**(Model SOP)**

**United States Army**

**Name of the Clinic**

**Occupational Health**

**(OFFICE SYMBOL) SOP No.\_\_\_\_\_\_**

 **Effective Date\_\_\_\_\_**

**Date Removed from Service\_\_\_\_\_**

**HEARING PROGRAM SOP**

**1. PURPOSE**

To protect personnel from hearing loss due to occupational noise exposure. The requirements herein are applicable to all military and civilian personnel exposed to hazardous noise.

**2. AUTHORITY AND REGULATORY COMPLIANCE**

Federal, DoD and Army regulations governing audiology for civilian and military are included below in the Reference section of this SOP.

**3. REFERENCES**

1. 29 CFR 1910.95, OSHA, Occupational Noise Exposure
2. DoDI 6055.12, Occupational Safety and Health Program, 3 December 2010
3. DoD 6055.05-M, Occupational Medical Examinations and Surveillance Manual, 16 September 2008
4. ALARACT 034/2013, ALARACT Clarification of AR 40-501/AR 190-56 Requirements for Speech Recognition In Noise Test (SPRINT) Administration
5. Army Regulation 40-5, Preventive Medicine, 25 May, 2007
6. Army Regulation 40-501, Standards of Medical Readiness, 14 December 2007 (RAR: 23 August 2010)
7. Army Regulation 190-56, Army Civilian Police and Security Guard Program, 15 March 2013
8. Army Regulation 385-10, Army Safety Program, 02 Jul, 2013
9. DA PAM 40-501, Hearing Conservation Program, 10 December 1998
10. DA PAM 40-11, Preventive Medicine, 22 Jul, 2005 (RAR: 19 October 2009)

**4. ABBREVIATIONS / TERMS**

 AL - Action Level

 AHLTA - Armed Forces Health Longitudinal Technology Application

 CAOHC - Council for Accreditation in Occupational Hearing Conservation

 dBA - A-Weighted Decibels

 dBP - Peak Decibels

 DOEHRS-DR - Defense Occupational Environmental Health Readiness - (Central) Data

 Repository

 DOEHRS-HC - Defense Occupational Environmental Health Readiness - Hearing Conservation

 HC - Hearing Conservation

 HPM - Hearing Program Manager

HPD - Hearing Protection Device

 MEDPROS - Medical Protection System

 OHC - Occupational Health Clinic

 OHN - Occupational Health Nurse

 SM - Servicemembers

 SPL - Sound Pressure Level

 SPRINT - Speech Recognition In Noise Test

 STS - Significant Threshold Shift

 TWA - Time Weighted Average

**5. RESPONSIBILITES AND PROCEDURES**

1. Determining Who Requires Placement in a Hearing Program
2. Industrial Hygiene will perform noise measurements to determine if a hazard exists

1. Workers who are at risk for or have a known exposure to continuous noise equal to or exceeding 85 dBA for an 8 hour TWA and/or impulse noise equal to or exceeding 140 dBP are required to be placed in a Hearing Conservation Program (In non-technical terms, if the noise is continuous or intermittent and you must raise your voice to be understood at a distance of 2-3 feet, the noise is probably hazardous. If the noise is created by weapons fire, for example, it is impulse noise and it is hazardous)
2. Medical Surveillance Exam Procedure (DoD 6055.05-M, Table C2.T15)



1. Baseline (Reference) Audiogram
2. The baseline audiogram will occur:
3. Within one month of first exposure at or above the AL
4. For Servicemembers, as soon as possible after entering active duty, but prior to noise exposure
5. All civilian personnel being considered for employment in an occupational specialty or area that involves routine exposure to hazardous noise shall receive a reference hearing test
6. The baseline audiogram will be preceded by 14 hours without exposure to noise in or out of the workplace
7. The baseline audiogram will be recorded on DD Form 2215, “Reference Audiogram”
8. Annual Audiogram
9. The annual audiogram will be performed while the worker continues to be exposed or at risk for exposure to noise above the AL
10. A comparison of each annual audiogram to the baseline audiogram will occur
11. Problems or abnormalities (e.g. a STS, see Section 5a of this SOP) discovered during any exam will be referred to an Audiologist, Otolaryngologist, or Physician
12. Annual audiograms will be recorded on DD Form 2216, “Hearing Conservation Data/Period/Annual/Termination” and be used in comparison to the Reference Audiogram and prior Annual audiograms as needed
13. Termination Audiogram
14. The termination audiogram is performed in the same manner as the annual audiogram and is recorded on DD Form 2216
15. This audiogram will performed within 12 months of termination of employment or termination of routine hazardous noise exposure as defined in Section 4 of DoDI 6055.12
16. In addition, all military personnel exposed to hazardous noise will receive a termination audiogram recorded prior to leaving military service
17. Performance Standards for Audiograms
18. Standards for performing audiograms include the following:
19. Interpretation of audiograms will only be performed by a licensed audiologist, otolaryngologist, or other qualified physician
20. A nurse or technician who has attended training approved by CAOHC or obtained equivalent military training may perform audiogram testing
21. A nurse or technician who performs audiometric tests shall be responsible to an audiologist, an otolaryngologist, or other qualified physician
22. The testing environment with background octave band SPLs should not be greater than:
23. 500 Hz, 27 dB
24. 1000 Hz, 29 dB
25. 2000 Hz, 34 dB
26. 4000 Hz, 39 dB
27. 8000 Hz, 41 dB
28. The test environment will be resurveyed annually using equipment conforming at

least to the Type 1 requirements of Reference (i) and the order 3 extended range requirements of ANSI Standard S1.11 (Reference [p])

1. Include pure tone, air conduction, hearing thresholds for each ear at the test

frequencies of 500, 1000, 2000, 3000, 4000, and 6000 Hz. This Instruction does not preclude testing at 8000 Hz

1. Audiometers will be calibrated to the specifications of ANSI Standard S3.6 (Reference [q])
2. Audiometers will have a functional operation check before each day’s use for specifications in subpart 1910.95 of Reference (n) as prescribed by Reference (e)
3. The technician will track all STS and abnormal hearing changes. Results will be reported to the provider or OHN responsible for Installation Hearing Program to be published quarterly and annually
4. Speech Recognition in Noise Test (SPRINT)
5. A SPRINT must be completed on all SM with an H-3 MEDPROS hearing profile and civilian police / security guards with qualifying hearing impairment according to their respective Army regulations
6. If a SPRINT is required, this will be completed by a licensed audiologist
7. Abnormal Results and STS
8. A significant threshold shift (STS) constitutes a change in hearing of an average of ≥ ± 10 dB at 2000, 3000 and 4000 Hz in either ear (OSHA 1910.95)
9. An early warning shift in hearing, as defined by the DoD, is any change of ≥ ± 15 dB at 1000, 2000, 3000 or 4000 Hz in either ear, relative to the current reference audiogram
10. Follow-up audiometric testing (DD Form 2216) shall be conducted when an individual’s audiogram shows an STS relative to the applicable reference audiogram for each ear. Further review and/or evaluation are required, if the STS persists, to validate the existence of a permanent noise-induced threshold shift and/or to determine if further medical referral is required
11. An audiologist, an otolaryngologist, or other physician shall perform evaluations to determine whether the STS is work-related or has been aggravated by occupational noise exposure
12. When a positive STS (decrease in hearing threshold from the reference audiogram) is noted on the periodic audiogram (DD Form 2216), two noise-free follow-up tests are administered to confirm that the decrease in hearing is permanent. Those two follow-up tests must be preceded by at least 14 hours noise free (<80 dBA); both follow-up noise-free tests may be administered on the same day but not on the same day as the periodic audiogram. If the results of the first follow-up test do not indicate an STS, a second follow-up test is not required
13. For DoD civilians, the follow-up testing must be conducted within 30 days of the periodic test showing the STS
14. For active duty members, 30 days remains the recommended window to complete follow-up testing, but may be extended up to but not beyond 90 days. Should the time be exceeded, the STS remains unresolved and the process starts anew with the next test
15. Refer to Section 7 (Recordkeeping) for reporting of abnormal results and STS
16. When a negative STS (improvement in hearing threshold from the reference audiogram) is noted on the periodic audiogram, one follow-up test is required and may be administered the same day as the periodic test. Noise-free hours are not required in the presence of a negative STS. The results of the follow-up test may be used to create a reestablished reference audiogram
17. Required Annual Training for Servicemembers and DoD Civilians
18. Each hearing conservation encounter is required to include training on hazardous noise exposure prevention
19. Topics will include:
20. The effects of noise on hearing
21. The purpose of hearing protection
22. The advantages, disadvantages, and attenuation of various hearing protectors
23. Instructions on selection, fit, use, and care of hearing protectors
24. Mandatory requirement of assigned protective equipment, and administrative actions that may follow for failure to wear
25. The purpose of audiometric testing
26. An explanation of the audiometric test procedures
27. The fact that hearing loss may lead to disqualification from current duties
28. All personnel shall be encouraged to use hearing protectors when exposed to hazardous noise during off-duty activities
29. Personnel will be advised of the status of their hearing each time a hearing test is given
30. Recordkeeping
31. The clinical outcomes of each hearing conservation medical surveillance exam will be documented and properly coded in the Electronic Health Record (AHLTA)
32. OHC personnel will record each exam in DOEHRS-HC for hearing conservation and readiness monitoring
33. Hearing test results must be exported by the technician to the DOEHRS-HC DR at the end of each test day. A DOEHRS-HC data file is made available to MEDPROS on a bi-weekly basis for MEDPROS to use for Soldier Hearing Readiness Classification purposes
34. Notification procedures for STS
35. The individual and his or her supervisor will be notified immediately, in writing, that a possible change has occurred in his or her hearing and that follow-up testing is required
36. When a positive STS is confirmed on the second follow-up hearing test, the HPM or designee notifies:
37. The employee, in writing, within 21 days after completion of the audiogram
38. The employee’s immediate supervisor and the unit HC officer
39. The OH nurse for inclusion in any OH reports
40. The Safety and Occupational Health Advisory Council (See AR 385–10)
41. Reporting OSHA Reportable Hearing Loss
42. All OSHA reportable STS findings are required to be recorded on an OSHA 300 log for civilians and DA Form 285 (US Army Accident Report) for military personnel
43. When an OSHA reportable hearing loss occurs, the HPM must notify both the employee and employee’s supervisor, in writing, within 21 days after completion of the hearing test identifying the OSHA reportable hearing loss
44. Within 6 workdays of this written notification the civilian employee and the employee’s supervisor must complete either of the following forms:
45. Department of Labor (DOL) Form CA–1 (Federal Employee’s Notice of Traumatic Injury and Claim for Continuation of Pay/Compensation) for acoustic trauma only and for a one-time accident
46. DOL Form CA–2 (Notice of Occupational Disease and Claim for Compensation)
47. Military personnel and their unit commander must complete the DA Form 285
48. Combat-related hearing loss is not considered OSHA reportable or reportable through safety channels (not considered accidental)
49. Completing the DOL Form CA–1 or 2 does not require that a claim for compensation be filed unless the employee desires
50. When completed, all forms (DOL Form CA–1, DOL Form CA–2, and DA Form 285) must be sent to the safety and/or OH offices. If illness logs are maintained by the OH office and injury logs are maintained by the safety office, copies of both logs will be available at either location for employee review
51. Any civilian hearing loss claims that are controverted or otherwise challenged shall be logged. Claims denied by the Office of Workers’ Compensation Programs may be deleted from a log
52. **APPENDICES**

**Appendix A: Audiometric Test Booth Certification**

**Appendix A**

**Audiometric Test Booth Certification**

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**Audiometric Test Booth Certification Form**

|  |  |  |  |
| --- | --- | --- | --- |
| Command Owning Booth: |  | Date: |  |
|  |  |  |

* Stationary Booth **❑** Portable Booth **❑** MOHV Booth

Booth Location (Bldg/Rm/Space): Single/Double Wall:

Booth Manufacturer: Serial/Prop #:

Booth Lights (On/Off): Booth Fan (On/Off):

|  |  |  |
| --- | --- | --- |
| **Types of Audiometric Testing Conducted in Booth** | **Octave Band Center Frequency (Hz)\*Max SPL allowed (dB)** | **\*\*Certified** to conduct this type of audiometric testing **(Yes/No)** |
| **125** | **250** | **500** | **1000** | **2000** | **4000** | **8000** |
| **Medical Surveillance Testing (Ears Covered) -** AH P (DD2215/16), physical exams, PHA's, etc | N/A | N/A | 27 | 29 | 34 | 39 | 41 |  |
| **Diagnostic Audiology Testing (Ears Covered) -** Headphones | 39 | 25 | 21 | 26 | 34 | 37 | 37 |  |
| **Diagnostic Audiology Testing (Ears Not Covered) -** Sound field testing or bone conduction testing | 35 | 21 | 16 | 13 | 14 | 11 | 14 |  |
| **SPL Measured Inside Booth (dB)** |  |  |  |  |  |  |  |  |

**SPL Measured Outside the Booth (Info Only): (dBA): (dBC) :**

|  |  |  |
| --- | --- | --- |
| **Field Pre-Calibration (Ref dB/Measured dB): Field Post-Calibration (Ref dB/Measured dB) :** |  **/** | * **PASS** ❑ **FAIL**
* **PASS** ❑ **FAIL**
 |
| \_\_\_\_\_\_\_\_\_/\_\_\_\_\_\_\_\_\_\_ |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **EQUIPMENT DATA** | **Manufacturer** | **Model #** | **Serial #** | **Cal Date** |
| SLM |  |  |  |  |
| Microphone |  |  |  |  |
| Octave Band Filter |  |  |  |  |
| Calibrator |  |  |  |  |

**Comments/Notes:**

Certifier Name (Print) Signature Command Phone

\*Max permissible ambient noise level (MPANL) criteria for diagnostic audiology testing from 250 Hz to 8000 Hz per ANSI S3.1, 1999 (R2088) and DODI 6055.12 (03 Dec 2010) for medical surveillance testing.

\*\*Any significant new noise (inside or outside the booth) or relocation of the booth requires recertification.

**Basic Procedures for Audiometric Booth Certification
for Testing Thresholds Down to 0 dB HL**

**Background Information**

* All audiometric booths require, at a minimum, annual certification.
* Coordination with an Audiologist is critical to clearly identify what type(s) of audiometric testing is conducted in the booth, as there are three distinct approval criteria depending on booth purpose.

**Procedures**

* At a minimum, a Type I sound level meter (SLM) with octave band filter/analyzer (OBA) is required. The SLM, OBA and microphone must be capable of measuring at least 3 dB below the applicable criteria "Max SPL" values listed in the table on the certification form. Check the meter specifications. The most common SLM, OBA and microphone ensemble will not meet the stringent criterion for "Diagnostic Audiology Testing, Ears Not Covered (sound field & bone conduction testing). The SLM, OBA, microphone, and calibrator must each have been professionally calibrated within one year.
* Obtain measurements inside the booth under normal operational conditions during activity levels that are representative of anticipated use conditions, including internal conditions (lights and ventilation turned on).
* Record the sound pressure level at 125 Hertz (Hz) and above if the clinician normally tests at 250 Hz and above and record at 500 Hz and above otherwise.
* Perform pre- and post-measurement field calibrations of the sound level meter.
* Obtain octave band readings in the "Linear or All Pass" setting, slow response mode. Significant errors occur if the "A" weighting network is engaged.
* Sit in the patient's chair with sound level meter held away from your body at head height or
* Set up a tripod at this location and permit measurement without your presence in the booth. This method will

 eliminate data contamination from deep breathing or other body and clothing sounds while taking

 measurements.

* Select the desired octave band, dial in slow response, and take the reading. Record results for each required octave band.
* For multiple station booths, check levels at seats closest and furthest from the door, and record the higher values.
* Have someone talk outside the booth to see if the booth meets certification under that condition. If external conversation precludes valid testing, annotate this on the certification form.
* Record all values, and document all equipment data on the form. Sign, date, and post the certification on the exterior of the booth or on an adjacent wall. Retain a file copy.
* For Mobile Occupational Health Vehicle (MOHV) booths conduct the above certification procedure at the location most often used. Realistic external noise/activity should be in effect for an accurate and meaningful certification.
* It is impractical to re-certify mobile booths each time they are moved to a different location, however, readings may be taken at each of the primary customer locations.
* Occasional cross-traffic, generators, flyovers, etc., all have the potential to invalidate test results. Some

 alternatives to ensure test validity:

* Conduct/document booth certification at each prospective test location under worst case conditions
* Do a test audiogram (on a normal listener) at each location prior to beginning patient care
* Any significant new noise (inside or outside of the booth) or relocation of the booth requires recertification.

**Troubleshooting Booths Not Meeting Certification Requirements**

* If low frequencies (500 Hz or below) fail certification, re-check ambient levels with the fan turned off. If fan noise is determined to be the problem, then initiate fan repair or replacement.
* Electrical lighting may be a source for low frequency noise in the form of 60-cycle hum, with harmonics migrating into the 500 Hz test range. Initiate repair or replacement if needed.
* Leaks may occur around the jack panel. Sound attenuating material should be carefully packed around the wiring to seal the opening. Contact Biomedical Repair staff to conduct continuity checks and clean/replace jacks and plugs as needed.
* Door seal problems may occur due to hardened or worn out foam seals. These must be replaced. The door may also be hung improperly.
* If the above actions do not solve the problem, consider removing/relocating external noise sources, relocating the booth, adding isolators, or obtaining replacement.
* Evaluate external noise sources for their contributions to the problem and remediate accordingly.