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Hearing Conservation Program

Purpose

To prevent employee hearing loss resulting from exposure to workplace noise over 85 decibels (dBA) averaged over eight (8) working hours.

To establish the requirements to reduce noise exposure by controlling source, implementing work practice controls, and providing PPE, as necessary.

To identify areas / equipment that has high noise levels (over 85 decibels).

Scope

Exposure to excessive noise in the workplace can cause temporary or permanent hearing loss. The objective of the University's Hearing Conservation Program is to control these exposures. The University will provide protection against the effects of noise exposure when sound levels exceed an 8-hour time weighted average (TWA) of 90 dBA. The protective measures may be provided by engineering or administrative controls. If these control measures fail to reduce the noise to acceptable levels, personal protective equipment shall be provided and used by employees. Additionally, whenever an employee's noise exposure level equals or exceeds an 8-hour TWA of 85dBA, referred to as the Action Level, the employee will be included in the University Hearing Conservation Program.

The University will identify areas of potentially hazardous noise and will reduce the noise by feasible engineering controls, administrative controls, or appropriate hearing protection. Work environments are periodically surveyed to identify potentially hazardous noise levels and personnel at risk.

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Definitions

Action Level: An 8-hour time-weighted average of 85 decibels measured on the A scale, slow response, or equivalently, a dose of fifty percent.

Audiogram: A chart, graph, or table resulting from an audiometric test showing an individual's hearing threshold levels as a function of frequency.

Decibel (dBA): Unit of measurement of sound level.

Noise Dose: The ratio, expressed as a percentage, of:

- The time integral, over a stated time or event, of the 0.6 power of the measured SLOW exponential time-averaged, squared A-weighted sound pressure and
- The product of the criterion duration (8 hours) and the 0.6 power of the squared sound pressure corresponding to the criterion sound level (90 dB).

Noise Dosimeter: An instrument that integrates a function of sound pressure over a period of time in such a manner that it directly indicates a noise dose.

Permissible Exposure Level (PEL): Measurements of an employee's noise dose or 8-hour time weighted average sound level that the employers deem to be representative of the exposures of other employees in the workplace.

Sound Level Meter: An instrument for the measurement of sound level.

Time-weighted Average (TWA) Sound Level: That sound level, which if constant over an 8-hour exposure, would result in the same noise dose as is measured.

Monitoring

All faculty and staff with a noise exposure measured at a TWA of 85 dBA or greater are included in the University of Pittsburgh Hearing Conservation Program. To identify occupations and areas included in the Hearing Conservation Program, the Environmental Health and Safety Department (EH&S) conducts noise exposure monitoring. All continuous, intermittent and impulse sound levels from 80 decibels to 130 decibels were integrated into the noise exposure measurement for both personal and area monitoring. Workplaces where the continuous sound level exceeds 90dBA shall have "Hearing Protection Required" signs posted.

Where noise levels fluctuate, a dosimeter may be worn by an employee to measure sound levels over a given period of time. This dosimeter develops a TWA exposure level for the work shift,

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referred to as the “noise dose.” Monitoring will be repeated whenever a change in production, process, equipment, or controls increases noise exposures to the extent that:

1. Additional employees may be exposed at or above the action level; or
2. The attenuation provided by hearing protectors being used by employees may be rendered inadequate.

When personal dosimetry is conducted, EH&S will provide exposure information to the employee(s) monitored and to the supervisor/manager. This information will include exposures above the 8-hour time-weighted average (TWA) of 85 DBA or, equivalently, a dose of fifty percent (50%). EH&S will notify Department supervisors/managers when hearing protection signs are required and shall maintain the University Hearing Conservation records.

The following table identifies the OSHA permissible noise exposures.

Permissible Noise Exposures (100% dose)	
Duration/Day Hours	dBA
16	85
8	90
6	92
4	95
3	97
2	100
1½	102
1	105
½	110
¼ or less	115

Audiograms

Audiometric testing is available to all employees whose potential exposure equals or exceeds an eight-hour TWA of 85 decibels.

This program is provided at no cost to employees. Supervisors will notify employees of who are due for their annual audiometer testing. The employee should contact MyHealth@Work 412-647-4949 to schedule their audiometric testing. All audiograms obtained shall meet the requirements of *Audiometric Measuring Instruments* of Appendix C in the OSHA standard.

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UPMC MyHealth@Work will coordinate and schedule baseline and annual audiograms for employees who may be assigned to tasks with potential exposure to elevated levels of noise.

UPMC MyHealth@Work
 Medical Arts Building
 3708 5th Ave
 Suite 505, 5th Floor
 Pittsburgh, PA 15213
 Phone - 412-647-4949
 myhealththatworkpitt@upmc.edu

Medical history is taken for every employee prior to audiometric testing to document the employee's past and current medical hearing history and recent occupational and non-occupational noise exposure.

When an occupation whose exposure meets the Action Level is identified at the University, a baseline audiogram is offered to each University employee in that occupation. Where baseline audiograms are obtained more than six months after the employee's first exposure at or above the action level, employees are instructed to wear hearing protectors for any period exceeding six months after first exposure until the baseline audiogram is obtained. Testing to establish a baseline audiogram is to be preceded by at least 14 hours without exposure to workplace noise. Hearing protectors may be used as a substitute for the requirement that baseline audiograms be preceded by 14 hours without exposure to workplace noise. The University notifies employees of the need to avoid high levels of non-occupational noise exposure during the 14-hour period immediately preceding the audiometric examination.

At least annually after obtaining the baseline audiogram, a new audiogram is to be offered for each employee exposed at or above an 8-hour time-weighted average of 85 decibels.

Evaluation of Audiogram

Each employee's annual audiogram is compared to that employee's baseline audiogram to determine if the audiogram is valid and if a standard threshold shift has occurred, based on a review of the test by a competent health care provider. MyHealth@Work is responsible for notifying EH&S of all employees who have experienced significant changes in hearing (standard threshold shifts) in order that follow-up investigations may be conducted. If the annual audiogram shows that an employee has suffered a standard threshold shift, a retest may be obtained within 30 days. The University Medical Director for MyHealth@Work will be responsible for the review of audiograms and determine whether there is a need for further evaluation.

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Standard Threshold Shift

The University will record work-related "Standard Threshold Shift," or STS (an average change of 10 dB at 2000, 3000, and 4000 Hz in either ear, compared to baseline; age-adjustments allowed) provided that the employee's average hearing level at the same frequencies in the same ear is 25 dB HL or greater (an average hearing level of 25 dB or more, regardless of employee's age, i.e., no age adjustment allowed).

When audiogram evaluation is complete by MyHealth@Work, a letter is generated and sent to the employee informing him/her of the status of their hearing, whether STS was detected or not.

Follow-up Procedures

If a comparison of the annual audiogram to the baseline audiogram indicates a standard threshold shift has occurred, the University's MyHealth@Work Medical Director shall inform the employee of this fact in writing within 21 days of the determination. The University's MyHealth@Work Medical Director in collaboration with EH&S will ensure that the following steps are taken when a standard threshold shift occurs:

1. Employees not using hearing protectors shall be fitted with hearing protectors, trained in their use and care, and required to use them.
2. Employees already using hearing protectors shall be refitted and retrained in the use of hearing protectors and provided with hearing protectors offering greater attenuation if necessary.
3. The employee may be referred for a clinical audiological evaluation or an otological examination, if additional testing is necessary or if it is suspected that a medical pathology of the ear is caused or aggravated by the wearing of hearing protectors.
4. The employee is informed of the need for an otological examination if a medical pathology of the ear that is unrelated to the use of hearing protectors is suspected.

If subsequent audiometric testing of an employee whose exposure to noise is less than an 8-hour TWA of 90 decibels indicates that a standard threshold shift is not persistent, the University's MyHealth@Work Medical Director will inform the employee of:

1. The new audiometric interpretation; and
2. That he/she may discontinue the required use of hearing protectors

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Revised Baseline

An annual audiogram may be substituted for the baseline audiogram when, in the judgment of the audiologist or the University's MyHealth@Work Medical Director:

1. The standard threshold shift revealed by the audiogram is persistent; or
2. The hearing threshold shown in the annual audiogram indicates significant improvement over the baseline audiogram.

Occupations Requiring Audiograms

The Environmental Health and Safety Department maintains a list of occupations requiring audiograms. EH&S provides MyHealth@Work and applicable supervisors lists of employees who require audiograms, who have not had the audiogram and who require training in each department. EH&S maintains the list, and it is available to anyone.

Hearing Protectors

Hearing protection is made available to all University of Pittsburgh employees who may be exposed to sound levels at or above the Action Level. The decibel reduction (Noise Reduction Rating, NRR) of the hearing protection must be considered in the selection process. Hearing protectors must reduce the noise level below 90 dBA.

Hearing protection must be worn:

1. By employees whose work-related exposure exceeds a TWA of 90 dBA.
2. By any employee who is exposed to an 8-hour TWA of 85 decibels or greater than 50% noise dose and has a documented standard threshold shift.

Employees are given the opportunity to select their preferred hearing protection from a variety of suitable types. EH&S offers guidance into the selection process to ensure that the appropriate noise reduction is achieved.

Visitors (non-employees) to a facility / site where hearing protection is warranted must be furnished hearing protection. It is the responsibility of their University of Pittsburgh escort to ensure the visitor(s) have and wear the equipment.

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Training Program

The Environmental Health and Safety Department in conjunction with the individual University departments will ensure annual training for all employees who are potentially exposed to noise at or above an 8-hour time-weighted average of 85 decibels.

The training program ensures each employee is informed of the following:

1. The effects of noise on hearing;
2. The purpose advantages, disadvantages, and attenuation of various types of hearing protectors, and instructions on selection, fitting, use, and care of hearing protectors;
3. The purpose of audiometric testing, and an explanation of the test procedures.
4. The University of Pittsburgh Hearing Conservation Program requirements.

Access to Information and Training Materials

Upon request, the University through EH&S will make available to affected employees, or their representatives, copies of this Program and any informational materials pertaining to the Program or related standards.

Recordkeeping

All records associated with this Program will be kept in accordance with OSHA requirements.

The University of Pittsburgh retains the required records in the following manner:
EH&S maintains accurate records of all employee exposure measurements.

MyHealth@Work retains all employee audiometric test records obtained pursuant to OSHA regulation. This record includes:

1. Name and job classification of the employee;
2. Date of all audiograms,
3. Date of the last acoustic or exhaustive calibration of the audiometer; and
4. Employee's most recent noise exposure assessment.

EH&S documents the training of all employees participating in the Hearing Conservation Program.