or their supervisors should contact University Health and Safety to schedule a noise hazard assessment.
- UHS will develop and carry out a monitoring plan to quantify personal exposure levels using recognized IH methods and instruments.
- UHS will complete a report of sampling results and make recommendations based upon findings and professional judgment. Results of monitoring will inform HCP inclusion requirements, control methods, and selection of appropriate HPDs.
- Reports will be provided to the department and affected employees and will be provided upon request to former employees and representatives designated by the individual employee.
- Assessments should be repeated if there are any changes in production process that may increase noise levels that affect employee exposure, or if the attenuation level provided by HPDs is insufficient.

Medical Monitoring and HCP Inclusion Criteria:

- If monitoring results indicate employees are exposed to or potentially exposed to noise levels in excess of the AL, or 50% dose, the employee(s) must be formally included in the University HCP.
- UHS will keep a list of all employees who are enrolled in the HCP, starting prior to their baseline audiogram. This list will be used for regular follow-up and to check on program performance.
- Other employees who perform similar tasks or work in the same areas may be enrolled in the program as well, based on the professional judgment of UHS staff.

Audiograms:

- All employees included in the HCP must have a baseline audiogram completed within six months of the first exposure at or above the action level. This allows for comparison to future audiograms. The supervisor is responsible for arranging the audiogram, with assistance from UHS.
- If the department uses a mobile test van for audiograms, a baseline must be established within 1 year. If more than 6 months will pass after the first exposure at/above the action level, employees are required to wear hearing protection until the baseline audiogram is obtained.

- Before audiometric testing, employees must have at least 14 hours without exposure to workplace noise. Employees may also wear hearing protection while at work to fulfill this requirement.
- At least annually after obtaining the baseline audiogram, a new audiogram must be completed for each employee continuing to be enrolled in the HCP. The annual audiograms will be compared to the individual's baseline audiograms to determine if any changes in hearing have occurred. If an annual audiogram shows a significant change (e.g. a Standard Threshold Shift or STS) has occurred, a repeat audiogram must be completed within 30 days in order to confirm the finding. An individual must continue to be enrolled in the HCP for as long as they have exposure to noise above the AL for 1 day or longer over the past year.
- All audiogram reviews shall be performed by a qualified professional, compliant with the OSHA standard.

Standard Threshold Shifts:

- Any employee whose audiogram shows an Standard Threshold Shift (STS) must be notified in writing by UHS/their medical provider within 21 days of determination.
- Unless a physician determines that the STS is not work-related or aggravated by occupational noise exposure, the following is required:
 - If employee is not using hearing protection, they shall be fitted with hearing protectors, trained in their care and use, and required to use them
 - If employee is already using hearing protection, they shall be refitted and retrained in their use and provided with hearing protection offering greater attenuation if necessary
- The employee shall be referred for a clinical audiological examination or an otological examination if additional testing is necessary or if it is suspected that a medical condition may be aggravated or caused by the wearing of hearing protection
- The employee shall be informed of the need for an otological examination if a medical pathology of the ear that is unrelated to the use of hearing protection is suspected

Training:

- All employees must complete hearing conservation training at their time of initial assignment to a job, area, or task where they are potentially exposed to high levels of noise. Training content must include:
 - The effects of noise on hearing
 - The purpose of hearing protection, the advantages, disadvantages, and attenuation of various types, and instructions on fitting, use, and care.
 - The purpose of audiometric testing, and an explanation of the test procedures
- Retraining must be provided at least annually or if an employee has a standard threshold shift.

Use of Hearing Protection:

- A variety of HPDs must be provided to employees. Hearing protection options include earplugs, ear muffs, and ear caps.
- The department is responsible for providing hearing protection for their employees. University Health and Safety can assist in selecting HPD types. Hearing protection must reduce noise exposure to an 8-hour time-weighted average of 90 decibels or lower. Attenuation from hearing protection will be determined using Appendix B of the OSHA

Hearing Conservation Standard (CFR 29 1910.95). If there are indications that the hearing protection in use is not adequate, more effective protection must be provided, such as different models/types of HPD, administrative controls, or engineering controls.

- Use of hearing protection is allowed on a voluntary basis, as long as a hazard is not created by their use (i.e., lack of situational awareness, inability to hear alarms, etc.) and it is approved by their department.
- The following classes of employees are strongly recommended to wear HPDs:
 - Any employee exposed to noise at an 8-hour average of 90 decibels or higher
- The following classes of employees are required to wear HPDs:
 - Any employee exposed to noise at an 8-hour average of 90 decibels or higher.
 - Employees who have not yet completed their baseline audiogram.
 - Any employee who has experienced a Standard Threshold Shift.

Administrative and Engineering Controls:

When feasible, administrative or engineering controls should be considered to reduce noise levels as part of efforts to reduce noise exposure. These controls are preferred over enrolling employees in the Hearing Conservation Program, as it reduces or eliminates the hazard, as well as reducing long-term cost and administration time. While controls are being put in place, employees may still be required to enroll in the HCP and fulfill all program requirements, including wearing hearing protection. In some cases, controls may not be feasible, and HCP enrollment is the best solution.

Potential controls may include noise dampening enclosures, isolating equipment from employees, limiting the amount of time employees are exposed to noisy environments, and others. Supervisors should consult with UHS following a noise evaluation in order to determine what controls may be appropriate for their situation, to put any controls in place, and to determine their efficacy.

If HPDs are unable to reduce noise exposure to less than an 8-hour average of 90 dB, further engineering or administrative controls are required for that area.

Program Evaluation:

At least every two years, University Health and Safety will review and evaluate the written Hearing Conservation Program.

VI. REFERENCES

- [OSHA Technical Manual, Section III: Chapter 5 \(Noise\), Section III: Measurements](#)
- [OSHA Standard 29 CFR 1910.95: Occupational Noise Exposure](#)