

British Society of Audiology

Promoting excellence in hearing and balance



Minimum Training Guidelines

Surveillance Audiometry

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General foreword

This document is one of a family of BSA Minimum Training Guidelines, which also includes Otoscopy & Impression Taking, Aural Care, Ear Examination and Basic Audiometry & Tympanometry – all of which allow the awarding of BSA Certificates.

Although care has been taken in preparing this information, the BSA does not and cannot guarantee the interpretation and application of it. The BSA cannot be held responsible for any errors or omissions, and the BSA accepts no liability whatsoever for any loss or damage howsoever arising. This document replaces the BSA Minimum Training Guidelines for Industrial Audiometricians (2008) and stands until superseded or withdrawn by the BSA.

All practitioners who undertake these procedures after having attended a BSA accredited course are advised to have an awareness of their own scope of practice and understand their own limitations. The BSA highly recommends supervision and support as required by the individual. Comments on this document are welcomed and should be sent to:

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Authorship

This document was produced by the BSA Professional Guidance Group; the review was coordinated by R. Rendell. The Group thanks all those who have contributed to this document and its previous versions.

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1. Contents

2. Introduction and aims.....	3
3. The role of surveillance audiometricians.....	4
3.1 Training	4
3.2 Training syllabus	5
4. Examinations.....	8
5. Course accreditation and moderation.....	8
6. References.....	9

2. Introduction and aims

This document replaces previous BSA guidance on the training of industrial audiometricians (2008), and has been produced in accordance with the Society’s procedure for processing documents.

Audiometry is often carried out on employees and others exposed to noise. Such tests do not normally include bone-conduction or masking, and are used to identify those whose hearing is beyond normal limits and may have been affected by noise exposure (see Health and Safety Executive, HSE, 2005 for details of required tests, and interpretation of results, for those employed in noisy occupations). Testers in these situations do not usually hold formal audiological qualifications. This document outlines the minimum training recommended for undertaking surveillance audiometry, and can be used as a guide by training providers. Anyone satisfactorily completing a BSA accredited course in surveillance audiometry may be awarded a BSA certificate.





Further specific training in surveillance audiometry is not normally required for those who already hold a suitable qualification in audiology, such as an audiology degree or registration as a hearing aid dispenser. All those undertaking surveillance audiometry (surveillance audiometricians) on subjects exposed to noise must be familiar with the HSE document mentioned above.

3. Role of surveillance audiometricians

The specific role will vary with the individual situation, however surveillance audiometricians are typically required to:

- Undertake a brief subject interview and/or administer a questionnaire regarding otological and noise history
- Perform ear examination (otoscopy) and pure-tone air-conduction (a-c) threshold audiometry without masking, both in accordance with BSA recommended procedures. Audiometry may be manual or automated
- Interpret results and, where appropriate, classify them in accordance with HSE guidelines
- Relay information to subjects and, with consent, to the employer or other person with overall responsibility for that particular hearing test programme
- Make appropriate 3rd party referrals

3.1 Training

Those undertaking surveillance audiometry are not expected to have an in-depth knowledge of audiology. However they must have the required skills, together with sufficient and relevant underpinning knowledge, to allow them to perform the role to a high standard. Those providing training are advised to follow these guidelines.

Training candidates need to have knowledge and skills in the following areas:

- a. Communication needs of hearing impaired people
- b. Anatomy and physiology of the outer, middle and inner ear, with particular reference to the effects of excessive sound on these structures
- c. Hygiene and disinfection, and risks of cross-infection
- d. Safe technique for ear examination





- e. Identification of the structures of the outer ear and eardrum
- f. Contraindications to audiometry
- g. Manual and automated audiometry
- h. Referral criteria and process
- i. Basic hearing protection in noise
- j. The need for third party insurance

On successful completion of training, candidates will be able to:

- a. Give clear instructions to test subjects (including those with hearing loss)
- b. Examine the outer ear without an otoscope
- c. Perform thorough and safe otoscopy on adults and older children
- d. Recognise abnormal conditions and refer accordingly
- e. Perform manual a-c audiometry
- f. Perform automated a-c audiometry
- g. Interpret the audiogram, with reference to the hearing categories given by the HSE, and ensure appropriate advice is given (including onward referral if required)
- h. Maintain accurate subject records
- i. Advise on basic hearing protection in noise
- j. Apply reasonable standards of quality control in the gathering and use of results

It is also recommended that surveillance audiometricians undergo refresher training or competency review every three years.

3.2 Training syllabus

The training should be practical and include extensive 'hands-on' experience of audiometry, ear examination and appropriate analysis of audiograms, under the direct supervision of qualified, experienced tutors.

The following syllabus represents the minimum training requirements for surveillance audiometry. The stated durations are a guide only. The teaching of theoretical items should be interspersed with practical work.

1. Basic acoustics (40 minutes)

- Concepts of sound pressure level & frequency; loudness & pitch





- Nature of dB SPL and dB(A) scales
- Use of a simple sound level meter
- Introduction to audiogram format and what it shows
- Concepts of surveillance and diagnostic audiometry

2. The ear and threshold of hearing (1 hour)

- Basic anatomy of the ear
- Physiology of the hearing process
- Statistical definition of normal hearing
- Types and features of hearing loss including conductive, sensorineural and mixed
- Degrees of loss
- Non-organic hearing loss

3. Noise-induced hearing loss and social handicap (1 hour)

- Pathology of noise-induced hearing loss (NIHL), temporary and persistent hearing loss and tinnitus
- Audiometric characteristics of NIHL, presbycusis and other common high frequency losses
- Risks from occupational, non-occupational and gunfire noise
- Importance of inter-subject variability
- Peak sound pressure, equivalent continuous noise level and equivalent personal daily exposure
- Recommended exposure limits for continuous and impulse noises
- Effects of NIHL on speech discrimination
- Disability, handicap and social consequences associated with NIHL

4. Personal hearing protection (50 minutes)

- Types of protector and their relative effectiveness for different situations
- Importance of fit and of full-time usage
- Hygiene and care of protectors
- Comfort issues and compatibility with other protective devices
- The role of ear examination to check for abnormalities of the outer ear (including the ear canal and eardrum) which could affect hearing protection use





5. Audiometry (1 hour 20 minutes)

- Objectives of surveillance audiometry
- Environmental conditions, sound-attenuating booths
- Factors affecting accuracy of audiometry including background noise, visual cues and other distractions
- Test-retest variability
- Care and preparation of subjects including administration of questionnaires
- Ear examination to check outer ear and ear canal, in accordance with BSA recommended procedure
- Instructions to subject, fitting of earphones and monitoring of subject during tests
- BSA procedure for manual audiometry as required by the current HSE guidelines
- Manual and automated audiometers; automated audiometry methods
- Effects of tinnitus, indications of non-organic hearing loss, acceptability of performance and requirement to repeat for practical or health reasons
- Data storage, handling and protection
- Subjective and objective calibration requirements and procedures
- Care and maintenance of equipment and identification of common faults

6. Audiogram categorisation (2 hours)

- Review of manual and automatic audiogram formats and symbols
- Assessing the validity of audiograms
- Categorisation of results according to HSE guidelines, the effects of age and gender
- Difficulties arising from borderline test results

7. Organisation of audiometric programme (30 minutes)

- Role of surveillance audiometricians
- Confidentiality and legal aspects, noise at work regulations
- Correctly reporting the findings verbally and in writing
- Anonymous reporting of results where consent for disclosure has not been given
- Referral procedures
- Role of baseline audiograms
- Importance of recent noise exposure and temporary threshold shift (TTS)
- Educational benefits of audiometry in a hearing conservation programme





8. Practical (5 hours)

- Ear examination (otoscopy)
- Manual and automated audiometry

4. Examinations

Examinations will accompany a training course to qualify a surveillance audiometrician within a BSA accredited course. Course providers can determine their own assessment methods but, as a guide, course examinations might consist of these components:

- A 30 to 40 minute written paper consisting of 10 to 20 questions requiring short answers, or a multiple-choice question format, to briefly test all aspects of the course material
- A practical examination lasting 15 to 30 minutes, in which candidates are required to demonstrate proficiency in performing otoscopy, and manual audiometry
- A short oral examination of the candidate's understanding of manual audiometric procedure, audiogram interpretation (according to HSE guidance) and reporting of results

It is anticipated that a course of 2 days in the classroom, plus homework or distance learning, would be the minimum required to cover the syllabus. Training may be spread over a longer period and additional topics, relevant to specific workplace settings, may be covered.

A BSA Certificate in Surveillance Audiometry will be awarded to students completing an accredited course and the BSA will maintain a register of certificates awarded.

5. Course accreditation & moderation

Applications from course providers for accreditation should be sent to the BSA Learning Events Group, who are also able to advise on content, assessments etc. (see BSA guidance on applying for course accreditation).





The BSA will not bear the financial burden of setting up or running training schemes directly. A nominal charge is payable to BSA to cover the cost of accreditation and moderation.

6. References

Where references are undated, refer to the given website for the current versions

Health & Safety Executive. Controlling noise at work The Control of Noise at Work Regulations 2005 – Guidance on Regulations. HSE (2005)

BSA Minimum Training Guidelines: Industrial Audiometry. British Society of Audiology (2008)

BSA Procedure for Processing Documents. British Society of Audiology. www.thebsa.org.uk

BSA Recommended Procedure: Ear Examination. British Society of Audiology.
www.thebsa.org.uk

BSA Recommended Procedure: Surveillance Audiometry. British Society of Audiology.
www.thebsa.org.uk

BSA Guidelines: How to gain accreditation for a BSA Certificate course. British Society of Audiology. www.thebsa.org.uk

