*UNION EUROPEENNE DES MEDECINS SPECIALISTES (UEMS)*
*EUROPEAN UNION OF MEDICAL SPECIALISTS (UEMS)*

# SUBSPECIALTY LOGBOOK Audiology / Audiovestibular medicine

**(revision 2024)**

# TRAINING PROGRAMME

## INTRODUCTION

The UEMS ORL Section and Board of Otorhinolaryngology has revised this subspecialty logbook in 2024. This programme will serve as a guideline for training centres enabling them to meet the European Standard as set out by the European Board of UEMS. We are moving towards competence-based assessments.

### WORKING GROUP

Lana Kovac Bilic, Kenneth Muscat, Snezana Aivoric Filipovic

## DEFINITION

Otorhinolaryngology (ORL) is the specialty which deals with functions and diseases of the ear, nose, throat, skull base, head and Neck. Disorders include trauma, malformations, tumors, infections and other disorders in childhood and in adults of the ear, temporal bone, lateral skull base, nose, paranasal sinuses, anterior skull base, oral cavity, pharynx, larynx, trachea, esophagus, head, neck, thyroid, salivary and lacrimal glands and adjacent structures. It also includes investigation and treatment of conditions affecting the auditory, vestibular, olfactory and gustatory senses and disorders of the cranial nerves as well as human communication in respect of speech, language and voice disorders. Some of the conditions diagnosed by otorhinolaryngologists but located in adjacent areas will be treated with close co-operation with these related specialists.

The subspecialty of Audiology / Audiovestibular medicine is composed of ORL doctors who have acquired specialized knowledge and high skills during their subspecialty training in the history-taking, examination, investigation, diagnosis and treatment of hearing loss and vestibular disorders as defined in the accompanying subspecialty log book.

## THE TRAINING PROGRAMME

The training programme will consist of the following elements:

1. Acquisition of the principles and theoretical knowledge of anatomy, physiology, pathology, aetiology, symptomatology and treatment of diseases of the ear and temporal bone.

2. A list of diagnostic procedures and disease management is outlined in this subspecialty logbook.

3. The European training programme requires documentation of all skills. Confirmation of the progression of the trainee to the required competency is necessary.

4. This subspecialty log book will be used in relation to European training exchange.

## ASSESSMENT AND EXAMINATION

1. Examination of the theoretical and practical knowledge of the trainee may be included in the European Training Requirements (ETR). Trainees should also refer to their national requirements.
2. To achieve the award of the certificate of recognition, the trainee must reach the expected level of knowledge and skills approved by the training programme director before being eligible to practise as an independent audiology / audiovestibular medicine subspecialist.
3. Each trainee must be familiar with all diagnostic and therapeutic management associated with the discipline of audiology / audiovestibular medicine.
4. The trainer will be responsible for confirming the competence of the trainee for the procedures and management outlined in the log-book.
5. The contents of this subspecialty logbook will be continuously updated by the UEMS ORL-HNS Board at least every 5 years with respect to new developments.
6. The recommended syllabus for the European Board Exam in ORL-HNS includes this logbook produced by the UEMS ORL Section, and the Intercollegiate Surgical Curriculum Programme Syllabus.
7.

# TRAINING CENTRE ROTATION

**Trainee:** _____
Name Surname Birthdate

| Dates of start and finish of training period | Training Centre | Name of Trainer | Signature of Trainer |
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# ATTENDANCE AT ACCREDITED COURSES AND MEETINGS

| Date | Course | Comments |
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# UEMS TRAINING LOGBOOK OF AUDIOLOGY / AUDIOVESTIBULAR MEDICINE COMPLETION OF TRAINING

**Trainee**: _____
Name Surname Birthdate

Date of commencement of training: _____

Date of completion of training: _____

| | |
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| **Lead Training Centre** | |
| **Name of Trainer in charge** | |

I, **the trainer in charge**, certify that the register of diagnostic and disease management shown below is correct.

Date: _____ Signature of trainer: _____

I, **the trainee** certifies that the details given refer to diagnostic and disease management carried out by me personally.

Date: _____ Signature of trainee: _____

## CONTENT OF THE AUDIOLOGY LOGBOOK

The log book is divided into the following sections.

**A: Theoretical knowledge**
**B: Patient assessments**
**C: Diagnostic Procedures**
**D: Non-Surgical Management**

The relevant trainer should endorse by signing and dating, when the trainee has achieved competency in each particular management or procedure.

## TEXTBOOKS & LITERATURE


- https://www.baap.org.uk/documents-guidelines-and-clinical-standards/
- Essentials of Audiology 5th Edition by Stanley A. Gelfand (Author), Lauren Calandruccio (Author), 2022
- Vertigo and Dizziness: Common Complaints, Michael Strupp, Thomas Brandt, Marianne Dieterich, 3rd Edition, 2023
- Joint Royal Colleges of Physicians Training Board (2020). Audiovestibular Medicine Training Curriculum. Implementation August 2021. Retrieved from https://www.jrcptb.org.uk
- 1st Edition, A Textbook of Audiological Medicine, Clinical Aspects of Hearing and Balance, Edited by Linda Luxon, Joseph M. Furman, Alessandro Martini, S. Dafydd G. Stephens, 2003
- Diagnosis and Treatment of Vestibular Disorders, Editors: Seilesh Babu, Christopher A. Schutt, Dennis I. Bojrab, 2019


- Special acknowledgement for Dr Snezana Aivoric Filipovic for giving us access to the Audiovestibular Medicine, Higher Specialist Training Programme, Mater Dei Hospital, Malta, September 2023

# I. BASIC OBJECTIVES

**Relevant Knowledge of Fundamentals in:**

| | | Signature of trainer when competency achieved |
|---|---|---|
| Primary, Secondary and Tertiary Prevention | | |
| Screening principles | | |
| Epidemiology | | |
| Immunization | | |
| Perinatal care | | |
| Developmental Pediatrics | | |
| Geriatrics | | |
| Allergy/Autoimmune disease | | |
| Psychiatry/Psychology | | |
| Ophthalmology | | |
| Neurology | | |
| Neurochemistry and Pharmacology | | |
| Endocrinology | | |
| Cardiac function/disease | | |
| Vascular function/disease | | |
| Musculoskeletal function/pathology | | |
| Emergency Medicine and Resuscitation | | |
| Medical Quality control | | |
| Ethical principles | | |
| Social Welfare Legislation | | |
| Counselling | | |
| Basic laboratory investigations | | |
| Normal blood values | | |

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| Bacteriology/Virology | | |
| **Knowledge of Basic Sciences Sub-serving the Audiological and Vestibular Systems** | | |
| | | **Signature of trainer when competency achieved** |
| **Physics** | | |
| 1. Physical properties of sound: | | |
| 1a. Frequency | | |
| 1b. Intensity | | |
| 1c. Rarefaction and Condensation | | |
| 1d. Sound pressure level, Intensity and Decibels | | |
| 1e. Power, Distance | | |
| 1f. Sine waves, Amplitude, Phase | | |
| 1g. Complex sounds | | |
| 1h. Modulating pure tones | | |
| 2. Impedance and Resonance: | | |
| 2a. Acoustic Admittance | | |
| 2b. Energy transfer | | |
| 2c. Resonance of Systems | | |
| 3. Speech Sounds: | | |
| 3a. Consonant and Vowel Classification | | |
| 3b. Acoustic characteristics of vowels | | |
| 3c. Acoustic characteristics of consonants | | |
| 4. Neural physiology and Psychoacoustics: | | |
| 4a. Temporal processing | | |
| 4b. Masking | | |
| 4c. Loudness and Pitch | | |
| 5. Physics of Motion | | |
| 5a. Frequency | | |

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| 5b. Gain | | |
| 5c. Phase | | |
| 5d. Time constant | | |
| 6. Applied physics: | | |
| 6a. Room acoustics | | |
| 6b. Requirements for sound proofing | | |
| 6c. Standards relating to acoustics, and calibration | | |
| 6d. Principles, technology and limitations of auditory and vestibular test equipment | | |
| 6e. Basic electroacoustic properties of hearing aids | | |
| Anatomy and Physiology of: | | |
| Temporal bone: | | |
| 1. External ear, middle ear, ossicles, Eustachian tube, mastoid | | |
| 2. Bony labyrinth (cochlea, vestibule and semicircular canals) | | |
| Sensory organs and peripheral Auditory and Vestibular pathways: | | |
| 1. Oval and round window | | |
| 2. Membranous labyrinth | | |
| 3. Cochlear duct, saccule, utricle, and semicircular canals | | |
| 4. Endolymphatic sac, endolymph and perilymph | | |
| 5. Sensory hair cells (different types, afferent and efferent innervation, asymmetry) | | |
| 6. Organ of Corti, Maculae, Cristae | | |
| 7. Spiral ganglion and Cochlear nerve | | |
| 8. Superior and Inferior Vestibular nerves | | |
| 9. Cerebello-pontine angle | | |
| Central Auditory and Vestibular Pathways (afferent and efferent): | | |
| 1. Medulla, Pons and Midbrain | | |
| 1a. Cochlear Nuclei | | |
| 1b. Superior Olivary Complex | | |
| 1c. Lateral Leminiscus | | |

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| 1d. Inferior Colliculus | | |
| 1e. Vestibular Nuclei | | |
| 1f. Oculomotor Nuclei | | |
| 1g. Lateral and medial medulla | | |
| 2. Cerebellum | | |
| 2a. Vestibulocerebellum | | |
| 2b. Mollaret's triangle: Dentate – Red nucleus- Inferior olive | | |
| 3. Thalamus and Cortex | | |
| 3a. Medial geniculate body | | |
| 3b. Corpus callosum | | |
| 3c. Auditory and Vestibular projections to thalamus and cortex | | |
| 3d. Auditory cortex and subcortex | | |
| 3e. Vestibular cortex | | |
| Other sensory and motor connections: | | |
| 1. Visuo-vestibular system | | |
| 1a. Visual vestibular afferents | | |
| 1b. Oculomotor nerves | | |
| 1c. Ocular muscles | | |
| 2. Vestibulo-spinal | | |
| Vestibulospinal tracts | | |
| 3. Proprioception | | |
| 3a. Vestibular efferents | | |
| 3b. Posterior columns | | |
| 3c. Proprioceptive receptors | | |
| Vascular supply: | | |
| 1. Vertebral and basilar arteries | | |
| 2. Posterior Inferior cerebellar artery | | |
| 3. Anterior inferior cerebellar artery | | |

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| 4. Labyrinthine artery and its branches | | |
| 5. Superior cerebellar artery | | |
| Embryology of: | | |
| Development of the external and middle ear | | |
| Development of the inner ear (auditory and vestibular sensory organs) | | |
| Development of the peripheral and central neural connections of the external, middle, and inner ear | | |

## II. PAEDIATRIC AUDIOLOGICAL MEDICINE

| **Diseases/Conditions/Issues** | | |
|---|---|---|
| | | **Signature of trainer when competency achieved** |
| **External Ear** | | |
| Congenital malformations/ conductive hearing loss | | |
| Infections | | |
| Traumatic injuries | | |
| **Middle Ear** | | |
| Congenital malformations/ conductive hearing loss | | |
| Acute & chronic otitis media | | |
| Chronic otitis media with effusion | | |
| Traumatic injuries/ hearing loss | | |
| **Inner Ear** | | |
| Congenital malformations/Congenital hearing loss | | |
| Infective disorders/ hearing loss e.g. labyrinthitis, meningitis | | |
| Autoimmune /vasculitis hearing loss | | |
| Meniere's disease | | |
| Traumatic or blast injury or barotrauma | | |

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| Ototoxicity | | |
| Auditory dyssynchrony | | |
| **Auditory Nerve** | | |
| Infection/ Inflammation/ Demyelination | | |
| Traumatic injury | | |
| Auditory Neuropathy | | |
| Tumors | | |
| Vascular loops | | |
| **Central Auditory Pathways** | | |
| Infection | | |
| Traumatic injury | | |
| Neurotoxicity | | |
| Temporal lobe epilepsy | | |
| Hearing disorder in other neurological conditions e.g. vascular, tumors, demyelination, neurodegenerative conditions | | |
| Central Auditory Processing Disorder | | |
| **Other Audiological Conditions/ Issues** | | |
| Sensorineural hearing loss vs Conductive hearing loss and Mixed hearing loss | | |
| Suprathreshold hearing loss | | |
| Congenital hearing loss | | |
| Genetic hearing loss | | |
| 1. Syndromic hearing loss | | |
| 2. Non syndromic hearing loss | | |
| Delayed and late onset hearing loss | | |
| Metabolic hearing loss | | |
| Non implantable and Implantable hearing devices | | |
| Issues related to transition | | |
| Tinnitus | | |
| Hyperacusis and misophonia | | |

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| Non organic hearing loss<br>Facial nerve palsy and other related facial nerve disorders | | |
| **History** | | |
| | | **Signature of trainer when competency achieved** |
| **Specific/Primary presentation** | | |
| Hearing problem | | |
| Listening difficulties | | |
| Sudden hearing loss | | |
| Fluctuating hearing loss | | |
| Progressive hearing loss | | |
| Unilateral hearing loss | | |
| Speech and language difficulties | | |
| Auditory processing difficulties | | |
| Dysacousis | | |
| Aural fullness | | |
| Tinnitus | | |
| Hyperacusis | | |
| Otalgia | | |
| Otorrhoea | | |
| Vertigo/Imbalance/Delayed walking | | |
| **General** | | |
| Pregnancy (Maternal infections /illness/drugs during pregnancy) | | |
| Delivery (Prematurity/ Low or very low birthweight/hypoxia and APGAR score/trauma/head and neck malformations and other anomalies or stigmata of syndromes) | | |
| Postnatal complications (Neonatal Intensive Care admission /infections/hyperbilirubinemia at a level which requires exchange transfusion/mechanical ventilation/ ototoxic medication/operations) | | |
| History of ear infections | | |

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| Allergic rhinitis/asthma | | |
| Toxoplasmosis, Rubella, Cytomegalovirus, Herpes (TORCH) and other generalized infections e.g. mumps | | |
| History of meningitis | | |
| Immunization status | | |
| History of delayed motor milestones/balance difficulties | | |
| Past history of otological surgery | | |
| Head trauma | | |
| Ototoxic usage / radiation | | |
| Interrelated parents | | |
| Family history of hearing or balance disorders, speech delay or learning difficulties | | |
| Family history of visual defects/pigmentation abnormalities/thyroid or renal problems | | |
| **A. Patient Assessment and Diagnostic Procedures** | | |
| **a) General Clinical Examination** | | |
| | | **Signature of trainer when competency achieved** |
| Height, weight, head circumference; inspection of craniofacial region | | |
| Examination of the neck, skin and nails, limbs, chest, abdomen | | |
| Acquired speech and language assessment | | |
| Gait assessment | | |
| Development assessment | | |
| **b) ENT Examination** | | |
| | | **Signature of trainer when competency achieved** |
| External ear | | |
| Otoscopy | | |
| Microscopy / Otoendoscopy | | |
| **c) Others** | | |
| | | **Signature of trainer when competency achieved** |
| Visual acuity | | |
| | | |

| B. Diagnostic Work-up (depending on developmental age) | | |
|---|---|---|
| **a) Hearing Function Tests** | | |
| | | **Signature of trainer when competency achieved** |
| Distraction test | | |
| Visual reinforcement audiometry | | |
| Play audiometry | | |
| Pure tone audiometry including different techniques and masking | | |
| Speech tests | | |
| Tympanometry | | |
| Stapedial reflex | | |
| Oto-acoustic emissions (OAEs) | | |
| Electrocochleography (ECochG) | | |
| Auditory brainstem response (ABR) | | |
| Cortical evoked response audiometry (CERA) | | |
| Auditory processing disorder tests | | |
| **b) Imaging** | | |
| | | **Signature of trainer when competency achieved** |
| Computerized tomography (CT) | | |
| Magnetic Resonance Imaging | | |
| Renal Ultrasound (relevance) | | |
| **c) Laboratory Tests** | | |
| | | **Signature of trainer when competency achieved** |
| Relevant blood tests (hematology and biochemistry) | | |
| Urine (Urinalysis and CMV DNA Polymerase chain reaction) | | |
| Genetic tests | | |
| Metabolic screen (blood and urine) | | |
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| d) other tests | | |
|---|---|---|
| | | **Signature of trainer when competency achieved** |
| Electrocardiography (ECG) | | |
| Electroencephalography (EEG) | | |
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| **C. Management** | | |
| | | **Signature of trainer when competency achieved** |
| 1. Explanation of the test results to parents and child if old enough | | |
| 2. Pharmacological treatment | | |
| 3. Communication guidelines for parents /requests for parental observation and feedback | | |
| 4. Appropriate hearing amplification | | |
| 4a hearing aid fitting (different hearing aid characteristics and programming) | | |
| 4b hearing aid 'plumbing system' hooks, moulds, tubing and effect on amplification | | |
| 4c measuring hearing aid performance | | |
| 4d radio aids and FM soundfield systems | | |
| 5. Implantable devices (Bone conduction and cochlear implants) | | |
| 5a selection and assessment (severity/type of hearing impairment, age/onset etc.) | | |
| 5b relevant radiology | | |
| 5c intraoperative monitoring | | |
| 5d switch on and mapping | | |
| 6. Speech and Language therapy | | |
| 7. Guidance on classroom management (e.g. FM system) with teacher/TOD involvement | | |
| 8. Joint reviews with developmental pediatricians, audiologists and other relevant health professionals | | |
| 9. Referral to educational/clinical psychology | | |
| 10. Reports for the Child Development Assessment Unit and Education Department | | |
| 11. Referral to geneticist | | |
| 12. Peri-operative management of patients undergoing otological surgery | | |
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| D. Knowledge of Surgical Management | | |
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| | | **Signature of trainer when competency achieved** |
| 13. Wax removal | | |
| 14. Management of otohematoma | | |
| 15. Excision of lesions of the auricle | | |
| 16. Foreign body removal | | |
| 17. Removal of external auditory canal lesions | | |
| 18. Meatoplasty (Soft tissue & bony) | | |
| 19. Myringotomy | | |
| 20. Ventilation tube insertion | | |
| 21. Trans-tympanic injection | | |
| 22. Bone anchored hearing aids | | |
| 23. Cochlear implants and other implantable hearing devices | | |
| 24. Correction of malformations: | | |
| 24a. Auricle | | |
| 24b. Peri-auricular fistula | | |
| 24c. External auditory canal | | |
| 24d. Middle ear | | |
| 25. Repair of injuries: | | |
| 25a. Auricle | | |
| 25b. External auditory canal | | |
| 25c. Middle and inner ear including nerves, vessels, and dura of middle cranial fossa / posterior cranial fossa | | |

| E. Knowledge of Postoperative complications | | |
|---|---|---|
| | | **Signature of trainer when competency achieved** |
| Complications of general and local anesthesia | | |
| Bleeding / hematoma | | |
| Peri and post operative infection | | |
| Conductive hearing loss | | |
| Sensorineural hearing loss | | |

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|---|---|---|
| Vertigo / imbalance | | |
| Tinnitus | | |
| Hyperacusis | | |
| Facial nerve paresis / palsy | | |
| Taste disturbance | | |
| Numbness of the auricle | | |
| CSF leakage | | |
| Intracranial infection/meningitis | | |
| Lower cranial neuropathy | | |

## III. ADULT AUDIOLOGICAL MEDICINE

| **Diseases/Conditions/Issues** | | |
|---|---|---|
| | | **Signature of trainer when competency achieved** |
| **External Ear** | | |
| Infections | | |
| Inflammatory | | |
| Benign & malignant tumors | | |
| Exostoses | | |
| Necrotizing otitis externa | | |
| Keratosis obturans/external canal cholesteatoma | | |
| Traumatic injuries | | |
| **Middle Ear** | | |
| Ossicular fixation and discontinuity/ conductive hearing loss | | |
| Acute & chronic otitis media | | |
| Otosclerosis | | |
| Benign & malignant tumors | | |
| Traumatic injuries | | |
| Barotrauma | | |

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| Eustachian tube dysfunction | | |
| **Inner Ear** | | |
| Congenital malformations of the cochlea and vestibule/ semicircular canal dehiscence | | |
| Benign & malignant tumors | | |
| Infective disorders/hearing loss e.g. labyrinthitis, meningitis | | |
| Traumatic or blast injuries or barotrauma/hearing loss | | |
| Decompression sickness of the inner ear | | |
| Ototoxicity | | |
| Auditory dyssynchrony | | |
| Noise induced hearing loss/Occupational hearing loss | | |
| Presbyacousis (age related hearing loss) | | |
| Hidden hearing loss | | |
| Meniere's disease and other endolymphatic hydrops | | |
| Autoimmune inner ear disease | | |
| **Auditory Nerve** | | |
| Infection/Inflammation/Demyelination | | |
| Traumatic Injury | | |
| Auditory Neuropathy | | |
| Tumors | | |
| Vascular loop | | |
| Presbyacousis (age related hearing loss) | | |
| **Central Auditory System** | | |
| Infection | | |
| Traumatic injury | | |
| Neurotoxicity | | |
| Temporal lobe epilepsy | | |
| Hearing disorder in neurological conditions e.g. stroke, demyelination, tumors | | |
| Neurodegenerative disorders | | |
| Central Auditory Processing disorder | | |
| Presbyacousis (age related hearing loss) | | |

| Other Audiological Conditions/Issues | | |
|---|---|---|
| Sensorineural hearing loss vs Conductive hearing loss and Mixed hearing loss | | |
| Asymmetrical sensorineural hearing loss | | |
| Iatrogenic hearing loss | | |
| Genetic hearing loss | | |
| Autoimmune/vasculitis hearing loss | | |
| Metabolic hearing loss | | |
| Non-implantable and implantable hearing devices | | |
| Non-organic hearing loss | | |
| Tinnitus (including pulsatile and clicking tinnitus) | | |
| Hyperacusis | | |
| Misophonia | | |
| Facial nerve | | |
| **History** | | |
| | | **Signature of trainer when competency achieved** |
| **Specific/Primary presentation** | | |
| Hearing problem | | |
| Listening difficulty | | |
| Sudden hearing loss | | |
| Fluctuating hearing loss | | |
| Progressive hearing loss | | |
| Tinnitus (site and character) | | |
| Aural fullness | | |
| Hyperacusis | | |
| Autophony | | |
| Otalgia (including referred otalgia) | | |
| Otorrhoea | | |
| Auditory hallucination | | |
| Vertigo / Imbalance / Disequilibrium | | |

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| Tullio phenomenon | | |
| Facial paresis / palsy | | |
| **General** | | |
| Previous hearing tests | | |
| Prior viral infections/meningitis | | |
| Prior use of medication/ drug history/ototoxic drugs | | |
| Past history of ear infections | | |
| Past history of ear surgery | | |
| Head trauma | | |
| Noise exposure (work environment, firearms, leisure) | | |
| Radiotherapy | | |
| Barotrauma | | |
| Inner ear decompression sickness | | |
| Migraine | | |
| Family history of hearing or balance disorders | | |
| **Questionnaires** | | |
| Tinnitus Handicap Inventory | | |
| Tinnitus Functional Index | | |
| **A. Patient Assessment and Diagnostic Procedures** | | |
| **a) Clinical Examination** | | |
| | | **Signature of trainer when competency achieved** |
| 1. Otoscopy | | |
| 2. Microscopy | | |
| 3. Oto-endoscopy | | |
| **b) Hearing Function** | | |
| | | **Signature of trainer when competency achieved** |
| 4. Tuning fork tests | | |
| 5. Clinical hearing tests | | |
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| c) Others | | |
|---|---|---|
| | | **Signature of trainer when competency achieved** |
| 6. Auscultation (for bruits in case of pulsatile tinnitus) | | |
| **B. Diagnostic Work-up** | | |
| **a) Hearing Function Tests** | | |
| | | **Signature of trainer when competency achieved** |
| 1. Pure tone audiometry | | |
| 2. Uncomfortable loudness levels | | |
| 3. Tinnitus tests (loudness match, pitch match, minimum masking level) | | |
| 2. Tympanometry | | |
| 3. Stapedial reflex (and other facial nerve function tests) | | |
| 4. Speech audiometry | | |
| 5. Oto-acoustic emissions (OAEs) | | |
| 6. Electrocochleography (ECochG) | | |
| 7. Auditory brainstem response (ABR) | | |
| 8. Middle Latency Responses (MLR) | | |
| 9. Cortical Evoked response audiometry (CERA) | | |
| 10. Frequency following responses (FFR) | | |
| 11. Auditory processing disorder tests | | |
| **b) Imaging** | | |
| | | **Signature of trainer when competency achieved** |
| 8. Plain X-ray | | |
| 9. Computerized tomography (to include cone beam CT of the temporal bones) | | |
| 10. Magnetic resonance imaging | | |
| 11. Angiography | | |
| 11a. CT Angiography | | |
| 11b. MR Angiography | | |
| 11c. Cerebral Angiography | | |

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| 12. Positron Emission Tomography | | |
| 13. Radionuclide scanning e.g. technetium, gallium scanning | | |
| **c) Laboratory Tests** | | |
| | | **Signature of trainer when competency achieved** |
| 14. Relevant blood tests (hematology and biochemistry) | | |
| 15. Genetic tests | | |
| 16. Cytology | | |
| 17. Histology | | |
| 18. Microbiology | | |
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| **C. Non-Surgical Management** | | |
| | | **Signature of trainer when competency achieved** |
| 1. Pharmacological treatment or withdrawal of medication | | |
| 2. Hearing aid rehabilitation (fitting and fine tuning) | | |
| 3. Tinnitus retraining therapy (noise generators and environmental sound enrichment) | | |
| 4. Tactile and environmental aids | | |
| 5. Non instrumental rehabilitation (e.g., hearing tactics, speechreading) | | |
| 6. Alternative communication systems | | |
| 7. Psychosocial: External support agencies, voluntary bodies and policies | | |
| 8. Referral to clinical psychology / psychiatry | | |
| 9. Implantable devices (bone conduction and cochlear implants and others) | | |
| 9a. Selection and assessment | | |
| 9b. Relevant radiology | | |
| 9c. Intraoperative monitoring | | |
| 9d. Switch on and mapping | | |
| 10. Peri-operative management of patients undergoing otological surgery | | |
| 11. Stereotactic radiosurgery | | |
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| D. Knowledge of Surgical Management | | |
|---|---|---|
| | | **Signature of trainer when competency achieved** |
| 12. Wax removal | | |
| 13. Management of otohematoma | | |
| 14. Excision of lesions of the auricle | | |
| 15. Foreign body removal | | |
| 16. Removal of external auditory canal lesions | | |
| 17. Meatoplasty (Soft tissue & bony) | | |
| 18. Removal of osteomas/exostoses | | |
| 19. Myringotomy | | |
| 20. Trans-tympanic injection | | |
| 21. Ventilation tube insertion | | |
| 22. Myringoplasty (Type1 Tympanoplasty) | | |
| 23. Tympanotomy | | |
| 24. Mastoidectomy | | |
| 24a. Cortical | | |
| 24b. Modified radical / radical (Back to front approach) | | |
| 24c. Atticotomy / Attico-antrostomy (Front to back approach) | | |
| 24d. Combined approach tympanoplasty | | |
| 24e. Mastoid obliteration | | |
| 25. Bone anchored hearing aids | | |
| 26. Ossiculoplasty | | |
| 27. Implantation of prostheses | | |
| 27a. Middle ear prosthesis (ossicular prosthesis/implantable hearing aids) | | |
| 27b. Cochlear implants | | |
| 28. Stapes Surgery | | |
| 29. Correction of malformations | | |
| 29a. Auricle | | |
| 29b. Peri-auricular fistula | | |
| 29c. External auditory canal | | |
| 29d. Middle ear | | |

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|---|---|---|
| 30. Repair of injuries | | |
| 30a. Auricle | | |
| 30b. External auditory canal | | |
| 31. Surgery of tumors | | |
| 31a. Auricle | | |
| 31b. External auditory canal | | |
| 31c. Middle and inner ear including nerves, vessels, dura of middle cranial fossa / posterior cranial fossa and temporal bone resection | | |
| 32. Revision ear surgery | | |
| **E. Knowledge of postoperative complications** | | |
| | | **Signature of trainer when competency achieved** |
| Complications of general and local anesthesia | | |
| Bleeding / hematoma | | |
| Peri and Postoperative infection | | |
| Conductive hearing loss | | |
| Sensorineural hearing loss | | |
| Vertigo / imbalance | | |
| Tinnitus | | |
| Hyperacusis | | |
| Facial nerve paresis / palsy | | |
| Taste disturbance | | |
| Numbness of the auricle | | |
| CSF leakage | | |
| Intracranial infection | | |
| Lower cranial neuropathy | | |

| IV. PAEDIATRIC VESTIBULAR MEDICINE | | |
|---|---|---|
| **Diseases/Conditions/Issues** | | |
| | | **Signature of trainer when competency achieved** |
| **Peripheral vestibular causes** | | |
| Unilateral vestibular hypofunction (possibly with co-existent hearing loss) | | |
| Bilateral vestibular hypofunction (possibly with co-existent hearing loss) | | |
| Genetic syndromes with vestibular hypofunction | | |
| Congenital inner ear anomalies | | |
| Vestibular neuritis/labyrinthitis | | |
| Middle ear disease | | |
| Benign paroxysmal positional vertigo | | |
| Meniere's disease | | |
| Ototoxicity | | |
| Vestibular neuropathy/demyelination | | |
| **Central vestibular causes** | | |
| Congenital e.g., Arnold Chiari malformation, cerebellar hypoplasia, vascular malformations | | |
| Intracranial space occupying lesions | | |
| Neurologic conditions e.g., episodic ataxia, epilepsy, demyelination | | |
| **Mixed vestibular causes** | | |
| Migraine equivalents | | |
| a. Paroxysmal Torticollis of infancy | | |
| b. Benign paroxysmal vertigo of childhood | | |
| Vestibular manifestations of migraine including Pseudo BPPV | | |
| Head injury related dizziness | | |
| Infective causes | | |
| a. CMV/ Herpes Zoster | | |
| b. Meningitis/Encephalitis | | |
| **Others:** | | |

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|---|---|---|
| Ocular disorders | | |
| Musculoskeletal disorders | | |
| Developmental coordination disorder | | |
| Metabolic and hematological disorders | | |
| Cardiovascular disorders | | |
| Psychological dizziness | | |
| Motion sickness | | |
| **History** | | |
| | | **Signature of trainer when competency achieved** |
| **Specific/Primary presentation** | | |
| Motor developmental delay | | |
| Vertigo / Dizziness / Imbalance | | |
| Ataxia | | |
| Changes in vision | | |
| Frequent falls/'clumsiness' | | |
| Abnormal eye movement e.g., nystagmus, skew deviations | | |
| Tullio phenomenon | | |
| **General** | | |
| Previous hearing tests/ hearing loss | | |
| Tinnitus | | |
| Prior viral infections/meningitis | | |
| Prior use of medication/ drug history/ototoxic drugs | | |
| Past history of ear infections | | |
| Past history of ear surgery | | |
| Head trauma | | |
| Eye disorders | | |
| Motor milestones | | |
| Motion disorders | | |
| Headaches | | |
| Seizures | | |

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|---|---|---|
| Family history of hearing or balance disorders | | |
| Family history of migraine, epilepsy, neurofibromatosis, endocrine or renal disease | | |
| **A. Patient Assessment and Diagnostic Procedures (depending on developmental age)** | | |
| **a) General Clinical Examination** | | |
| | | **Signature of trainer when competency achieved** |
| 1. Height, weight, head circumference; inspection of craniofacial region | | |
| 2. Examination of the neck, skin and nails, chest, abdomen | | |
| | | |
| b) **ENT Examination** | | |
| | | **Signature of trainer when competency achieved** |
| 3. External ear | | |
| 4. Otoscopy | | |
| 5. Microscopy / Otoendoscopy | | |
| **c) Neurovestibular examination** | | |
| | | **Signature of trainer when competency achieved** |
| 6. Moro reflex | | |
| 7. Doll's eye test | | |
| 8. Neonatal rotation test | | |
| 9. Righting responses | | |
| 10. Gaze test | | |
| 11. Smooth pursuit | | |
| 12. Vestibulo-ocular reflex (VOR) cancellation | | |
| 13. Saccades | | |
| 14. Cover test/Test of Skew | | |
| 15. Head thrust test | | |
| 16. Rotation test (office chair) | | |
| 17.Headshake test | | |
| 18.Cranial nerves examination | | |
| 19.Cerebellar tests | | |

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|---|---|---|
| 20. Romberg (including sensitized Romberg and single leg stance) | | |
| 21. Gait tests (including heel gait, toe gait, hopping) | | |
| 22. Gross motor skills | | |
| 23. Positioning tests | | |
| **d) Others** | | |
| | | **Signature of trainer when competency achieved** |
| 24. Visual acuity | | |
| **B. Diagnostic Work-up (depending on developmental age)** | | |
| **a) Hearing Function Tests** | | |
| | | **Signature of trainer when competency achieved** |
| 1. Pure tone audiometry | | |
| 2. Distraction test | | |
| 3. Play audiometry | | |
| 4. Tympanometry | | |
| 5. Stapedial reflex | | |
| 6. Oto-acoustic emissions (OAEs) | | |
| 7. VRA | | |
| 8. ABR | | |
| 9. Video Head Impulse Test (v-HIT) | | |
| 10. Caloric test | | |
| 11. Electronystagmography (ENG) /Videonystagmography (VNG) | | |
| 12. Rotational chair | | |
| 13. Subjective Visual Vertical and Subjective Visual Horizontal | | |
| 14. Vestibular Evoked Myogenic potentials (cVEMP. oVEMP) | | |
| 15. Posturography | | |
| **c) Imaging** | | |
| | | **Signature of trainer when competency achieved** |
| Computerized tomography (to include cone beam CT of the temporal bone) | | |

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|---|---|---|
| Magnetic resonance imaging including MR Angiography | | |
| **d) Laboratory Tests** | | |
| | | **Signature of trainer when competency achieved** |
| Relevant blood tests (hematology and biochemistry) | | |
| Genetic tests | | |
| Microbiology | | |
| **e) Others** | | |
| EEG | | |
| Visual acuity/ophthalmologic examination | | |
| **C. Non-Surgical Management** | | |
| | | **Signature of trainer when competency achieved** |
| 1. Pharmacological treatment | | |
| 2. Withdrawal of aggravating factors | | |
| 3. Referral to clinical/child psychology/psychiatry | | |
| 4. Referral to pediatric neurology | | |
| 5. Referral to pediatric ophthalmology | | |
| 6. Referral to clinical geneticist | | |
| 7. Age-appropriate rehabilitation therapy | | |
| 7a. adaptation | | |
| 7b. habituation | | |
| 7c. substitution | | |
| 8. Optimization of related sensory/motor function | | |
| 9. Particle repositioning maneuvers | | |
| 10. Peri-operative management of patients undergoing otological surgery | | |
| **D. Knowledge of Surgical Management** | | |
| | | **Signature of trainer when competency achieved** |
| 11. Wax removal | | |
| 12. Myringotomy | | |

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|---|---|---|
| 13. Ventilation tube insertion | | |
| 14. Trans-tympanic injection | | |
| 15. Surgical treatment of cholesteatoma | | |
| **E. Knowledge of side effects and complications of treatment** | | |
| | | **Signature of trainer when competency achieved** |
| Contraindications and management of side effects of medication given in the acute phase or in the long term | | |
| Contraindications to positioning during examination | | |
| Management of acute vertiginous attacks /emesis/drop attacks after otolith repositioning maneuvers | | |
| Contraindications and age restrictions for caloric test and other balance tests | | |
| Management of adverse reactions to caloric testing (including vestibulogenic epilepsy) and other balance tests | | |
| Management of postoperative complications | | |

| **IV. ADULT VESTIBULAR MEDICINE** | | |
|---|---|---|
| **Diseases/Conditions/Issues** | | |
| | | **Signature of trainer when competency achieved** |
| **Peripheral vestibular causes** | | |
| Benign paroxysmal positional vertigo | | |
| Unilateral vestibular hypofunction | | |
| Bilateral vestibular hypofunction | | |
| Middle ear disease | | |
| Vestibular neuritis/Labyrinthitis | | |
| Vestibular symptoms related to cochlear implants and other implantable devices | | |
| Meniere's disease and other endolymphatic hydrops disorders | | |
| Autoimmune inner ear disorders | | |
| 3rd window disorders | | |
| a. perilymphatic fistula | | |

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|---|---|---|
| b. semicircular canal dehiscence | | |
| c. enlarged vestibular aqueducts | | |
| Ototoxicity | | |
| Genetic syndromes with vestibular hypofunction | | |
| **Central vestibular causes** | | |
| Intracranial space occupying lesions e.g., vestibular schwannoma | | |
| Neurological conditions including: | | |
| a. demyelinating conditions | | |
| b. epilepsy | | |
| c. strokes | | |
| d. progressive degenerative conditions (including cognitive e.g., dementia) | | |
| e. episodic ataxia | | |
| f. movement disorders | | |
| Congenital e.g., Arnold Chiari malformation, vascular malformations | | |
| **Mixed vestibular causes** | | |
| Migraine and its variants | | |
| Head injury related dizziness and imbalance | | |
| Neuropathy | | |
| Vestibular paroxysmia | | |
| Infective causes | | |
| a. Syphilis/HIV | | |
| b. Meningitis/Encephalitis | | |

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| **Others** | | |
| Persistent Postural Perceptual Dizziness (PPPD) | | |
| Mal de Debarquement | | |
| Psychogenic dizziness | | |
| Orthostatic dizziness and/or vertigo | | |
| Cardiovascular disorders | | |
| Ocular disorders | | |

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|---|---|---|
| Musculoskeletal disorders | | |
| Metabolic and endocrine conditions | | |
| Hematologic disorders | | |
| **History** | | |
| | | **Signature of trainer when competency achieved** |
| **Specific/Primary presentation** | | |
| Vertigo / Dizziness / Imbalance | | |
| Ataxia | | |
| Abnormal gait | | |
| Frequent falls | | |
| Drop attacks | | |
| Oscillopsia | | |
| Changes in vision | | |
| Headaches and migraine | | |
| Tullio phenomenon | | |
| Positional vertigo | | |
| **General** | | |
| | | **Signature of trainer when competency achieved** |
| Hearing loss | | |
| Tinnitus | | |
| Ear fullness | | |
| Prior viral infections | | |
| Prior use of medication/ drug history/ototoxic drugs | | |
| Past history of ear infections | | |
| Past history of ear surgery | | |
| Head trauma/whiplash injury | | |
| Motion sickness | | |
| Visual acuity | | |
| Loss of consciousness | | |

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|---|---|---|
| Seizures | | |
| Stroke | | |
| Other neurological disease | | |
| Heart disease | | |
| High blood pressure | | |
| Hyperlipidemia/smoking | | |
| Alcohol consumption | | |
| Diabetes/ endocrine disease | | |
| Autoimmune disease/ arthritis | | |
| Anemia | | |
| Depression/Anxiety | | |
| Family history of hearing or balance disorders | | |
| **Questionnaires** | | |
| Dizziness Handicap Inventory | | |
| PPPD Calculator | | |
| Meniere's Disease Calculator | | |
| Migraine Screen Questionnaire | | |

| **A. Patient assessment and Diagnostic Procedures** | | |
|---|---|---|
| **a) ENT examination and hearing** | | |
| | | **Signature of trainer when competency achieved** |
| 1. Otoscopy | | |
| 2. Microscopy and Otoendoscopy | | |
| 3. Tuning fork tests | | |
| **b) Neurovestibular examination** | | |
| | | **Signature of trainer when competency achieved** |
| 4. Gaze test and use of Frenzel's glasses | | |
| 5. Cover test/Test of Skew | | |
| 6. Smooth pursuit | | |

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|---|---|---|
| 7. VOR cancellation | | |
| 8. Saccades | | |
| 9. Fistula test | | |
| 10. Fundoscopy | | |
| 11. Cranial nerves examination | | |
| 12. Cerebellar tests | | |
| 13. Head thrust test | | |
| 14. Headshake test | | |
| 15. Static and Dynamic visual acuity | | |
| 16. Positioning tests | | |
| 16. Romberg (including sensitized/tandem Romberg and single leg stance) | | |
| 17. Untenberger (Fukuda stepping test) | | |
| 18. Gait (including gait in tandem and with eyes closed) | | |
| 19. Clinical test for sensory interaction in balance | | |
| **c) Cardiovascular function** | | |
| | | **Signature of trainer when competency achieved** |
| 19. Pulses | | |
| 20. Auscultation for heart sounds, murmurs and bruits | | |
| 21. Blood pressure and testing for a postural drop in Blood Pressure | | |
| **d) Others** | | |
| | | **Signature of trainer when competency achieved** |
| 22. Hyperventilation provocation test | | |
| **B. Diagnostic Work-up** | | |
| **a) Hearing Function Tests** | | |
| | | **Signature of trainer when competency achieved** |
| 1. Pure tone audiometry | | |
| 2. Tympanometry | | |
| 3. Stapedial reflex | | |
| 4. Speech audiometry | | |
| 5. ECochG | | |

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|---|---|---|
| 6. ABR | | |
| 7. v-HIT | | |
| 8. Caloric test | | |
| 9. ENG/VNG | | |
| 10. Rotational chair | | |
| 11. Subjective Visual Vertical and Subjective Visual Horizontal | | |
| 12. cVEMP and oVEMP | | |
| 13. Posturography | | |
| **c) Imaging** | | |
| | | **Signature of trainer when competency achieved** |
| 13. Computerized tomography (to include cone beam CT of the temporal bones) | | |
| 14.Magnetic resonance imaging | | |
| 15. Angiography | | |
| 15a. CT Angiography | | |
| 15b. MR Angiography | | |
| 15c. Cerebral Angiography | | |
| 16. Positron Emission Tomography | | |
| 17. Radionuclide scanning e.g. technetium, gallium scanning | | |
| **d) Laboratory Tests** | | |
| | | **Signature of trainer when competency achieved** |
| 18. Relevant blood tests (hematology, biochemistry, hormonal assays and immunology) | | |
| 19. Genetic tests | | |
| 20. Microbiology | | |
| | | |
| **C. Non-Surgical Management** | | |
| | | **Signature of trainer when competency achieved** |
| 1. Pharmacological treatment in the acute phase | | |
| 2. Long term pharmacologic treatment | | |
| 3. Withdrawal of aggravating factors | | |

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| 4. Psychological support | | |
| 5. Vestibular rehabilitation therapy | | |
| 4a. adaptation | | |
| 4b. habituation | | |
| 4c. substitution | | |
| 6. Optimization of related sensory/motor function | | |
| 7. Otolith repositioning maneuvers | | |
| 8. Referral to psychiatry, neurology/neurosurgery, ophthalmology, genetics as appropriate | | |
| 9. Stereotactic radiotherapy | | |
| 10. Peri-operative management of patients undergoing otological surgery | | |
| **D. Knowledge of Surgical Management** | | |
| | | **Signature of trainer when competency achieved** |
| 11. Wax removal | | |
| 12. Myringotomy | | |
| 13. Ventilation tube insertion | | |
| 14. Trans-tympanic steroid/gentamycin injection | | |
| 15. Myringoplasty (Type 1 Tympanoplasty) | | |
| 16. Tympanotomy | | |
| 17. Mastoidectomy | | |
| 17a. Cortical | | |
| 17b. Modified radical / radical (Back to front approach) | | |
| 17c. Atticotomy /Attico-antrostomy (Front to back approach) | | |
| 17d. Combined approach tympanoplasty | | |
| 17e. Mastoid obliteration | | |
| 18. Cochlear implants and other implantable devices | | |
| 19. Stapes surgery | | |
| 20. Surgery of middle and inner ear tumors | | |
| 21. Revision ear surgery e.g., repair of perilymphatic fistula | | |
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| **E. nowledge of side effects and complications of treatment** | | |
|---|---|---|
| | | **Signature of trainer when competency achieved** |
| Contraindications and management of side effects of medication given in the acute phase or in the long term | | |
| Contraindications to positioning during examination | | |
| Management of acute vertiginous attacks /emesis/drop attacks after otolith repositioning maneuvers | | |
| Contraindications for carrying out caloric tests and other balance tests | | |
| Management of adverse reactions to caloric testing (including vestibulogenic epilepsy) and other balance tests | | |
| Management of complications of stereotactic radiotherapy | | |
| Management of postoperative complications | | |