OHS instructions

OHSI 5.3 Screening Audiometry

1.Purpose and Scope

To describe the arrangements for audiometric screening in connection with hearing conservation programmes and fitness for work assessments. Applies to all areas and departments.

2.Definitions

LEP,d – The daily personal noise exposure of an employee, in dB(A).

LEP,w – The weekly personal noise exposure of an employee, in dB(A).

LCpeak – The peak sound pressure level, in dB(C).

Lower exposure action values

(a) a daily or weekly personal noise exposure of 80 dB (A-weighted); and

(b) a peak sound pressure of 135 dB (C-weighted).

Upper exposure action value

(a) a daily or weekly personal noise exposure of 85 dB (A-weighted); and

(b) a peak sound pressure of 137 dB (C-weighted).

Exposure limit value

(a) a daily or weekly personal noise exposure of 87 dB (A-weighted); and

(b) a peak sound pressure of 140 dB (C-weighted).

Noise exposed workers – Employees whose exposure to noise represents a risk to their health. This means all workers regularly exposed above the upper exposure action level. If it is discovered that a worker may be particularly sensitive to noise they should also be considered to be a noise exposed worker if their exposure is above the lower exposure action level or if it is only occasionally above the upper action level.

Screening audiometrician - Nurse, doctor or other person who has received appropriate training in the techniques of screening audiometry

Occupational physician - Registered medical practitioner with diploma or higher qualification in occupational health (AFOM, MFOM, FFOM or specialist accreditation)

3.Principles

Audiometric screening programmes will be in accordance with HSE guidance1).

Audiometric screening will be carried out in order to ensure that individuals are fit for their work, to identify features of noise induced hearing loss and to detect pre-existing disease, which may later be confused with the effects of current exposure.

Populations requiring audiometric screening will be identified as a result of a risk assessment process.

Employees working in an environment where exposure to noise equals or exceeds the upper exposure action value will normally be included.

Screening audiometry will be performed in an environment that permits measurements of hearing thresholds down to 0 dB.

All equipment will be regularly maintained and calibrated in accordance with the manufacturers recommendations.

Wherever possible the criteria described in BS EN ISO 8253-1:2010 will be followed 3).

4.Responsibilities

4.1. First Line Manager

Ensure that risk assessments have been completed in respect of workers who are exposed to noise and specific occupations requiring a particular standard of hearing.

Identify to occupational health any population requiring screening audiometry. Notify any joiners and leavers.

4.2. Employee

Attend for audiometric screening as directed.

Report any hearing difficulties to occupational health or their first-line manager.

Comply with hearing conservation measures.

4.3. Screening Audiometrician

Perform audiometry as detailed in appendix 1.

Instruct employee regarding hearing conservation measures.

Advise employee and first line manager of outcome of assessment, any restrictions and the date of next assessment

Make an entry in the health record and medical record.

Discuss cases of suspected hearing abnormality with the occupational physician.

4.4. Occupational Health Physician

Provide advice regarding risk assessments and hearing conservation programmes.

Assess employees referred by the screening audiometrician and advise on fitness for work. Communicate as appropriate with other health professionals.

Notify line management regarding any cases of unfitness, noise induced hearing loss or suspected failure of control measures.

5.Audit Criteria

Are correct populations identified?

Are records made and information given to managers?

Are employees referred to occupational physician in accordance with criteria?

Is equipment correctly maintained and calibrated?

6.References

1. Controlling Noise at Work – The Control of Noise at Work Regulations 2005. Guidance on Regulations. L108. HSE Books. ISBN 978 0 7176 6164 4 2nd Edition 2005 http://www.hse.gov.uk/pubns/books/l108.htm
2. The Control of Noise at Work Regulations 2005. Statutory Instrument 2005 No. 1643. http://www.opsi.gov.uk/si/si2005/20051643.htm
3. BS EN ISO 8253-1:2010 Acoustics — Audiometric test methods Part 1: Pure-tone air and bone conduction audiometry.
4. OHS questionnaire AudioQ.doc

5.Revision History

Author	Issue	Date	Reason for revision	Review by
David Shackleton	1	March 2000	First Issue	March 2002
David Shackleton	2	October 2006	Incorporate Control of Noise At Work Regs 2005	October 2009
David Shackleton	3	March 2014	Updated references	March 2017

These occupational health instructions are aimed at a level analogous to local rules or work instructions within a corporate hierarchy of policies on health, safety, environment and human resources.

Appendix 1. Audiometric Assessment

1. Criteria for inclusion

New employees. All new employees or transferees except those whose normal duties will be confined to an office environment.

Noise exposed employees. Employees whose exposure to noise represents a risk to their health. This means all workers regularly exposed above the upper exposure action level. If it is discovered that a worker may be particularly sensitive to noise they should also be considered to be a noise exposed worker if their exposure is above the lower exposure action level or if it is only occasionally above the upper action level.

Specific occupations. Employees who are required to have a particular standard of hearing to carry out the duties safely and effectively -- as defined in individual policies.

2. Frequency of assessment

New employees. As part of a pre-employment or pre-transfer medical assessment.

Noise exposed. Annually for the first two years of exposure and at least three yearly thereafter.

Specific occupations. As directed in individual policies.

NB. Additional audiometry may be required as directed by the occupational physician.

3. Content of assessment

Initial or baseline audiometry must be performed when the subject is free from the effects of temporary threshold shift. The subject must be instructed to avoid noise exposure (any environment where they have to shout to be heard) for 24 hours prior to the test.

Regular screening audiometry can be performed regardless of noise exposure providing the details are recorded. However, if the result is not normal (category 1) then a further recording will be made after avoiding noise exposure for 24 hours.

Examine nose, oropharynx, external auditory meati and tympanic membranes using auriscope.

Complete history and examination findings on form AudioQ.doc

Perform audiometry

The subject may be instructed as follows:

"We are going to test your hearing by finding out the quietest sounds you can hear. You will hear a series of tones, first low pitch and getting higher before becoming low pitch again. Do your best to listen for the quietest tones. We test the left ear first, then the right. Whenever you hear a tone in the headphone, press the button. Keep it pressed until the tone goes away, then let go" (some procedures require a single press each time a tone is heard).

Fit headphones. Remove glasses, earrings and hearing aids, ensure that hair is out of the way and position middle of each headphone cup directly opposite the external auditory meatus.

Start automatic or manual audiometry sequence and ensure that the subject does not receive any cues.

Print results and record relevant comments directly on the audiogram e.g. history of noise exposure on day of test or subject complaint of tinnitus / external noise.

Record category, action to be taken, date of next test and advice given to subject. Update health record and notify first line manager of outcome of assessment.

4. Criteria for Referral

Specific occupations. In accordance with the relevant fitness standard.

Noise exposed and new employees. Action is based on HSE categorisation:

1 For each ear separately, add up the hearing losses at the frequencies 1,2,3,4 and 6 kHz and record the two resulting figures.

2 Compare each figure with the table below, taking into account the subjects age and sex.

3 If both figures are below the warning level the individual has **acceptable hearing ability - category 1** . Hearing is within normal limits.

4 If either figure is equal to or above the warning level the individual has **mild hearing impairment – category 2** . Hearing below 20th centile. Notify the employee of the significance of the finding and make a record.

5 If either figure is equal to or above the referral level the individual has **poor hearing – category 3.** Hearing below 5th centile. Arrange medical referral to occupational physician or GP.

6 If the individual falls into category 2 or 3, *and* their last test was performed within the last three years then another calculation is performed to determine whether there has been a rapid loss of hearing since the last examination. For each ear separately add up the hearing losses at 3,4 and 6 kHz and do the same calculation for the last examination. If the sum of losses has increased by 30 dB or more then there is **rapid hearing loss – category 4.** Arrange medical referral to occupational physician or GP.

7 Finally, for each ear add up the hearing losses at 1,2,3 and 4 kHz. If the difference between the two ears is greater than 40 dB there is **unilateral hearing loss**, which may be due to ear disease or infection. There is no categorisation for this problem and the individual should be referred to their doctor.

	Sum of hearing levels 1,2,3,4 and 6 kHz			
	Males		**Females**	
age in years	**warning level**	**referral level**	**warning level**	**referral level**
18-24	51	95	46	78
25-29	67	113	55	91
30-34	82	132	63	105
35-39	100	154	71	119
40-44	121	183	80	134
45-49	142	211	93	153
50-54	165	240	111	176
55-59	190	269	131	204
60-64	217	296	157	235
65+	235	311	175	255

NB: A subject may be placed in more than one category. Automated equipment can perform these calculations if previous readings are known.

Appendix 2. Equipment - Use, Maintenance and Calibration

Append details for audiometer in use.