

**University of Wisconsin-Milwaukee
Hearing Conservation Program**

Table of Contents:

1. Purpose
2. Responsibilities
3. Required Monitoring
4. Audiometric Testing
5. Baseline Audiograms
6. Annual Audiograms
7. Following an Audiogram Evaluation
8. Hearing Protectors
9. Exposure and Testing Documentation
10. Training
11. References

1 Purpose

- a. The purpose of Hearing Conservation program is to provide a safe work environment for University employees. According to OSHA, noise is one of the top occupational health hazards. Exposure to prolonged high noise levels can cause hearing loss and other harmful health effects. Noise-induced hearing loss can be temporary or permanent and depends on noise intensity and duration.
- b. In accordance with OSHA publication 3074, this program aims to protect the hearing of all workers, even if they are subject to high noise levels throughout their working lives.

2. Responsibilities

- a. Facility Services/ University Safety & Assurances
 - i. OSHA's Hearing Conservation program requires employers to monitor noise in workplaces over an 8-hour working period or an 8-hour time-weighted average. This identifies workers who are affected by noise levels at or above 85dB over that time period.
 - ii. Employees who are affected are required to be monitored during a typical work situation. Employers are required to repeat monitoring whenever changes in production, controls, or jobs increase the noise level.
 - iii. Employees must be allowed to observe the monitoring procedures and must receive notification of the results. University Safety and Assurances will ensure instruments used for monitoring exposure are calibrated and that measurements are accurate.
 - iv. Affected employees will be allowed to choose from at least one type of ear plug and/or one type of ear muff with the help of a trained professional at no cost to the employee. The cost of the protective equipment will be borne by the department.
- b. Supervisors
 - i. Supervisors will ensure that their employees complete annual training in the Hearing Conservation program.
 - ii. Supervisors are responsible for scheduling of both initial baseline audiograms as well as annual audiograms to be conducted within 1 year of the baseline audiogram.
- c. Employees
 - i. Employees will participate in Hearing Conservation training. Training emphasizes the reason for conservation programs and the need to protect hearing. Training will be conducted annually. According to OSHA, workers who receive training are more likely to take audiometric tests and to wear their hearing protectors.
 - ii. Employees will be responsible for the use and care of their hearing protectors including proper cleaning and disinfection of the devices as well as proper storage of the devices.

- d. UW Milwaukee Audiology Group
 - i. The UW Milwaukee Audiology Group will be responsible for conducting baseline and annual audiometric testing and maintaining test results for employees in the program.
 - ii. The UW Milwaukee Audiology Group also reviews problematic audiograms and determines when referral is necessary.
 - iii. The UW Milwaukee Audiology Group will also make referrals for clinical audiological evaluations or otological exams as necessary or when related medical problems or pathologies of the ear are suspected.

3. Required Monitoring

- a. Noise exposure monitoring must accurately identify employers who are subject to noise at or above 85 decibels (dB) either averaged over 8 working hours or weighted over an 8 hour time (time-weighted average - TWA). Monitoring must be done of employees who are exposed to a constant noise level at or above 85 dB over an 8 hour period. Per OSHA, exposure measurements “must include all continuous, intermittent, and impulsive noise within an 80 dB to 130 dB range” that are taken during a typical task on the job.
- b. New monitoring must be done each time noise exposure is increased through changes in production or controls. When exposure is increased, more employees may need to be included in the program.
- c. Employees have the right to observe exposure monitoring and are required to be notified of the monitoring results.
- d. Exposure monitoring instruments must be properly calibrated according to the manufacturer’s instructions. Methods of calibration are unique to each instrument.

4. Audiometric Testing

- a. Audiometric testing monitors changes in an employee’s hearing over time. An audiometric testing program involves two types of testing: baseline and annual audiograms. Follow-up procedures and training/education are also parts of the program. Audiometric testing is free for employees who work in an environment with an 8-hour TWA of 85 db or above.
- b. Professionals and trained technicians may conduct testing, and the professional in charge of the program (licensed or certified audiologist, otolaryngologist, or other physician) does not have to be present during the testing. The individual in charge oversees the program and the work of the technicians. He/she reviews problem audiograms and determines when referral is necessary.
- c. Referrals for clinical audiological evaluations or otological exams are also necessary when additional testing is necessary or when related medical problems or pathologies of the ear are suspected.

- d. Audiometric testing follow-up should indicate if hearing loss has been prevented by the conservation program.

5. Baseline Audiograms

- a. Baseline audiograms are used as reference against which all future audiograms are measured. Baseline audiograms must be provided within 6 months of a worker's first exposure to 85 db over an 8-hour TWA.
- b. Employees should not be exposed to noise in the workplace for 14 hours before the baseline test or wear hearing protectors during that time.

6. Annual Audiograms

- a. Annual audiograms must be provided within 1 year of the baseline audiogram. Annual testing ensures that hearing deterioration is identified as soon as possible. Annual audiograms are compared to baseline audiograms to determine the validity of the audiogram and whether the employee has experienced hearing loss or a standard threshold shift (STS). According to OSHA, "an STS is an average shift in either ear of 10 dB or more at 2,000, 3,000, and 4,000 hertz."

7. Following an Audiogram Evaluation

- a. Employees whose audiogram reveals an STS must be notified within 21 days after the determination. These employees must be fit or refit with the proper hearing protectors.
- b. Further testing may be necessary if the employee with an STS has questionable test results or is thought to have an ear problem caused by wearing hearing protectors. In the latter case, the employee must be advised to see a physician.
- c. "If subsequent audiometric tests show that the STS identified on a previous audiogram is not persistent, employees whose exposure to noise is less than a TWA of 90 dB may stop wearing hearing protectors."
- d. An annual audiogram may be substituted for the original baseline audiogram if it is determined that the STS is persistent. Regardless of a substitution, the original baseline audiogram must be retained for the duration of the individual's employment.
- e. The baseline audiogram may be revised if the employee's hearing improves. This ensures that the baseline reflects actual hearing thresholds as accurately as possible.
- f. Audiometric testing must be conducted in a room that meets specific background levels. Calibrated audiometers must meet American National Standard Institute (ANSI) specifications of SC-1969.

8. Hearing Protectors

- a. Hearing protectors are required for employees who are exposed to noise levels of 85 dB or more over an 8 hour TWA. Hearing protectors are also required for employees under the following circumstances:
 - i. For any period exceeding 6 months from the time they are first exposed to 8-hour TWA noise levels of 85 dB or above, until they receive their baseline audiograms if these tests are delayed due to mobile test van scheduling;
 - ii. If they have incurred standard threshold shifts that demonstrate they are susceptible to noise; and
 - iii. If they are exposed to noise over the permissible exposure limit of 90 dB over an 8-hour TWA.
- b. Employees must be provided with at least one variety of hearing plug and one variety of hearing muff. A person trained to fit hearing protectors should help the employee decide which size and type of protector is most appropriate for him or her. Protectors should fit properly, be comfortable to wear, and sufficiently protect from hearing loss by reducing the noise level in the work environment.
- c. Changes in working conditions must prompt a reevaluation of the hearing protection. Employees must receive more effective noise protectors when workplace noise levels increase. All noise protectors “must reduce employee exposures to at least 90 dB and to 85 dB when an STS already has occurred in the worker’s hearing.”
- d. Employees will be responsible for the use and care of their hearing protectors including proper cleaning and disinfection of the devices as well as proper storage of the devices.

9. Exposure and Testing Documentation

- a. Noise exposure measurement records must be kept for at least 2 years and employee audiometric test results must be kept for the duration of the affected employee’s employment. Audiometric test records must include:
 - i. Employee’s name and job classification
 - ii. Date
 - iii. Examiner’s name
 - iv. Date of the last acoustic or exhaustive calibration
 - v. Measurements of the background sound pressure levels in the test room

vi. The employee’s most recent noise exposure measurement

b. Since January 1, 2003, cases of work-related hearing loss must be recorded when the test shows a substantial decline in overall hearing. Adjustments can be made for hearing decline due to aging. Advice from a physician can be sought to determine if the hearing decline is work-related.

10. Training

a. Goals

i. Employees who are educated about the hearing conservation program and the need to protect their hearing will be more motivated to take audiometric tests and to wear hearing protectors.

b. Procedures

i. Annual retraining is important for employees who are exposed to TWA levels of 85 dB or above.

ii. Employees should be retrained on the effects of high and constant noise.

iii. Topics covered should include “the purpose, advantages, and disadvantages of various types of hearing protectors; the selection, fit, and care of protectors; and the purpose and procedures of audiometric testing.”

11. References

OSHA 29 CFR 1910.95

OSHA 3074 Hearing Conservation Manual

Revision Record:

Date	Comment	Reviewer/Editor