

SPECIALTY TRAINING CURRICULUM

FOR

**AUDIOLOGICAL
MEDICINE**

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Joint Royal Colleges of Physicians Training Board

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INTRODUCTION

The specialty curriculum outlines the specialty training from Specialist Training year 3 (ST3) through to Certificate of Completion of Training (CCT).

RATIONALE

Purpose

The purpose of this curriculum is to describe the training system in Audiological Medicine. The training system ultimately aims to provide the patient with a doctor trained as an attentive listener, a careful observer, an effective communicator and a knowledgeable and capable clinician. The curriculum describes the competencies required to obtain a Certificate of Completion of Training (CCT) and to be registered on the Specialist Register in Audiological Medicine. The CCT specialist will be able to work as a consultant specialist within the National Health Service in Paediatric and Adult Audiological (or Audiovestibular) Medicine and will have the knowledge, skills and attitudes required to provide a high standard professional service in the specialty.

After completing audiological medicine training and having been awarded a CCT in audiological medicine the curriculum will have prepared the doctor to:

- Practise audiological medicine to a high level of competency
- Continue with their continuing professional development
- Engage with appraisal and revalidation
- Review their practice in the light of Good Medical Practice
- Identify their learning needs and goals to develop further specialised practice.

Development

This curriculum was developed by a group of senior audiological physicians using the pre-existing curriculum (JCHMT 2003) for Audiological Medicine, taking into consideration new developments in the specialty and recent changes in training and assessment, with guidance from the Royal College of Physicians. The 2003 curriculum had been drawn up by senior consultants and specialist registrars in their final years of training and circulated widely within the profession for comment. It had also been formally reviewed in 2005. The 2003 curriculum provided a robust and well-established basis for the current curriculum.

Audiological physicians, at both consultant and specialist registrar level, were given an opportunity to comment on the contents of this curriculum (2006) including areas of training and the assessment methods. All the consultants were experienced trainers. These comments were taken into consideration in developing this current curriculum, which was endorsed by the SAC in Audiological Medicine before being forwarded to the JRCPTB for approval.

Appropriateness

The curriculum is appropriate for trainees preparing to practice as consultant audiological physicians in the UK. All consultant audiological physicians will have covered the full curriculum during training and are able to practice either as 'general' or as 'specialist' audiological physicians.

Most audiological physicians practice as general audiological physicians and care for both paediatric and adult populations providing a high standard of care for patients with both audiological and vestibular problems. Some consultant audiological physicians practice as specialists and limit their clinical practice to a greater or lesser degree to their own clinical subspecialties. They provide specialised care and have appropriate skills and resources in a unit that provides specialist technical and clinical support. Specialist areas include paediatric audiovestibular medicine, neuro-otology and adult rehabilitation, and within these main areas: cochlear implantation, auditory processing disorders, paediatric balance disorders and paediatric speech & language disorders.

The curriculum enables trainees who wish to develop a special interest to do so. Some special interests (e.g. developmental disorders of speech & language, cochlear implants) require training beyond the core curriculum.

Linkages

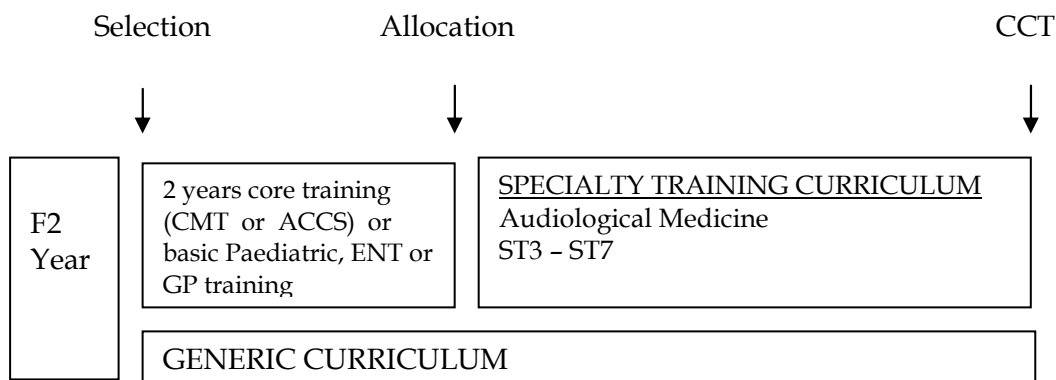
The curriculum builds on skills and competencies acquired during the foundation years and 2 years of core training. It makes allowance for the fact that it is likely that trainees may not have had any specific training or exposure to Audiological Medicine on entry to ST3.

Entrants into Specialty Training (ST) should have completed 2 years of Foundation training and a minimum of two years core training (ST1, ST2) (core medical training - CMT or acute care common stem (medicine) - ACCS(M)) or equivalent. The majority of trainees will be recruited into 'run-through' posts after completing Foundation year 2. Before entering ST3 they need to have achieved the MRCP part 1 and show a commitment to obtaining MRCP part 2 and will then be allowed to progress smoothly from ST3 to CCT subject to the annual RITA review. Other trainees can be recruited into ST3 having completed core training or equivalent in paediatrics, ENT surgery or general practice. Experience in Audiological Medicine is not essential for entry into specialist training.

Generic Curriculum

This specialty curriculum is complementary to the generic curriculum which applies to all 28 physicianly specialities. The generic curriculum follows the headings of good medical practice and runs through from core training to CCT (see fig). Trainees should read and understand both their specialty curriculum and the generic curriculum. Both curricula should be seen as integrated so that generic competencies are acquired at all stages of specialty training. Some generic components are also further expanded and deepened for some specialties (eg palliative medicine). When planning specialty

programmes, deaneries and trainers should ensure that both specialty and generic competencies can be acquired and assessed.



Non-UK graduates without the MRCP who compete for ST posts must provide evidence of appropriate knowledge, training and experience.

Trainees laddering across from Otorhinolaryngology will need to acquire core medical training competencies this may require a year's core medical training. Therefore the overall duration of training is likely to be longer than the five year time span.

The curriculum provides for training across a range of related specialties ensuring that, regardless of the initial training route, an audiological physician acquiring CCT will have acquired appropriate competencies in all related subjects as well as the core curricular subjects of Paediatric Audiological Medicine, Adult Audiological Medicine and Vestibular Medicine. Where trainees have prior experience in these related specialties it may be possible to reduce the length of time in Audiological Medicine training.

The curriculum assumes that trainees will have achieved basic generic skills as a doctor as described in Good Medical Practice and as outlined in the foundation curriculum and the JRCPTB generic curriculum

Relationship to programmes

Training is delivered through a series of educational placements in centres providing high standards of care in Audiological Medicine delivered by recognised training consultants. Clinical experience is gained in different environments that may include specialist centres within teaching hospitals, district general hospitals and community audiological services allowing exposure to all levels of service provision. Rotation is through a variety of placements during the years of training the combination of which ensures that each trainee has an equal opportunity to be exposed to, and trained in, all aspects of the specialist curriculum.

There are currently two Audiological Medicine Specialist Registrar training programmes in the UK providing training from Specialist Registrar entry to CCT (ST3 to ST7); the Pan-Thames training programme and the North Western, Trent and Wales training programme. The Pan-Thames rotation is supported by the London Deanery and the other by the North Western Deanery.

Placement of trainees is co-ordinated by the Programme Director in either deanery and is dictated by the trainees' educational needs as determined by the annual RITA process. The rotations are organised in order to ensure each trainee covers the specialty and the generic curricula.

CONTENT OF LEARNING

Aims

The training programme in Audiological Medicine aims to produce physicians who:

- Apply appropriate knowledge and skill in the diagnosis and management of patients with audiological and vestibular disorders
- Establish a differential diagnosis of patients presenting with audio-vestibular problems by the appropriate use of the clinical history, examination and investigations
- Are competent to instigate the core investigations required in Audiological Medicine
- Have a good practical knowledge of the audiovestibular tests used in audiological medicine
- Are able to apply the knowledge of basic sciences in clinical practice
- Can develop management plans for the 'whole patient' with sound knowledge of the appropriate treatments including health promotion, disease prevention and rehabilitative plans
- Demonstrate appropriate attitudes and communication skills in dealing with patients and colleagues
- Take into account all aspects of the healthcare needs of patients and their families
- Are able to act as safe independent practitioners whilst recognising the limitation of their own expertise and the obligation to seek assistance of colleagues where appropriate
- Develop clinical practice which is based on an analysis of best available evidence and/or within national guidelines where available
- Have acquired and developed team working and leadership skills
- Work effectively with other health care professionals, social services, education departments and voluntary agencies
- Manage time and resources to the benefit of themselves, their patients and colleagues
- Are able to identify and take responsibility for their own educational needs and the attainment of these needs
- Are capable of being educational supervisors/trainers able to perform an objective appraisal and honest assessment.
- Can effectively use current methods in Information Technology
- Are aware of current thinking about ethical and legal issues
- Participate fully in all Clinical Governance activities

- Accept the clinician's role and responsibilities in providing high quality patient care, setting and monitoring standards.
- Have developed management skills e.g. chairing a meeting, negotiating skills, dealing with conflicts and complaints etc.

The curriculum assumes that trainees will have achieved basic generic skills as a doctor as described in Good Medical Practice (see generic curriculum JRCPTB).

Specialty Specific Curriculum

This curriculum is based on the three core areas of Paediatric Audiological Medicine, Adult Audiological Medicine, and Vestibular Medicine, three additional topics and a number of other related specialties which contain subject matter which underpins all three core areas. The learning methods, assessment methods and evidence for competence will be relevant to the specific key areas and will be outlined within the relevant sections.

The trainee is expected to be competent in all areas of the curriculum in order to achieve CCT.

Knowledge Base

The diploma in Audiovestibular Medicine forms the knowledge based tuition and assessment of this specialty and is essential for the award of CCT. It is recommended that trainees complete the diploma on a part-time basis over the first two years of training although this can be spread over 5 years. A description and outline of the objectives of the diploma (Appendix 1) and the curriculum for the diploma (Appendix 2) are appended.

The diploma is awarded following successful completion of 6 separate modules:

1. Audiovestibular Physics and Statistics
2. Anatomy and Physiology
3. Audio-Vestibular Diagnostics
4. Clinical Sciences Allied to Audiological Medicine
5. Vestibular Medicine
6. Clinical Auditory Medicine - Children and Adults

The curriculum covers the subject matter needed to practice in Audiological Medicine. It is a theoretical course intended to provide knowledge that underpins and complements speciality training in the field. It is designed to be delivered within 60 days over 2 to 5 years on the basis of one day a week and therefore does not impact on the clinical component of ST3 - ST7 but ensures that solid theoretical knowledge accompanies and enhances clinical training. The knowledge needed to practice Audiological Medicine is not covered at any other point in medical training and the depth of comprehension needed requires a taught diploma. The course involves taught components or lectures, individual study and tutorials; learning is assessed through prepared essays, presentations and unseen written examinations (see Appendices 1 and 2). CCT is dependent on the trainee obtaining the diploma.

The MSc in Audiovestibular Medicine involves the same course as for the diploma with an additional dissertation. Trainees will have the option of doing the dissertation and obtaining an MSc if they wish, but this is not compulsory.

Outline of Clinical Learning Objectives

By the end of the educational programme trainees will have acquired knowledge, clinical and practical skills and appropriate attitude in the three core areas of training, additional topics and related specialties as outlined below. They will have attended training courses essential to practice as a consultant in Audiological Medicine as listed below.

In order to obtain the Certificate of Completion of Training (CCT) in Audiological Medicine trainees would be expected to be able to take a comprehensive history, perform a detailed physical examination as well as audiological and vestibular assessment, instigate the appropriate investigations, diagnose and manage the identified clinical problems in the three core areas of training with the appropriate behaviour and attitude. They would be expected to have acquired the practical skills outlined as indicated and to have acquired knowledge and skills in additional topics and related specialties as outlined. They will be able to work effectively within a multi-disciplinary team and with outside agencies such as social workers and voluntary bodies.

In order to develop critical appreciation of the value and pitfalls of various tests the trainee needs practical experience in performing a wide variety of audiovestibular tests. It is indicated where the trainee needs to be competent in performing these tests because it is highly likely a consultant will be expected to do the test personally and where the trainee needs to have practical experience of the test because it is likely that the test will be carried out by others. In all cases the trainee will need to be competent in interpretation of the test results in the context of the clinical case.

1. Paediatric Audiological Medicine

- 1.1. Congenital or prelingual deafness
- 1.2. Progressive, sudden or late onset deafness
- 1.3. Fluctuating deafness including otitis media with effusion
- 1.4. Non-organic hearing difficulties
- 1.5. Children with complex medical or developmental problems and others who are "difficult to assess"
- 1.6. Children with speech & language problems
- 1.7. Auditory processing disorders (APD)
- 1.8. Auditory neuropathy/auditory dysynchrony
- 1.9. Tinnitus, dysacusis and hyperacusis in children
- 1.10. Practical procedures in paediatric audiological medicine

2. Adult Audiological Medicine

- 2.1. Tinnitus
- 2.2. Sudden hearing loss
- 2.3. Unilateral hearing loss
- 2.4. Hearing problems in younger adults

- 2.5. Congenitally deaf adult
- 2.6. Hearing problems in the elderly
- 2.7. Dysacusis & central auditory dysfunction
- 2.8. Intellectually disabled adult
- 2.9. Practical procedures in adult audiological medicine

3. Vestibular Medicine

- 3.1 Acute vertigo
- 3.2 Recurrent disequilibrium
- 3.3 Chronic imbalance
- 3.4 Blackouts/drop attacks
- 3.5 Falls in the elderly
- 3.6 Dizziness and imbalance in children
- 3.7 Practical procedures in vestibular medicine

4. Additional Topics in Audiological Medicine

- 4.1. Basic sciences
- 4.2. Preventive audiology
- 4.3. Hearing instruments

5. Related Specialties

- 5.1 Otorhinolaryngology
- 5.2 Paediatrics and developmental paediatrics
- 5.3 Paediatric neurology
- 5.4 Adult neurology
- 5.5 Child and adolescent psychiatry/psychology
- 5.6 Adult psychiatry/psychology
- 5.7 Paediatric ophthalmology
- 5.8 Adult ophthalmology
- 5.9 Genetics
- 5.10 Care of the elderly

Essential courses

The following courses are mandatory during training. It is important that trainees have access to appropriate courses and can demonstrate knowledge, skills and competency in:

- a. Cardio Pulmonary Resuscitation
- b. Child protection
- c. Management skills
- d. Equality and diversity or Equal Opportunity training

These courses should be generally available in trusts.

The STCs maintain current lists of other recommended courses, both local and national, which the trainee should attend.

1. PAEDIATRIC AUDIOLOGICAL MEDICINE

1.1 Congenital or prelingual deafness			
Objective	Knowledge	Skills	Attitudes
To be able to suspect, diagnose and manage congenital and prelingual deafness in children	<p>To know:</p> <ul style="list-style-type: none"> ▪ the signs and symptoms of deafness ▪ the aetiology of hearing disorders and the likelihood of involvement of other systems ▪ the appropriate aetiological investigations ▪ normal general child development ▪ the speech & language development of normal and deaf children ▪ the indications, application and problems of audiological tests (see 1.10) ▪ amplification methods including conventional hearing aids and cochlear implantation (see 4.3) ▪ methods of assessing benefit and problems with amplification (see 4.3) ▪ alternative modes of communication ▪ how to manage a deaf child ▪ about the educational needs of children and statutory assessment of educational needs ▪ of possible psychological / cultural issues surrounding hearing loss and their immediate and long term management ▪ when to refer for further medical opinions and to other allied professionals ▪ about newborn hearing screening and the management of children who fail ▪ about the needs of the deaf adolescent during transition and transfer to adult services 	<p>To be able to:</p> <ul style="list-style-type: none"> ▪ take an accurate history including pre-, peri- and post-natal history and family history ▪ elicit sensitive information from the parents/patient that are relevant to management ▪ undertake an accurate and reliable clinical examination ▪ recognise features indicative of syndromic deafness ▪ select the appropriate tests that are required to assess the child ▪ interpret the results of these tests ▪ select and interpret appropriate aetiological investigations ▪ communicate effectively with both patient and parents, including those whose first language is not English ▪ work effectively through an interpreter ▪ communicate effectively with colleagues verbally and in writing ▪ assess benefits and problems of intervention ▪ use British Sign Language to a minimal level of Stage 1 	<p>To recognise:</p> <ul style="list-style-type: none"> ▪ the importance of the history including family history & developmental history in making a diagnosis. ▪ the cultural issues and parental views with regards to deafness and its management ▪ the anxiety and stress caused by suspected deafness and the possible natural reactions surrounding the diagnosis ▪ the effect of audiological and aetiological uncertainty following identification of significant deafness in the newborn period ▪ the importance of involvement of other professionals in the management of deaf children ▪ the importance of effective multidisciplinary team work and ability to efficiently communicate with colleagues and parents both verbally and in writing ▪ the needs of the deaf adolescent during transition and transfer ▪ appreciate the value of voluntary agencies in supporting the family and child

Diploma modules: 3 (topic 8 & 10), 4.1 (topic 1), 6. Pages 70, 71, 74 -78 Appendix 2

1.2 Progressive, sudden or late onset deafness			
Objective	Knowledge	Skills	Attitudes
To be able to detect, investigate and manage progressive or sudden deafness in children	<p>To know:</p> <ul style="list-style-type: none"> ▪ the signs and symptoms of progressive or sudden deafness ▪ the psychological sequelae of progressive or sudden deafness ▪ the impact on speech and communication skills and school performance ▪ the aetiology of progressive or sudden deafness ▪ the appropriate audio-vestibular and aetiological investigations ▪ how to manage a child with progressive or sudden deafness ▪ when to refer for further medical opinions and to other allied professionals 	<p>To be able to:</p> <ul style="list-style-type: none"> ▪ take an accurate history ▪ elicit sensitive information from the parents/patient that are relevant to management ▪ undertake an accurate and reliable audiological, neuro-otological and general clinical examination ▪ select and interpret appropriate investigations including speech and language assessment and vestibular assessment ▪ select and interpret appropriate aetiological investigations ▪ communicate effectively with both patient and parents, including those whose first language is not English ▪ communicate effectively with colleagues both verbally and in writing ▪ assess benefits and problems of intervention correctly 	<p>To recognise:</p> <ul style="list-style-type: none"> ▪ the importance of the history including family history, and developmental history in making a diagnosis. ▪ the anxiety and stress caused by progressive or sudden deafness and the possible natural reactions surrounding the diagnosis for both the child and parents ▪ the importance of involvement of other professionals in the management of such children ▪ the importance of effective multidisciplinary team work and effective communication with colleagues and parents both verbally and in writing ▪ the value of voluntary organisations for the child and his family

Diploma modules: 3 (topic 8 & 10), 4.1 (topic 1), 6. Pages 70, 71, 74 - 78 Appendix 2

1.3 Fluctuating deafness including otitis media with effusion			
Objective	Knowledge	Skills	Attitudes
To be able to detect, investigate and manage fluctuating deafness, including otitis media with effusion, in children	<p>To know:</p> <ul style="list-style-type: none"> ▪ the signs and symptoms of fluctuating deafness including otitis media with effusion ▪ the aetiology of fluctuating deafness including otopathology and its pathogenesis, immunology and allergy ▪ the impact of otitis media with effusion on emerging speech and language skills and behaviour, and its management ▪ appropriate audio-vestibular and aetiological investigations of fluctuating deafness including otitis media with effusion ▪ current best evidence for medical, audiological and surgical management of fluctuating deafness ▪ when to refer for further medical opinions and to other allied professionals 	<p>To be able to:</p> <ul style="list-style-type: none"> ▪ take an accurate history ▪ elicit sensitive information from the parents/patient that are relevant to management ▪ undertake an accurate and reliable audiological, neuro-otological, developmental, and speech & language assessment, and general clinical examination ▪ select and interpret the appropriate tests that are required to assess the child ▪ select and interpret appropriate aetiological investigations ▪ communicate effectively with both patient and parents, including those whose first language is not English ▪ communicate effectively with colleagues both verbally and in writing ▪ assess benefits and problems of intervention correctly ▪ work effectively within a multi-disciplinary team 	<p>To recognise:</p> <ul style="list-style-type: none"> ▪ the importance of the history including family history, and developmental history in making a diagnosis. ▪ the importance of involvement of other professionals in the management of children with deafness ▪ the importance of effective multidisciplinary team work and effective communication with colleagues and parents both verbally and in writing ▪ that some families seek complementary medicine approaches to otitis media with effusion ▪ parental views of the child's management ▪ the value and limitations of national guidelines

Diploma modules: 3 (topic 8 & 10), 4.1 (topic 1), 6. Pages 70, 71, 74 - 78 Appendix 2

1.4 Non-organic hearing difficulties			
Objective	Knowledge	Skills	Attitudes
To be able to detect, investigate and manage non-organic hearing difficulties in children	<p>To know:</p> <ul style="list-style-type: none"> ▪ the developmental/history profile of children who present with non organic hearing difficulties ▪ the causes of non-organic hearing difficulties ▪ correct management of non-organic hearing difficulties ▪ when to refer for further medical opinions and to other allied professionals 	<p>To be able to:</p> <ul style="list-style-type: none"> ▪ take an accurate history ▪ elicit sensitive information from the parents/patient that are relevant to management ▪ carry out an accurate and reliable audiological and general clinical examination in particular a clear profile of psychological and educational achievements ▪ select and interpret the appropriate tests that are required to assess the child ▪ communicate effectively with both patient and parents, including those whose first language is not English ▪ communicate effectively with colleagues both verbally and in writing ▪ assess benefits and problems of intervention correctly ▪ work effectively within a multi-disciplinary team 	<p>To recognise:</p> <ul style="list-style-type: none"> ▪ the importance of the history in making a diagnosis. ▪ the importance of involvement of other professionals in the management of children with non-organic hearing difficulties ▪ the importance of effective multidisciplinary team work and effective communication with colleagues and parents both verbally and in writing ▪ the importance of sensitivity to parents' and patient's response to a 'non-organic' diagnosis

Diploma modules: 3 (topic 8 & 10), 4.1 (topic 1), 6. Pages 70, 71, 74 - 78 Appendix 2

1.5 Children with complex medical or developmental problems and others who are “difficult to assess”			
Objective	Knowledge	Skills	Attitudes
<ul style="list-style-type: none"> • To be able to carry out an accurate audiological assessment of children with complex medical or developmental problems and also those children who are “difficult to assess” • To be able to manage deafness in these children 	<p>To know:</p> <ul style="list-style-type: none"> ▪ the signs and symptoms of hearing loss in children with complex medical problems ▪ normal development of the child ▪ the speech & language development of normal and deaf children ▪ amplification methods including hearing aids, and methods of prescribing hearing aids especially with reference to children with complex medical problems ▪ methods of assessing benefit and problems with amplification ▪ about the educational needs of children and statutory assessment of educational needs ▪ of possible psychological /cultural issues surrounding deafness, particularly in relation to the child’s additional difficulties, and their immediate and long term management 	<p>To be able to:</p> <ul style="list-style-type: none"> ▪ take an accurate history including pre-, peri- and post-natal history, developmental history and the family history ▪ elicit sensitive information from the parents/ patient that are relevant to management ▪ perform an accurate and reliable clinical examination ▪ identify the importance of general medical conditions on audio-vestibular status ▪ select and interpret the appropriate tests that are required to assess the child ▪ select and interpret appropriate aetiological investigations ▪ communicate effectively with both patient and parents, including those whose first language is not English ▪ communicate effectively with colleagues both verbally and in writing ▪ assess correctly benefits and problems of intervention ▪ work effectively within a multi-disciplinary team 	<p>To recognise:</p> <ul style="list-style-type: none"> ▪ the importance of the history including family and developmental history in making a diagnosis. ▪ cultural issues and parental views with regards to deafness and its management ▪ the anxiety and stress caused by suspected deafness and the possible natural reactions surrounding the diagnosis ▪ the combined effect of deafness with other special needs for the child and family ▪ the importance of involvement of other professionals in the management of children with deafness ▪ the importance of effective multidisciplinary team work and effective communication with colleagues and parents both verbally and in writing ▪ the value of voluntary organisations for the families

Diploma modules: 3 (topic 8 & 10), 4.1 (topic 1), 6. Pages 70, 71, 74 - 78 Appendix 2

1.6 Children with speech & language problems (* ST6 and ST7)			
Objective	Knowledge	Skills	Attitudes
To be able to suspect and diagnose speech/language disorder/delay in children presenting with speech & language problems	<p>To know:</p> <ul style="list-style-type: none"> ▪ the signs and symptoms of speech and language disorder/delay in children ▪ the causes of speech and language problems in children ▪ the association of developmental disorders of speech and language with other developmental and processing disorders ▪ normal development of the child ▪ normal speech and language development ▪ the role of the speech & language therapist ▪ about the educational needs of children with speech and language disorder/delay and statutory assessment of educational needs ▪ the specialist provision and voluntary organisations supporting these children ▪ the range of tests and assessments needed to evaluate children with disorders of speech and language ▪ the communication options for these children ▪ about the impact of speech and language disorders on the child's psychological and social development 	<p>To be able to:</p> <ul style="list-style-type: none"> ▪ take an accurate history including pre-, peri- and post-natal history, developmental history and the family history ▪ to elicit sensitive information from the parents/patient that are relevant to management ▪ carry out an accurate and reliable clinical examination ▪ work closely with speech and language therapists (SALT) and other professionals to ensure effective multidisciplinary evaluation of the child ▪ select and interpret the appropriate aetiological investigations ▪ interpret appropriate multidisciplinary assessments in the light of clinical presentation ▪ formulate in conjunction with a SALT and the parents, an appropriate management plan ▪ communicate effectively with both patient and parents, including those whose first language is not English ▪ communicate effectively with colleagues both verbally and in writing ▪ assess correctly benefits and problems of intervention 	<p>To recognise:</p> <ul style="list-style-type: none"> ▪ importance of the history including family and developmental history in making a diagnosis. ▪ cultural issues and parental views with regards to speech and language difficulties and management thereof ▪ the anxiety and stress caused by speech and language difficulties and the possible natural reactions surrounding these diagnoses ▪ the importance of involvement of other professionals in the management of children with speech and language difficulties ▪ the importance of effective multidisciplinary team work and effective communication with colleagues and parents both verbally and in writing ▪ the importance of enabling parents to access specialist resources

Diploma modules: 4.1 (topic 2), 6. Pages 71, 74, 75, 76, 77 Appendix 2

1.7 Auditory Processing Disorders (APD)			
Objective	Knowledge	Skills	Attitudes
To be able to suspect, diagnose and manage auditory processing problems in children	<p>To know:</p> <ul style="list-style-type: none"> ▪ the signs and symptoms of APD and how it can affect the child's educational progress ▪ the conditions that may cause or be associated with APD ▪ normal general child development ▪ the speech & language development of normal and deaf children ▪ the anatomy and physiology of the central auditory pathways ▪ the indications, application, difficulties and interpretation of audiological test batteries ▪ methods of rehabilitation of children with APD ▪ about the educational needs of children and statutory assessment of educational needs 	<p>To be able to:</p> <ul style="list-style-type: none"> ▪ take an accurate history including pre-, peri- and post-natal history, developmental history and the family history ▪ to elicit sensitive information from the parents/patient that are relevant to management ▪ undertake an accurate and reliable clinical examination including neurological assessment ▪ select and interpret the appropriate tests that are required to assess the child ▪ select and interpret appropriate aetiological investigations ▪ communicate effectively with both patient and parents, including those whose first language is not English ▪ work effectively within a multi-disciplinary team and communicate effectively with colleagues both verbally and in writing ▪ correctly assess benefits and problems of intervention 	<p>To recognise:</p> <ul style="list-style-type: none"> ▪ the importance of the history in making a diagnosis. ▪ the importance of involvement of other professionals in the assessment and management of children with APD ▪ the importance of effective multidisciplinary team work and effective communication with colleagues and parents both verbally and in writing

Diploma modules: 3 (topic 8 & 10), 4.1 (topic 1), 6. Pages 70, 71, 74 - 78 Appendix 2

1.8 Auditory Neuropathy/Auditory Dysynchrony (AN/AD)			
Objective	Knowledge	Skills	Attitudes
To be able to suspect, diagnose and manage auditory neuropathy or auditory dysynchrony in children	<p>To know:</p> <ul style="list-style-type: none"> ▪ the presentation and diagnostic tests for AN/AD ▪ the signs and symptoms of AN/AD and how it can affect the child's educational progress ▪ the conditions that may cause or be associated with AN/AD ▪ normal general child development ▪ the speech & language development of normal and deaf children ▪ methods of rehabilitation of children with AN/AD including the value of cochlear implant ▪ about the educational needs of children and statutory assessment of educational needs 	<p>To be able to:</p> <ul style="list-style-type: none"> ▪ take an accurate history including pre-, peri- and post-natal history, developmental history and the family history ▪ to elicit sensitive information from the parents/patient that are relevant to management ▪ undertake an accurate and reliable clinical examination ▪ select and interpret the appropriate tests that are required to assess the child ▪ select and interpret appropriate aetiological investigations ▪ communicate effectively with both patient and parents, including those whose first language is not English ▪ share uncertainties in prognosis with parents ▪ work effectively within a multi-disciplinary team and communicate effectively with colleagues both verbally and in writing ▪ correctly assess benefits and problems of intervention 	<p>To recognise:</p> <ul style="list-style-type: none"> ▪ the importance of accurate electrophysiological testing in making a diagnosis. ▪ the importance of involvement of other professionals in the management of children with AN/AD ▪ the importance of effective multidisciplinary team work and effective communication with colleagues and parents both verbally and in writing ▪ the effect on the parents of audiological and prognostic uncertainty especially following identification in the newborn period

Diploma modules: 3 (topics 5, 8 & 10), 4.1 (topic 1), 6. Pages 69, 70, 71, 74 - 78 Appendix 2

1.9 Tinnitus, Dysacusis and Hyperacusis in Children			
Objective	Knowledge	Skills	Attitudes
<ul style="list-style-type: none"> ▪ To be able to suspect, diagnose and manage tinnitus in children ▪ To be able to suspect, diagnose and manage dysacusis and hyperacusis in children 	<p>To know:</p> <ul style="list-style-type: none"> ▪ how tinnitus may present in children ▪ how dysacusis or hyperacusis may present in children ▪ the different conditions which can cause or trigger tinnitus, dysacusis or hyperacusis ▪ current pathophysiological theories about tinnitus generation ▪ the prevalence of tinnitus and its natural history of habituation. ▪ the psychological effects of tinnitus, dysacusis and hyperacusis on the child and how these can be managed ▪ the possible effects of tinnitus, dysacusis or hyperacusis on education ▪ how to select and interpret appropriate tinnitometric and aetiological (including audiometric and imaging) investigations ▪ how to manage a child with tinnitus, dysacusis or hyperacusis in the context of the multi-disciplinary team 	<p>To be able to:</p> <ul style="list-style-type: none"> ▪ take an accurate history including pre-, peri- and post-natal history, developmental history and the family history ▪ to elicit sensitive information from the parents/patient that are relevant to management ▪ undertake an accurate and reliable clinical examination ▪ select and interpret the appropriate tests that are required to assess the child ▪ select and interpret appropriate aetiological investigations ▪ select appropriate management strategies ▪ communicate effectively with both patient and parents, including those whose first language is not English ▪ work effectively within a multi-disciplinary team and communicate effectively with colleagues both verbally and in writing ▪ refer appropriately to other specialists 	<p>To recognise:</p> <ul style="list-style-type: none"> ▪ the importance of the history in making a diagnosis and determining optimal management. ▪ the possible psychological impact of tinnitus on the child and family and of the child and family's attitude on the tinnitus ▪ the importance of involvement of other professionals in the management of children with tinnitus, dysacusis or hyperacusis ▪ the importance of effective multidisciplinary team work and effective communication with colleagues and parents both verbally and in writing ▪ the value of complementary medical approaches to holistic management of tinnitus

Diploma modules: 3 (topic 8, 9 & 10), 4.2 (topic 3), 6. Pages 70,71,74 - 78 Appendix 2

1.10 Practical Procedures in Paediatric Audiological Medicine

Objectives	Knowledge	Skills	Attitudes
<ul style="list-style-type: none"> • To gain a comprehensive knowledge of audiological testing in children • To gain practical skills in testing children. • To gain a critical appreciation of the value and difficulties of audiological tests in children 	<p>To know:</p> <ul style="list-style-type: none"> ▪ the anatomy and physiology of the auditory pathway ▪ the theoretical basis of audiological testing including physics, acoustics and psychoacoustics ▪ the normal development of behavioural responses to sound in children ▪ the indications for the various audiological tests in children ▪ the values, limitations and practical difficulties of audiological testing in children 	<p>To be able to:</p> <ul style="list-style-type: none"> • select appropriately and interpret correctly all the audiological tests listed in 1 and 2 below. <p>In addition trainees should:</p> <p>1. be able to perform competently:</p> <ul style="list-style-type: none"> • distraction testing on normal and 'difficult to test' children • behavioural observation audiometry • visual reinforcement audiometry • conditioning techniques for soundfield and ear specific audiometry • pure tone audiometry (air conduction, bone conduction with or without masking) • acoustic immitance measures • speech perception tests <p>2. have practical experience of:</p> <ul style="list-style-type: none"> • middle ear reflex measures • otoacoustic emissions (transient, distortion product, spontaneous, contra-lateral suppression) • speech audiometry including speech in noise • evoked responses (electro-cochleography, auditory brainstem responses, middle latencies, cortical responses) • tests of auditory processing 	<p>To:</p> <ul style="list-style-type: none"> ▪ work effectively in a multidisciplinary team ▪ communicate effectively with patients, their families and other professionals both verbally and in writing

Diploma modules: 1.1, 2, 3, 6 pages 64- 70, 74- 78 Appendix 2

2. ADULT AUDIOLOGICAL MEDICINE

2.1 Tinnitus			
Objectives	Knowledge	Skills	Attitudes
<p>To:</p> <ul style="list-style-type: none"> ▪ distinguish between the causes of tinnitus ▪ determine the effects of tinnitus on the individual ▪ select appropriate investigations ▪ define a management plan ▪ explain the causes and consequences of tinnitus to the individual 	<p>To know:</p> <ul style="list-style-type: none"> ▪ the different conditions which can cause or trigger tinnitus ▪ current pathophysiological theories about tinnitus generation ▪ the prevalence of tinnitus and its natural history of habituation. ▪ how to select and interpret appropriate tinnitometric and aetiological (including audiometric and imaging) investigations ▪ the psychological effects of tinnitus on the patient and how these can be managed ▪ the effects of hearing aids, tinnitus instruments (including WNG, sound ball etc.) and environmental modification on tinnitus ▪ about various tinnitus retraining and relaxation techniques 	<p>To be able to:</p> <ul style="list-style-type: none"> ▪ take a relevant history and perform an appropriate examination ▪ counsel the patient on the cause, test results and consequences of tinnitus ▪ select and interpret the results of tinnitometric and audiological investigations ▪ select and interpret appropriate aetiological investigations including imaging ▪ select appropriate management strategies such as hearing aids, tinnitus instruments, cognitive therapy, relaxation, pharmacological options ▪ identify psychological problems needing psychiatric referral ▪ select and interpret appropriate outcome measures ▪ work effectively within the multi-disciplinary team and liaise effectively with hearing therapists, clinical psychologists, psychiatrists and GPs about the appropriate management of the patient 	<p>To recognise:</p> <ul style="list-style-type: none"> ▪ the psychological impact of tinnitus on the patient and of the patient's psychological attitude on the tinnitus ▪ the need for an empathetic, supportive and positive approach to the patient and his/her concerns ▪ the importance of effective multidisciplinary team work and effective communication with colleagues both verbally and in writing ▪ the value of complementary medical approaches to holistic management of tinnitus

Diploma modules: 3, 4, 5, 6 pages 69 - 78 Appendix 2

2.2 Sudden hearing loss			
Objective	Knowledge	Skills	Attitudes
To be able to carry out specialist assessment, treatment and rehabilitation of patients with sudden hearing loss.	<p>To know:</p> <ul style="list-style-type: none"> ▪ the causes of sudden hearing loss. ▪ how to differentiate between the various anatomical sites of lesion that may be involved. ▪ the indications for the relevant audiometric, serological and imaging investigations. ▪ the psychological impact of sudden hearing loss particularly if permanent and bilateral. ▪ current evidence based management for both the acute presentation and later ▪ the indications for surgery in both conductive and profound hearing loss. ▪ about communication strategies and hearing tactics ▪ about the concurrence of tinnitus and vertigo with sudden hearing loss 	<p>To be able to:</p> <ul style="list-style-type: none"> ▪ take a relevant history and perform appropriate examination. ▪ select and interpret results of appropriate investigations. ▪ select appropriate management strategies e.g. pharmacological, surgical, psychological and rehabilitative - including CROS systems. ▪ liaise effectively with Otologists, Neurosurgeons, Hearing Therapists and Counsellors about the appropriate management of the patient ▪ work effectively within the multi-disciplinary team 	<p>To:</p> <ul style="list-style-type: none"> ▪ listen sympathetically and positively to the problems and fears of the patient ▪ recognise the impact of sudden hearing loss on the patient and his/her ability to work, socialise and communicate ▪ recognise the importance of effective multidisciplinary team work and effective communication with colleagues both verbally and in writing

Diploma modules: 3, 4,5, 6 pages 69 - 78 Appendix 2

2.3 Unilateral hearing loss			
Objective	Knowledge	Skills	Attitudes
To be able to carry out specialist assessment, treatment and rehabilitation of patients with unilateral hearing loss.	To know: <ul style="list-style-type: none"> ▪ the causes of unilateral hearing loss. ▪ the indications for relevant audiometric, serological and imaging investigations. ▪ the effects that unilateral hearing loss may have on the patient, including issues of safety ▪ the effects of associated tinnitus and dizziness ▪ current evidence based pharmacological management ▪ the indications for surgical referral to Otologist or Neurosurgeon. 	To be able to: <ul style="list-style-type: none"> ▪ take a relevant history and perform appropriate examination. ▪ select and interpret results of appropriate investigations. ▪ define an appropriate management plan including BAHA, CROS/BICROS systems. ▪ discuss the diagnosis and management options with the patient ▪ work effectively within the multi-disciplinary team ▪ liaise with Otologist and Neurosurgeons where necessary. 	To recognise: <ul style="list-style-type: none"> • the impact of the hearing loss and its cause on the patient and the immediate family. • the importance of effective multidisciplinary team work and effective communication with colleagues both verbally and in writing

Diploma modules: 3, 4,5, 6 pages 69 - 78 Appendix 2

2.4 Hearing problems in younger adults

Objectives	Knowledge	Skills	Attitudes
<p>To:</p> <ul style="list-style-type: none"> ▪ determine the cause and types of hearing problems ▪ specify appropriate investigations ▪ determine the consequences of the hearing impairment for the individual ▪ define appropriate management and rehabilitation 	<p>To know:</p> <ul style="list-style-type: none"> ▪ the conditions which can result in hearing problems in younger adults ▪ the manifestations of King Kopetzky Syndrome (also called Obscure Auditory Dysfunction, auditory processing disorder) and auditory neuropathy ▪ audiometric investigations which can be used to specify the type of impairment ▪ current evidence-based management of hearing loss including pharmacological and surgical ▪ the possible impact of the hearing problems on the individual's life and the effect on immediate family members, including psychosocial and speech & language issues ▪ the importance of education of significant others to aid rehabilitation. ▪ about appropriate instrumental help e.g. Hearing aids, Bone Anchored hearing aids, Cochlear Implants, tactile and environmental aids ▪ about non instrumental rehabilitation e.g. Hearing Tactics, Speech reading ▪ the limits of hearing aid amplification ▪ about external support agencies and policies e.g. social workers, RNID, Access to work etc. 	<p>To be able to:</p> <ul style="list-style-type: none"> ▪ take an appropriate history, examine the patient and perform clinical tests of hearing ▪ select and interpret appropriate audiometric tests including more sophisticated measures such as tests of central auditory function ▪ select appropriate aetiological tests including auto-immune investigation and genetic testing ▪ suggest and refer for appropriate hearing aid or other instrumental fitting ▪ determine and interpret relevant outcome measures ▪ communicate effectively with patients whose first language is not spoken English e.g. BSL ▪ work effectively as part of a multidisciplinary team to effect optimal management strategies ▪ liaise with ENT Surgeons about surgery for those with appropriate conductive hearing loss ▪ explain the results of the investigations and discuss management options with the patient and significant others 	<p>To recognise:</p> <ul style="list-style-type: none"> ▪ the patient's concerns about the effects of their hearing problems including cosmetic effects ▪ the impact of hearing loss on the individual's ability to work and socialise ▪ the impact of hearing loss on immediate family members

Diploma modules: 3, 4,5, 6 pages 69 - 78 Appendix 2

2.5 Congenitally deaf adult			
Objectives	Knowledge	Skills	Attitudes
<p>To:</p> <ul style="list-style-type: none"> ▪ determine the aetiology, severity and progression of the deafness ▪ assess the impact of the deafness in the individual ▪ elucidate the previous management, education and communication skills (including signing) of the patient ▪ initiate further rehabilitative management, in conjunction with the social worker for the deaf and disability employment advisor where relevant 	<p>To know:</p> <ul style="list-style-type: none"> ▪ the causes of congenital deafness ▪ the effects of congenital deafness on speech & language and communication ▪ the impact of such deafness on individuals concerned and significant others, including psychosocial effects ▪ about associated symptoms such as tinnitus or balance difficulties ▪ about alternative communication systems ▪ about deaf culture and the local support facilities for deaf people ▪ about appropriate hearing aids and environmental aids to facilitate the individual leading a normal family life and holding down an appropriate job ▪ about the rapid advances in the research of genetic deafness and its impact on patient management 	<p>To be able to:</p> <ul style="list-style-type: none"> ▪ take an appropriate family history ▪ take a relevant history and perform an appropriate examination using a sign language interpreter where necessary ▪ investigate and manage the aetiological factors and consequences ▪ determine the communication abilities and needs of the individual ▪ use finger spelling and some basic signs (minimum BSL stage 1) ▪ suggest appropriate environmental and other aids for the patient ▪ work effectively within the multi-disciplinary team ▪ liaise effectively with the social worker for the deaf about ongoing support 	<p>To:</p> <ul style="list-style-type: none"> ▪ appreciate and understand the attitudes of those within the Deaf Community ▪ understand the needs and expectations of a deaf young adult on transfer from a paediatric clinic

Diploma modules: 3, 4,5, 6 pages 69 - 78 Appendix 2

2.6 Hearing problems in the elderly			
Objectives	Knowledge	Skills	Attitudes
<p>To:</p> <ul style="list-style-type: none"> ▪ determine the aetiology, type and severity of hearing loss ▪ instigate appropriate investigations ▪ initiate management relevant to the patient within their environment 	<p>To know:</p> <ul style="list-style-type: none"> ▪ the different conditions which may cause hearing impairment in the elderly. ▪ the effects of general ageing process on the auditory system ▪ the different rehabilitative approaches that are available ▪ of other relevant services, e.g. social worker for the hearing impaired, who can provide help for such individuals ▪ of other impairment e.g. loss of tactile sensitivity or blindness which might impair the individual's ability to cope with more routine rehabilitative approaches ▪ about psychosocial issues associated with hearing loss in the elderly including feelings of isolation and avoidance <p>To recognise:</p> <ul style="list-style-type: none"> • common general medical problems which may affect rehabilitation • associated problems such as balance disturbance and falls 	<p>To be able to:</p> <ul style="list-style-type: none"> ▪ take a relevant history and examine the patient ▪ select and interpret appropriate audiological investigations ▪ investigate relevant aetiological factors ▪ identify additional medical problems which may adversely affect rehabilitation eg hypothyroidism, arthritis, Parkinson's disease and refer appropriately to geriatrician or specialist ▪ refer appropriately for instrumental devices e.g. hearing aids, environmental aids ▪ select and interpret appropriate outcome measures ▪ liaise effectively with hearing therapist and social worker for the hearing impaired regarding optimal approaches to management of the individual's problems ▪ discuss management options with the patient 	<p>To recognise:</p> <ul style="list-style-type: none"> ▪ the impact which hearing loss can have on individuals and their significant others and the importance of education to aid rehabilitation ▪ the need for an empathetic approach

Diploma modules: 3, 4,5, 6 pages 69 - 78 Appendix 2

2.7 Dysacusis and central auditory function

Objectives	Knowledge	Skills	Attitudes
<p>To:</p> <ul style="list-style-type: none"> ▪ determine the cause of pressure sensations, phonophobia (hyperacusis), echoing and other dysacusis ▪ treat them appropriately ▪ evaluate any central auditory dysfunction ▪ initiate rehabilitative management for such patients 	<p>To know:</p> <ul style="list-style-type: none"> • the range of dysacusis and the aetiological factors involved • the approaches to treatment and rehabilitative management of dysacusis and their causes ▪ the anatomy of the central auditory pathways and methods of testing the function of the different parts ▪ the various presentations of central auditory dysfunction ▪ the conditions which can result in such dysfunction, their investigations, and current limitations in our knowledge of their cause, investigation and treatment ▪ the rehabilitative approaches available for such patients including auditory training methods, communication strategies, hearing tactics ▪ the psychosocial effects of these hearing difficulties ▪ the impact of these hearing difficulties on the individual's ability to work 	<p>To be able to:</p> <ul style="list-style-type: none"> ▪ take an appropriate history and perform a relevant clinical examination ▪ select and interpret tests of peripheral and central auditory function ▪ select appropriate investigations for those with proven central auditory dysfunction ▪ counsel effectively the patients with phonophobia about methods of desensitisation ▪ liaise effectively with hearing therapist regarding rehabilitative strategy for patients with central auditory dysfunction 	<p>To recognise:</p> <ul style="list-style-type: none"> ▪ the impact of dysacusis and central auditory dysfunction on the patient's ability to function at home and at work

Diploma modules: 3, 4 5, 6 pages 69 – 78 Appendix 2

2.8 Intellectually disabled adult			
Objective	Knowledge	Skills	Attitudes
To be able to carry out appropriate hearing assessment, treatment and rehabilitation of patients with intellectual disability.	<p>To know:</p> <ul style="list-style-type: none"> ▪ the audiological or neuro-otological problems that may be associated with intellectual handicap and the specific effects that such problems may have. ▪ the other handicaps that may be present such as visual or speech problems. ▪ how acquired audiological or neuro-otological problems may present in such patients. ▪ the rehabilitative approaches available for such patients and how to implement them. ▪ issues concerning 'consent' in these patients 	<p>To be able to:</p> <ul style="list-style-type: none"> ▪ take a relevant history and perform appropriate examination. ▪ manage the patient's audiological or neuro-otological problems appropriately and effectively. ▪ communicate the diagnosis, results of investigations and management plan effectively. ▪ use appropriate hearing testing procedures. ▪ liaise effectively with other professionals involved including social workers, speech and language therapists, nursing staff and carers. 	<p>To:</p> <ul style="list-style-type: none"> ▪ listen sympathetically and positively to the problems and fears of the patient. ▪ respect issues of confidentiality and informed consent. ▪ work effectively with interpreters, carers and significant others where appropriate.

Diploma modules: 3, 4,5, 6 pages 69 - 78 Appendix 2

2.9 Practical Procedures in Adult Audiological Medicine

Objectives	Knowledge	Skills	Attitudes
<ul style="list-style-type: none"> • To gain a comprehensive knowledge of audiological testing in adults • To gain practical skills in performing audiological tests • To gain a critical appreciation of the value and difficulties of audiological tests in adults 	<p>To know:</p> <ul style="list-style-type: none"> ▪ the anatomy and physiology of the auditory pathway ▪ the theoretical basis of audiological testing including physics, acoustics and psychoacoustics ▪ the indications for the various audiological tests ▪ the values, limitations and practical difficulties of audiological testing 	<p>To be able to:</p> <ul style="list-style-type: none"> • select appropriately and interpret correctly all the audiological tests listed in 1 2 and 3 below. <p>In addition trainees should:</p> <p>1. be able to perform competently and independently:</p> <ul style="list-style-type: none"> • pure tone audiometry (air conduction, bone conduction with or without masking) • acoustic immitance measures • speech perception tests <p>2. be able to perform under supervision:</p> <ul style="list-style-type: none"> • middle ear reflex measures • otoacoustic emissions (transient, distortion product, spontaneous, contra-lateral suppression) • speech audiometry including speech in noise • auditory brainstem responses and electro-cochleography <p>3. have practical experience of:</p> <ul style="list-style-type: none"> • middle latency and cortical evoked responses • tests of auditory processing 	<p>To:</p> <ul style="list-style-type: none"> ▪ work effectively in a multidisciplinary team ▪ communicate effectively with patients, their families and other professionals both verbally and in writing

Diploma modules: 1.1, 2, 3,5, 6 pages 64 – 66, 68 - 78 Appendix 2

3. VESTIBULAR MEDICINE

3.1 Acute vertigo			
Objectives	Knowledge	Skills	Attitudes
<p>To:</p> <ul style="list-style-type: none"> ▪ determine the cause of the acute attack of vertigo ▪ instigate an appropriate set of investigations ▪ define a management plan ▪ assess the impact of the attack on the individual ▪ explain to the patient the likely cause and outcome of the acute vertigo ▪ identify those patients for whom the attack affects their fitness to drive 	<p>To know:</p> <ul style="list-style-type: none"> ▪ the different pathomechanisms of an acute attack of vertigo ▪ the various otological, neurological and general medical causes of acute vertigo ▪ the clinical presentation of benign paroxysmal positional vertigo ▪ the eye movement abnormalities that may be associated with acute vertigo ▪ how to investigate each of the causes of vertigo ▪ the pharmacological options available to treat acute vertigo including the role of the low salt diet in patients with Meniere's Disease, and the place of prophylaxis in migraine ▪ when to refer the patient to an ENT surgeon, a neurologist or a general physician ▪ the natural history of acute vertigo 	<p>To be able to:</p> <ul style="list-style-type: none"> ▪ distinguish peripheral from central vestibular causes of acute vertigo by an accurate history, examination and investigation ▪ carry out a complete neuro-otological examination including an accurate examination of the eye movements, characterising any nystagmus ▪ identify any general medical causes of vertigo by a good history and examination ▪ identify pathology in the other stabilising sensory and effector motor systems by a good history and examination ▪ assess any associated psychological factors and refer as necessary ▪ perform and interpret caloric irrigation ▪ carry out particle repositioning manoeuvres e.g. Epley, Semont ▪ instruct the patient in appropriate exercises e.g. Cawthorne-Cooksey, Brandt-Darhoff ▪ interpret a full battery of audio-vestibular tests ▪ discuss management options with the patient ▪ implement appropriate management including referral to a surgeon when required ▪ work effectively with other members of the multi-disciplinary team ▪ judge correctly as to when fitness to drive is affected 	<p>To:</p> <ul style="list-style-type: none"> ▪ work effectively within a multi-disciplinary framework ▪ develop an empathetic approach to the dizzy patient and recognise the psychological sequelae of acute vertigo

Diploma modules: 3, 4, 5 pages 69 -78 Appendix 2

3.2 Recurrent disequilibrium			
Objectives	Knowledge	Skills	Attitudes
<p>To:</p> <ul style="list-style-type: none"> ▪ determine the cause of the recurrent dysequilibrium ▪ identify factors hindering vestibular compensation ▪ determine any disability or handicap conferred by symptoms ▪ select appropriate investigations ▪ instigate appropriate management and referral if necessary 	<p>To know:</p> <ul style="list-style-type: none"> ▪ the sensorimotor physiology involved in balance maintenance ▪ the causes of peripheral and central vestibular disorders and those with remitting and relapsing courses ▪ the types of pathology possible in other stabilising sensory and motor effector systems ▪ the factors hindering vestibular compensation ▪ the psychological impact of recurrent dysequilibrium ▪ vestibular tests and aetiological investigation protocols including imaging ▪ the pharmacological options, physical rehabilitation and psychological/psychiatric interventions 	<p>To be able to:</p> <ul style="list-style-type: none"> ▪ take an accurate history and perform clinical examination to highlight cause of disorder and any factors hindering compensation ▪ assess any associated psychiatric symptoms / avoidance behaviour ▪ select and interpret appropriate vestibular tests ▪ identify correctly any aetiological factors ▪ discuss and implement therapeutic options ▪ refer appropriately to other members of the multi-disciplinary team for effective management 	<p>To recognise:</p> <ul style="list-style-type: none"> ▪ the distress and disability caused by recurrent disequilibrium and demonstrate a sensitive approach to the patient ▪ the multidisciplinary approach to patient assessment and management

Diploma modules: 3, 4, 5 pages 69 - 78 Appendix 2

3.3 Chronic imbalance			
Objective	Knowledge	Skills	Attitudes
<p>To:</p> <ul style="list-style-type: none"> ▪ identify the cause of chronic imbalance and ensure the appropriate management is instigated ▪ ensure appropriate genetic counselling is given if required 	<p>To know:</p> <ul style="list-style-type: none"> ▪ the range of central vestibular disorders causing chronic imbalance ▪ the pathology in the stabilising sensory systems which give rise to multisensory imbalance ▪ the pharmacotherapeutic agents causing chronic imbalance ▪ the appropriate aetiological and vestibular investigations ▪ the effect of recurrent and untreated dizziness of peripheral origin on balance <p>To understand:</p> <ul style="list-style-type: none"> ▪ the psychological effects of chronic imbalance 	<p>To be able to:</p> <ul style="list-style-type: none"> ▪ take an accurate history of balance impairment and disability ▪ perform an accurate neurological, cardiological and general medical examination ▪ perform an accurate eye movement examination and clinical balance assessment ▪ assess accurately musculoskeletal conditions likely to impair rehabilitation ▪ assess accurately disability and make appropriate physiotherapy referral ▪ disentangle correctly psychological components from peripheral vestibular components in otherwise treatable balance disorders ▪ work effectively within the multi-disciplinary team 	<p>To:</p> <ul style="list-style-type: none"> ▪ recognise the impact of chronic imbalance on employment and activities of daily living ▪ recognise the psychological impact of chronic imbalance

Diploma modules: 3, 4, 5 pages 69 – 78 Appendix 2

3.4 Blackouts/drop attacks			
Objectives	Knowledge	Skills	Attitudes
<p>To:</p> <ul style="list-style-type: none"> ▪ distinguish between blackouts and drop attacks ▪ determine the cause of the black-out or drop attack ▪ ensure that appropriate management is instigated ▪ determine the significance of the episode from the perspective of fitness to drive 	<p>To know:</p> <ul style="list-style-type: none"> ▪ the mechanisms of epilepsy, pseudo-epilepsy, syncope, vasovagal attacks, and blackouts, and to know the aetiological factors involved ▪ the investigation protocol and type of abnormalities found for each of the above ▪ the pharmacotherapeutic options available to treat each cause ▪ the law regarding black-outs and syncope and fitness to drive 	<p>To be able to:</p> <ul style="list-style-type: none"> ▪ recognise the different clinical presentations of epilepsy, syncope and drop attacks ▪ distinguish hyperventilation and pseudo-seizures from the above ▪ take a good cardiological and neurological history and perform an appropriate examination ▪ assess any psychological factors involved ▪ interpret the full complement of cardiological, neurological, imaging and blood test abnormalities ▪ refer the patient appropriately when necessary 	<p>To:</p> <ul style="list-style-type: none"> ▪ recognise the impact of attacks which may be unpredictable and may stop the patient driving ▪ demonstrate sensitivity when discussing psychological factors with the patient

Diploma modules: 3, 4, 5 pages 69 -78 Appendix 2

3.5 Falls in the elderly			
Objectives	Knowledge	Skills	Attitudes
<p>To:</p> <ul style="list-style-type: none"> ▪ identify the cause of falls in the elderly ▪ make a holistic assessment of balance and gait in the patient ▪ instigate appropriate battery of investigations ▪ manage falls appropriately making specialist referrals as necessary 	<p>To know:</p> <ul style="list-style-type: none"> ▪ the sensori-motor physiology involved in balance maintenance ▪ the effects of ageing and neurological disorder on the postural and righting reflexes ▪ the causes of black-outs and drop attacks including cardio- and cerebrovascular pathology ▪ the musculo-skeletal disorders impairing maintenance of the upright posture and locomotion ▪ the investigation options available to identify aetiological factors ▪ the full battery of audio-vestibular testing ▪ the pharmacological and physiotherapeutic management options 	<p>To be able to:</p> <ul style="list-style-type: none"> ▪ take a complete history and to understand the effects of ageing on memory and the consequent ability to give an accurate history ▪ perform an accurate neuro-otological, neurological, cardiological and musculoskeletal examination. ▪ make an appropriate differential diagnosis ▪ interpret abnormalities on neuro-otological testing ▪ refer appropriately to geriatrician, neurologist, rheumatologist or general physician and to multidisciplinary team ▪ apply pharmacological interventions, or recommend physiotherapeutic options 	<p>To:</p> <ul style="list-style-type: none"> ▪ demonstrate awareness of effects of both loss of confidence and social factors on gait. ▪ demonstrate appropriate high standards of tact, empathy, respect and concern for the elderly and their families ▪ demonstrate awareness of the voluntary sector in care of the elderly

Diploma modules: 3, 4, 5 pages 69 - 78 Appendix 2

3.6 Dizziness and Imbalance in Children			
Objectives	Knowledge	Skills	Attitudes
<p>To:</p> <ul style="list-style-type: none"> ▪ determine the cause of dizziness or imbalance in a child ▪ perform a developmentally appropriate balance assessment of a child ▪ instigate an appropriate test protocol ▪ implement an appropriate management plan 	<p>To know:</p> <ul style="list-style-type: none"> ▪ the sensori-motor physiology maintaining balance ▪ the development of postural control in childhood ▪ the ways in which a child may express their symptoms of dizziness or imbalance ▪ the specific causes of childhood dizziness ▪ the techniques available to investigate dizziness and balance disorders, which are suitable for children of different ages ▪ the other aetiological investigations appropriate for children ▪ the treatment options and vestibular rehabilitation approaches for children ▪ when to refer to paediatrician, paediatric neurologist, cardiologist, ENT surgeon, geneticist or occupational therapist for an opinion 	<p>To be able to:</p> <ul style="list-style-type: none"> ▪ take an appropriate neuro-otological and developmental history from parent/carer/ child ▪ perform a developmentally-appropriate balance assessment of the child including an appropriate eye movement examination ▪ request an appropriate set of vestibular tests and be able to recognise abnormalities on those tests as different from age-related irregularities ▪ recognise different causes of childhood and childhood/adult dizziness and imbalance ▪ discuss causes and management strategies in a sensitive way with both the child and his/her carer ▪ communicate effectively with other members of the multi-disciplinary team 	<p>To:</p> <ul style="list-style-type: none"> ▪ demonstrate appropriate high standards of tact, empathy, respect and concern for children ▪ communicate effectively with both the child and his/her carer ▪ recognise the importance and role of the multidisciplinary team

Diploma modules: 2 (topics 3 & 10), 3(topics 3, 6 & 7, 10), 5. Pages 68, 69, 70 Appendix 2

3.7 Practical Procedures in Vestibular Medicine			
Objectives	Knowledge	Skills	Attitudes
<ul style="list-style-type: none"> • To gain a comprehensive knowledge of vestibular testing in children and adults • To gain practical skills in testing children and adults. • To gain a critical appreciation of the value and difficulties of vestibular tests in children and adults 	<p>To know:</p> <ul style="list-style-type: none"> ▪ the anatomy and physiology of the vestibular system and its central connections ▪ the theoretical basis of vestibular testing ▪ the indications for vestibular testing ▪ the values, limitations and practical difficulties of vestibular testing in both adults and children ▪ age-related changes in postural control and responses to visuo-vestibular stimulation 	<p>To be able to:</p> <ul style="list-style-type: none"> • select appropriately and interpret correctly all the vestibular tests listed below in children and adults. • integrate the results of audiological, vestibular and aetiological tests to formulate a diagnosis and a management plan <p>In addition trainees should:</p> <p>1. be able to perform competently and independently:</p> <ul style="list-style-type: none"> • Hallpike testing • Video-nystagmoscopy • Caloric irrigations • Posturography <p>2. be able to perform under supervision:</p> <ul style="list-style-type: none"> ▪ ENG/EOG recordings during visuo-vestibular stimulation ▪ Vestibular evoked myogenic potentials (VEMPs) 	<p>To:</p> <ul style="list-style-type: none"> ▪ recognise the importance of effective multidisciplinary team work and effective communication with colleagues both verbally and in writing ▪ demonstrate appropriate high standards of tact, empathy, respect and concern for children and adults

Diploma modules: 2 (topics 3 & 10), 3(topics 3, 6 & 7, 10), 5. Pages 68, 69, 70 Appendix 2

4. ADDITIONAL TOPICS IN AUDIOLOGICAL MEDICINE

4.1 Basic sciences			
Objectives	Knowledge	Skills	Attitudes
<p>To:</p> <ul style="list-style-type: none"> ▪ gain a comprehensive knowledge of the basic sciences related to the auditory system and related organs ▪ gain a knowledge of phonetics, speech reception and speech production ▪ gain a knowledge of room acoustics ▪ gain a detailed knowledge of British and International standards relating to audiological medicine and calibration 	<p>To know:</p> <ul style="list-style-type: none"> ▪ the anatomy, physiology and biochemistry of the audio-vestibular system and related organs ▪ the anatomy and physiology of speech production system ▪ the embryological development of the above ▪ the psychology of hearing and balance ▪ the requirements for sound proofing ▪ about standards and calibration ▪ basic acoustics 	<p>To be able to:</p> <ul style="list-style-type: none"> ▪ detect abnormalities in the development of the audio-vestibular system ▪ detect abnormalities in the development of the speech production system ▪ detect abnormalities of speech ▪ ensure room acoustics are appropriate for testing hearing and the equipment is calibrated properly. ▪ communicate effectively with colleagues both verbally and in writing 	<p>To:</p> <ul style="list-style-type: none"> ▪ understand the psychological issues with regards to abnormalities of anatomy and physiology ▪ maintain standards of testing and test environment ▪ recognise the role of various audiological professionals in maintaining the above ▪ work effectively in a team in order to deliver a comprehensive and high standard of testing

Diploma Modules 1.1, 2, 3, 4.1(topic 2). Pages 64, 65, 66, 68, 69, 70, 71, 72 Appendix 2

4.2 Preventive Audiology			
Objectives	Knowledge	Skills	Attitudes
<p>To:</p> <ul style="list-style-type: none"> ▪ know the general principles of primary, secondary and tertiary prevention ▪ gain a comprehensive knowledge of noise and its effect on the audio-vestibular system ▪ gain a detailed knowledge of ototoxicity ▪ understand the epidemiology of hearing loss and its prevention ▪ develop a comprehensive knowledge of screening for hearing loss 	<p>To know:</p> <ul style="list-style-type: none"> ▪ the noise levels that are damaging to hearing, sources of such noise and prevention of exposure including noise surveys, hearing conservation and ear protection ▪ the substances and drugs that affect the audio-vestibular system and their effect ▪ the epidemiology of hearing loss, incidence of permanent congenital hearing loss and acquired hearing loss ▪ about screening principles, methods, dealing with screen failures, setting up a screening program in a district, monitoring and audit ▪ the genetics affecting the individual's predisposition to ototoxic agents ▪ about the role of immunisation in the prevention of hearing and balance disorders 	<p>To be able to:</p> <ul style="list-style-type: none"> ▪ detect noise damage early and provide appropriate advice ▪ advise on prevention of damage from noise ▪ detect ototoxicity early and advise other clinicians ▪ manage audiovestibular problems from ototoxicity ▪ implement and perform different screening methods, and interpret the results ▪ manage appropriately those who "fail" the screen ▪ address the potential anxieties relating to screening ▪ work effectively within a multidisciplinary team 	<p>To:</p> <ul style="list-style-type: none"> ▪ recognise the importance of effective multidisciplinary team work and effective communication with colleagues both verbally and in writing

Diploma modules: 2, 4.1, 6, pages: 68,71, 72, 74-78. Appendix 2

4.3 Hearing instruments			
Objectives	Knowledge	Skills	Attitudes
To gain a comprehensive knowledge of amplification for adults and children including assistive listening devices	<p>To know:</p> <ul style="list-style-type: none"> ▪ about analogue and digital hearing aids, including body worn, post aural, in the ear, in-the-canal, totally-in-the-canal aids, vibrotactile aids, cochlear implants, bone-anchored hearing aids (BAHA), frequency transposition aids, implantable hearing aids, CROS and BICROS aids ▪ about various hearing aid fitting formulae and real ear measurements in both adult and paediatric practice ▪ the “<i>plumbing system</i>” (hooks, moulds, tubing etc) and its effect on the sound amplification ▪ the assistive devices available including the radio aid and FM soundfield systems, alarm systems, loop systems ▪ methods of assessing benefit of amplification in children and adults 	<p>To be able to:</p> <ul style="list-style-type: none"> ▪ determine appropriateness and type of amplification (including cochlear implant) through discussion with audiological colleagues, patient and parents in the case of children ▪ discuss the current best technology with both patients, their families, and other professionals ▪ refer appropriately for amplification ▪ work effectively within the multi-disciplinary team <p>To have practical experience of:</p> <ul style="list-style-type: none"> • Selecting, testing and fitting of hearing aids including BAHA and cochlear implant in both children and adults • Measuring benefit of amplification • Use of hearing aid test box for testing hearing aids and measuring insertion gain and real ear to coupler difference 	<p>To:</p> <ul style="list-style-type: none"> ▪ recognise the importance of effective multidisciplinary team work and effective communication with colleagues both verbally and in writing ▪ be sensitive to the reaction of patients and their families to amplification or to changes in amplification

Diploma modules: 1.1, 6. pages 64 – 66 Appendix 2

5. RELATED SPECIALTIES

5.1 Otorhinolaryngology			
Objectives	Knowledge	Skills	Attitudes
<p>To:</p> <ul style="list-style-type: none"> ▪ gain a sound knowledge of embryology, anatomy and physiology of the head and neck ▪ gain a detailed knowledge of pathology and management of otological conditions ▪ observe audiology related ENT surgery such as grommet insertion, mastoidectomy, tympanoplasty, surgery for cochlear implantation, bone anchored hearing aids and vestibular schwannoma. ▪ learn which patients are appropriately referred to ENT surgeons ▪ gain a knowledge of rhinological, oropharyngeal, upper airway and other head & neck conditions that may affect the audiovestibular system and speech. 	<p>To know:</p> <ul style="list-style-type: none"> ▪ the embryology, anatomy, physiology of the ear and head & neck ▪ the pathology, appropriate investigations (including imaging) and management of congenital, acquired and other conditions of the ear including indications, risks, outcomes and complications of surgery ▪ the head and neck conditions that may produce aural symptoms including conductive hearing loss, and their appropriate management 	<p>To be able to:</p> <ul style="list-style-type: none"> ▪ take a full otological/ENT history relevant to the audiovestibular system and speech. ▪ perform an accurate and comprehensive examination of the ear, nose, oral cavity, pharynx and head & neck including use of otoscope, operating microscope, head mirror ▪ examine the ear under the microscope competently and to describe and identify any abnormalities accurately. ▪ identify and treat causes of otalgia, external and middle ear dysfunction ▪ refer appropriately to an ENT surgeon or immunologist <p>To be competent at:</p> <ul style="list-style-type: none"> ▪ removal of wax and debris from the external auditory canal using appropriate instruments and /or suction either under direct vision or using the operating microscope as appropriate ▪ ear syringing 	<p>To:</p> <ul style="list-style-type: none"> ▪ appreciate the relevance of a good ENT history and examination in managing patients with hearing and balance problems. ▪ know their limitations and when to refer ▪ appreciate the importance of involvement of other professionals including ENT surgeons in the management of patients with hearing and balance disorders ▪ recognise the importance of effective multidisciplinary team work and effective communication with colleagues both verbally and in writing

5.2 Paediatrics and Developmental Paediatrics

Objectives	Knowledge	Skills	Attitudes
<p>To:</p> <ul style="list-style-type: none"> ▪ develop an appropriate and confident child/family-centred approach when seeing Paediatric patients enabling assessment of the whole child ▪ obtain understanding of the roles of different members of the multi-disciplinary child health team 	<p>To know:</p> <ul style="list-style-type: none"> ▪ the milestones of normal child development. ▪ about school health, and educational provision and assessment procedures for children with special needs. ▪ about child protection issues ▪ about local professionals and the service they offer ▪ about issues concerning consent <p>To outline:</p> <ul style="list-style-type: none"> ▪ the problems a very premature or sick neonate or infant may encounter which could affect hearing, balance or speech & language development 	<p>To be able to:</p> <ul style="list-style-type: none"> ▪ take a relevant history and perform appropriate examination and developmental assessment ▪ communicate and play with children. ▪ recognise abnormal child development correctly ▪ refer appropriately to relevant specialist(s). ▪ liaise appropriately with members of the multi-disciplinary child health team ▪ talk sensitively with parents 	<p>To :</p> <ul style="list-style-type: none"> ▪ demonstrate appropriate high standards of tact, empathy and confidentiality. ▪ recognise the role of the members of the multi-disciplinary child health team in management of the patient. ▪ recognise the importance of consistent multi-agency working (social services, education etc.)

5.3 Paediatric neurology

Objectives	Knowledge	Skills	Attitudes
<p>To:</p> <ul style="list-style-type: none"> ▪ make an accurate neurological assessment of a child ▪ know when to refer a patient to a paediatric neurologist or a neurosurgeon 	<p>To know:</p> <ul style="list-style-type: none"> ▪ the causes of paediatric central vestibular disorder ▪ about the neurological disorders with neuro-otological manifestations e.g. childhood migraine/cyclical vomiting, neurofibromatosis, epilepsy ▪ about the neurological disorders associated with auditory dysfunction and with speech & language impairment 	<p>To be able to:</p> <ul style="list-style-type: none"> ▪ take a paediatric neurological history ▪ perform a full neurological examination competently ▪ recognise central vestibular disorders correctly ▪ recognise common neurological disorders ▪ select appropriate investigations ▪ select the appropriate management strategy ▪ refer appropriately to a paediatric neurologist or neurosurgeon ▪ talk sensitively to parents ▪ communicate effectively with paediatric neurologists and neurosurgeons and other members of the multi-disciplinary team 	<p>To:</p> <ul style="list-style-type: none"> ▪ demonstrate appropriate high standards of tact, empathy and confidentiality. ▪ Recognise the role of the members of the multi-disciplinary child health team in management of the patient.

5.4 Adult neurology			
Objectives	Knowledge	Skills	Attitudes
<p>To:</p> <ul style="list-style-type: none"> ▪ make an accurate neurological assessment of a patient ▪ know when to refer a patient to a neurologist or a neurosurgeon 	<p>To know:</p> <ul style="list-style-type: none"> ▪ the causes of central vestibular disorder ▪ the neurological disorders with neuro-otological manifestations i.e. multiple sclerosis, posterior circulation ischaemic disease, MSA, migraine, epilepsy ▪ the investigation protocols for the above disorders ▪ the pharmacological treatments and side-effects of common neurological disorders and those with neuro-otological manifestations 	<p>To be able to:</p> <ul style="list-style-type: none"> ▪ take a complete neurological history ▪ perform competently a full neurological examination ▪ recognise central vestibular disorders correctly ▪ recognise common neurological disorders i.e. multiple sclerosis, cerebrovascular disease, migraine, epilepsy ▪ select appropriate investigations ▪ select the appropriate management strategy ▪ refer appropriately to and communicate with a neurologist or neurosurgeon 	<p>To recognise:</p> <ul style="list-style-type: none"> ▪ and empathise with any disability conferred on a patient by a neurological disorder

5.5 Child and Adolescent Psychiatry/Psychology			
Objective	Knowledge	Skills	Attitudes
<ul style="list-style-type: none"> ▪ To obtain an overview of child and adolescent psychiatric and behavioural disorders to enable appropriate referral to specialists, and development of appropriate attitudes to child and family. ▪ To understand the role of the clinical psychologist in the assessment and management of children 	<p>To know:</p> <ul style="list-style-type: none"> ▪ about the common psychiatric disorders of children and adolescents, particularly the mental health of the deaf ▪ the pathogenesis of non-organic hearing loss. ▪ about behavioural and psychological disorders of children and adolescents that may impact on management of hearing, balance and speech & language disorders 	<p>To be able to:</p> <ul style="list-style-type: none"> ▪ take a relevant history and perform appropriate examination. ▪ liaise effectively with local resources and appropriately refer for a specialist opinion. 	<p>To demonstrate:</p> <ul style="list-style-type: none"> ▪ appropriate high standards of tact, empathy and confidentiality when dealing with children and their families, especially in the context of breaking bad news. ▪ Recognise the role of the multi-disciplinary team in management of the patient.

5.6 Adult Psychiatry/Psychology			
Objective	Knowledge	Skills	Attitudes
<p>To:</p> <ul style="list-style-type: none"> ▪ obtain an adequate psychological profile and to recognise manageable conditions, referring appropriately ▪ acquire appropriate counselling skills 	<p>To know:</p> <ul style="list-style-type: none"> ▪ the psychiatric disorders with vestibular manifestations ▪ how psychotropic medication may influence audiovestibular disorders ▪ the possible psychiatric morbidity of neuro-otological disorders ▪ the pathogenesis and presentation of non-organic hearing loss. ▪ 	<p>To be able to:</p> <ul style="list-style-type: none"> • identify behavioural disturbances and psychiatric disorder from the clinical presentations • discuss psychological/psychiatric disorder appropriately with patient • refer to psychiatric/psychological services appropriately 	<p>To recognise:</p> <ul style="list-style-type: none"> • the need for confidentiality • and demonstrate high standards of tact and empathy • Recognise the role of the multi-disciplinary team in management of the patient

5.7 Paediatric Ophthalmology

Objective	Knowledge	Skills	Attitudes
<p>To obtain an overview of ophthalmological conditions affecting children, especially those which are associated with hearing loss and balance disorders</p>	<p>To know:</p> <ul style="list-style-type: none"> ▪ the common syndromes affecting vision and audiovestibular system. ▪ the syndromes affecting vision and speech & language disorders ▪ the roles of other members of the team e.g. orthoptist ▪ about common visual difficulties such as refraction errors, their prevalence and presentation in children ▪ the impact of visual disorders on a child's function when they have disorders of hearing or balance ▪ the ways in which children describe visual difficulties 	<p>To be able to:</p> <ul style="list-style-type: none"> ▪ take a relevant history and perform appropriate examination. ▪ perform fundoscopy and interpret a cover test correctly. ▪ recognise eye pathology e.g. colobomata, retinal pigmentation, congenital nystagmus ▪ refer appropriately for a specialist opinion. ▪ liaise effectively with other members of multi-disciplinary team about the appropriate management of the patient. 	<p>To recognise:</p> <ul style="list-style-type: none"> ▪ and demonstrate appropriate high standards of tact, empathy and confidentiality. ▪ the role of the multi-disciplinary team in management of a child with hearing loss or balance disorders and visual difficulties ▪ the value of voluntary organisations in supporting patients with dual sensory impairments and their families ▪ the devastating effect of additional visual impairment on the deaf child and his family

5.8 Adult Ophthalmology

Objective	Knowledge	Skills	Attitudes
<p>To:</p> <ul style="list-style-type: none"> ▪ know how to screen a patient for visual disorder ▪ know when to refer a patient with visual symptoms 	<p>To know:</p> <ul style="list-style-type: none"> ▪ the common visual disorders with associated neuro-otological manifestations and their treatment ▪ how to make an accurate assessment of a strabismus and latent nystagmus ▪ about refractive errors and astigmatism ▪ and understand how visual disorders may impact on balance and how they may interfere with vestibular testing procedures ▪ about the management of strabismus, benign intracranial hypertension and oscillopsia resulting from nystagmus and altered vestibular-ocular reflexes 	<p>To be able to:</p> <ul style="list-style-type: none"> ▪ take a history of visual symptoms from a patient ▪ perform a full visual examination and correctly recognise optic field defects, papilloedema, conjunctivitis, choroiditis ▪ recognise relevant and common visual disorders i.e. altered visual acuity, strabismus, benign intracranial hypertension, glaucoma, presby- and hyper-metropia ▪ refer appropriately to and communicate with an ophthalmologist 	<ul style="list-style-type: none"> ▪ To empathise with patients with temporary or permanent visual disturbance ▪ Recognise the role of the multi-disciplinary team in management of the patient ▪ Recognise the importance of good vision to a deaf patient

5.9 Genetics			
Objective	Knowledge	Skills	Attitudes
To obtain an understanding of genetics in audiovestibular disorders and the role of the clinical geneticist	To know: <ul style="list-style-type: none"> ▪ the inheritance patterns of hearing loss. ▪ the genetics of and available tests for conditions associated with audiovestibular disorders. ▪ the psychological impact of genetic disorders. 	To be able to: <ul style="list-style-type: none"> ▪ take a relevant history and perform appropriate examination. ▪ elicit and record correctly a detailed family tree. ▪ Interpret correctly a diagnostic DNA report together with its implications ▪ refer appropriately to a clinical geneticist. ▪ liaise effectively with the clinical geneticist about the appropriate management of the patient. 	To recognise: <ul style="list-style-type: none"> ▪ the need for high standards of tact, empathy and confidentiality. ▪ the nature of non-directive genetic counselling, so that couples are enabled to make an informed choice about their own reproductive decisions

5.10 Care of the Elderly			
Objective	Knowledge	Skills	Attitudes
<p>To:</p> <ul style="list-style-type: none"> ▪ obtain an overview of the conditions affecting the elderly including falls, multi-system disease, cognitive and visual impairment ▪ be able to explain the role of audiological services within multi-disciplinary teams caring for the elderly. 	<p>To know:</p> <ul style="list-style-type: none"> ▪ the common causes of falls and imbalance in the elderly. ▪ the roles of other members of the multi-disciplinary teams caring for the elderly. 	<p>To be able to:</p> <ul style="list-style-type: none"> ▪ take a relevant history and perform appropriate examination. ▪ refer appropriately for a specialist opinion. ▪ liaise effectively with other members of multi-disciplinary team about the appropriate management of the patient. 	<p>To recognise:</p> <ul style="list-style-type: none"> ▪ the need for high standards of tact, empathy and confidentiality. ▪ The impact of hearing and balance disorders on overall function in the elderly. ▪ The role of the multi-disciplinary team in care of the elderly ▪ The role of family in care of the elderly

MODEL OF LEARNING

Duration of training

The expected duration of ST in Audiological Medicine is 5 years, although previous relevant experience, skills and competencies may shorten training by up to 12 months. A minimum of four years of clinical training must be spent in the practice of clinical Audiological Medicine, covering all aspects of the specialty at all ages. During this period time will be spent in acquiring skills in related specialties, including paediatrics, neurology, geriatrics, otolaryngology, ophthalmology, genetics and psychiatry. Posts in these other disciplines will not be part of a formal inter-specialty rotation but will be secondments approved as appropriate by the SAC in Audiological Medicine. Previous and appropriate experience in these related specialties during core medical training may count towards specialty training dependant on SAC approval.

The Knowledge Base

The diploma in Audiovestibular Medicine forms the knowledge based tuition and assessment of this specialty and is essential for the award of CCT. See above and appendix 2

The Training Programme

The training rotations ensure that the trainees are given the opportunity to be exposed to all areas of clinical practice identified in the curriculum. Individual timetables ensure a balance between opportunity for individual study or research, direct training and learning through consultant-supervised clinical work as well as off-the-job training. The work is outpatient-based and trainees have access to all facilities required to gain the practical competencies listed in the curriculum. Training in related topics is largely obtained by secondments.

Within the individual timetables each trainee is expected to attend at least 5 clinics (maximum 7) in Audiological Medicine each week and 2 sessions for specified training objectives such as secondments or practical procedures which provide work-based experiential learning. In addition each trainee has at least 2 sessions a week for private study, audit or research. There should be adequate time for administration. There is allowance for 30 study days per year.

The curriculum recommends, as an approximate guide only, across the 5 year programme with 30 days study leave each year:

- 60 days study leave for a diploma in Audiovestibular Medicine. This is taken part time over a 2 to 5 year period.
- 40 days for regional study days (3/5 are taken as study days and 2/5 occur within timetabled activities)
- 66 days study leave for appropriate off-the-job education. This can be used in a variety of ways that include:
 - Attendance at training courses recommended and approved by the STCs
 - Attendance at national and international conferences e.g. IAPA (International Association of Physicians in Audiology), BAAP, Hallpike meeting.
 - Attendance and participation in national SpR presentations and audit (BAAP)

There will be appropriate levels of clinical supervision throughout the training period with increasing clinical independence as learning objectives are achieved. The clinical posts must be structured to enable trainees to see new and review patients and undertake ward consultations under suitable supervision to enable the trainee to develop a level of responsibility which will prepare him/her for practice as a consultant.

Research

A period of supervised research of high quality is considered a desirable part of specialty training in Audiological Medicine. A relevant research period may contribute up to 12 months towards the total duration of specialty training but only as an alternative to the time commonly spent on a diploma course in Audiovestibular Medicine; a full four years of clinical training is an absolute requirement. Trainees may, of course, take time out for a year or more in research in addition to doing the diploma, but such time will not count as time spent in higher training. Some trainees may wish to spend two or three years in research, either before entering HST or by stepping aside from clinical training after entering a programme. For those undertaking an extended period of research after entering a programme and obtaining their NTN, a limited amount of additional educational credit may be granted prospectively at the discretion of the SAC for clinical work relevant to the programme undertaken in the course of research beyond the initial year. This concession does not apply to those undertaking research prior to entry to a specialty training programme. Trainees in research holding an NTN are subject to annual review if they wish to retain their number

Appraisal

In each placement the educational supervisor will meet regularly with the trainee to discuss progress through formal appraisal:

- An initial appraisal meeting shortly after the start of a placement to establish the learning objectives of that placement.
- An appraisal part-way through the placement to discuss progress
- An appraisal meeting towards the end of the placement to agree which learning objectives have been achieved and what topics need addressing at the next placement.

ASSESSMENT

The domains of Good Medical Practice will be assessed using an integrated package of workplace-based assessments and examination of knowledge and clinical skills, which will sample across the domains of the curriculum (e.g. knowledge, skills and attitudes). The assessments will generate structured feedback for trainees within Core Medical Training and Specialist Training. Assessment tools will be both formative and summative and will be selected on the basis of their fitness for purpose.

It is likely that the workplace-based assessment tools will include mini-CEX (mini-Clinical Examination Exercise), Cbd (Case-based discussion and MSF (multi-source feedback). The Federation of the Royal Colleges of Physicians has piloted these methods and has demonstrated their validity and reliability. It is proposed that the examination and assessment of knowledge will occur as an integral part of the diploma in Audiovestibular Medicine

An assessment blueprint will be developed which will map the assessment methods on to the curriculum in an integrated way. The blueprint will ensure that there is appropriate sampling across the curriculum. It is expected that the blueprinting exercise will have been completed by February 2007.

Duration of Training

Although this curriculum is competency based, the duration of training must meet the European minimum for post registration in full time training adjusted accordingly for flexible training (EU directive 93/16/EEC requires that flexible training can be no less than 50% whole time equivalent). The SAC has advised that training from ST1 will usually be completed in 7 (seven) years in full time training

Flexible Training

Trainees who are unable to work full-time are entitled to opt for flexible training programmes.

EC Directive 93/16/EEC requires that:

- i. *Part-time training shall meet the same requirements as full-time training, from which it will differ only in the possibility of limited participation in medical activities to a period of at least half of that provided for full-time trainees;*
- ii. *The competent authorities shall ensure that the total duration and quality of part-time training of specialists are not less than those of full-time trainees.*

The above provisions must be adhered to. Flexible training programmes must involve at least five sessions per week and flexible trainees should undertake a pro rata share of the out of hours duties (including on-call and other out of hours commitments) required of their full-time colleagues in the same programme and at the equivalent stage.

For details of appointment and funding arrangements for flexible trainees, please see the revised 'Guide to Specialist Registrar Training' (February 1998)

Research

Trainees who wish to acquire extensive research competencies, in addition to those specified in the generic element of the curriculum, may undertake a research project as an ideal way of obtaining those competencies, all options can be considered including taking time out of programme to complete a specified project or research degree. Time out of programme needs prospective approval from the SAC and the support of the Postgraduate Dean. Funding will need to be identified for the duration of the research period. A maximum period of 3 years out of programme is allowed.

Training Record

A training record will be maintained by the trainee. It will be countersigned as appropriate by the Educational Supervisors and training consultants to confirm the satisfactory fulfilment of the required training experiences and the acquisition of the competencies that are enumerated in the Speciality Curriculum. It will remain the property of the trainee, and must be produced at the annual assessments. It is the Programme Director's responsibility to ensure that the JRCPTB requirements are met, and at each annual meeting to suggest any future modification in training or experience that may be necessary. The training record forms part of the portfolio – see below.

The educational supervisor and trainee together are responsible for completion and signing of the training record ready for RITA. When the educational supervisor is not the trainer for a specific area of training the training record should be completed and signed by the trainer, with the educational supervisor countersigning subsequently.

LEARNING EXPERIENCES

The curriculum will be delivered through a variety of learning experiences:

- **Learning from Practice**

The training programme is structured to enable the trainee to build up skills and competencies over the full 4 to 5 year programme. Fundamental to the acquisition of new skills based on knowledge and observation is the opportunity to practice skills under appropriate supervision. All clinical placements allow for learning by observation and then clinical practice until competence is achieved. There will be a graded increase in independent practice as well as complexity of clinical material with experience. At least five clinics a week should be undertaken throughout the 4 to 5 year training programme to ensure adequate clinical skills are acquired and maintained. Opportunities for informal and formal feedback will occur during and at the end of clinical sessions

- **Opportunities for concentrated practice in skills and procedures**

Trainees are encouraged to develop competence in a number of practical skills as outlined above. Opportunity is available in all posts for concentrated practice of most practical skills. Specific targeted training is available if needed.

- **Learning with peers**

Trainees will learn with peers in several situations. The monthly regional training days as well as the biannual national Specialist Registrar presentations and the biannual national audit sessions provide excellent training opportunities for trainees. Several posts cater for more than one trainee and rotation through these posts ensures joint learning experiences. In most posts trainees are able to join medical Grand Rounds and other post-graduate meetings.

- **Learning in formal situations inside and outside the department**

Trainees are expected to attend formal teaching sessions inside the department which would include lectures, tutorials, journal reviews. Situations outside the department could include post-graduate training within the trust or locally such as management skills courses, CPR training, teaching courses, child protection courses as well as training opportunities on national courses and conferences recommended by the STC or the trainer. The diploma in Audiovestibular Medicine is part of the curriculum.

- **Personal study**

All trainees are expected to continue personal study and are given the time in which to achieve this as well as support from the training consultants. They are expected to study for the diploma in Audiovestibular Medicine. They are expected to present case studies and research at the 2 national SpR presentation meetings each year as well as at other in-house, regional or national meetings. They are expected to produce evidence of research, publications and audit at RITA reviews.

- **Specific teacher inputs**

These include:

- The diploma in audiovestibular medicine provides a taught theoretical course that covers the knowledge base for the specialty.
- Sub-specialty teaching in a clinical environment from a recognised subspecialist

- Audiometric skills taught by an audiologist
- Various courses considered suitable for training purposes by the STC.

SUPERVISION AND FEEDBACK

Supervision

The trainees will be supervised by the training consultant during the training period. Trainees will work with a level of clinical supervision commensurate with their clinical experience and level of competence. Clinical supervision continues throughout the training period with increasing clinical independence as learning objectives are achieved. All units recognised and accredited to provide training will need to ensure appropriate standards of clinical governance and meet the health and safety standards for clinical areas. The educational supervisor, when meeting with the trainee, will discuss issues of clinical governance, risk management and the report of any untoward clinical incidents involving the trainee. The educational supervisor is part of the clinical specialty team thus if the clinical directorate have any concerns about the performance of the trainee, or there were issues of doctor or patient safety, these would be discussed with the educational supervisor. This would not detract from the statutory duty of the trust to deliver effective clinical governance through its management systems.

Feedback

Regular constructive feedback informally, as well as formally through assessment and appraisal, is an essential part of successful experiential learning. Opportunities for informal feedback are encouraged and include discussion of cases during routine clinics, direct consultant supervision of clinical practice, scrutiny of clinic letters, departmental multidisciplinary meetings, departmental training sessions and audit as well as regular tutorials or meetings.

The educational supervisor will ensure that training is progressing appropriately by regular discussion with the trainee and the training consultants and other staff involved in training the trainee.

Formal feedback occurs during appraisal and assessment.

Appraisal

In each placement the educational supervisor will meet regularly with the trainee to discuss progress through formal appraisal. The frequency of meetings is outlined above. The process of appraisal encourages two way feedback between the trainee and supervisor.

Assessment

Regular assessment with constructive feedback will occur throughout training.

- Structured written feedback through mini-CEX and Cbd throughout each placement.
- Multi- source feedback from departmental staff - twice during period of training.
- Feedback from patients obtained through patient surveys etc.

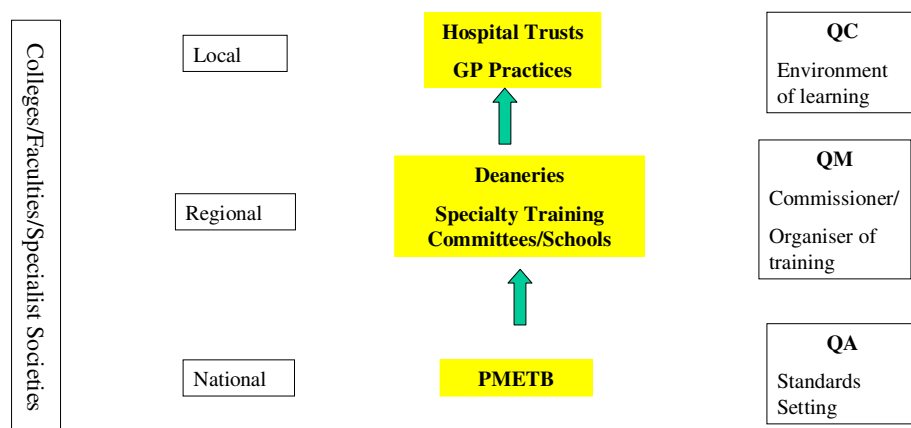
The assessment process examines generic as well as clinical skills.

The RITA process requires a record of assessment and of regular appraisal. Evidence of a response to feedback forms part of this assessment.

MANAGING CURRICULUM IMPLEMENTATION

Deaneries are responsible for quality management, PMETB will quality assure the deaneries and educational providers are responsible for local quality control, to be managed by the deaneries. The role of the Colleges in quality management remains important and will be delivered in partnership with the deaneries. The College role is one of quality review of deanery processes and this will take place within the SACs on a regular basis.

The Organisation and Quality Assurance of PG Training



- The curriculum will be issued to the trainee on commencement of ST3. The up-to-date copy of the curriculum will be available to all educational supervisors and trainers and they be expected to use this in their discussions with trainees. Both the trainers and trainees are expected to have a good knowledge of the curriculum and to use it as the blueprint for their training.
- The educational supervisor will meet regularly with the trainee to ensure that progress and coverage of the curriculum takes place. They will discuss outcomes of assessment, learning opportunities and learning development opportunities.
- Regional specialty advisors, deaneries (and specialty deans) along with programme directors will together ensure local delivery of the curriculum.
- Trainees are expected to be aware of the curriculum and should be proactive in ensuring they are making appropriate progress through the stages of the curriculum. Additionally they are responsible for ensuring that they are appraised regularly, and that the appropriate assessments are completed.

- When a trainee joins a programme they will meet with their educational supervisor as soon as possible, who will ensure that they have an appropriate learning agreement which identifies objectives. Objectives are reviewed at appraisal. Additionally trainees will be inducted into their local specialty department. Each trust that the trainee works at will ensure there is an induction into the whole trust in line with specific recommendations regarding clinical governance.
- Curriculum management in posts and attachments within programmes are the responsibility of the educational supervisor and the trainee. If there are any difficulties these will be referred to the dean and the programme director.
- The responsibility for curriculum management across programmes as a whole lies with the programme directors for the specialty, who will liaise with educational supervisors, other trainers and the Deanery, to whom they are accountable. Educational placements are dictated by the outcome of the annual RITA assessments based on logbook entries.

CURRICULUM REVIEW AND UPDATING

The specialty curriculum, along with the core medical training, acute medicine and generic curricula will be reviewed regularly. The curricula should be regarded as living documents and the SAC will ensure that it will respond swiftly to new developments. In addition the curriculum in haematology will be subject to 3 yearly formal review within the SAC. This will be informed by curriculum evaluation and monitoring. The SAC will have available to it the trainees' questionnaire (PMETB to provide) plus specialty specific questionnaires, reports from other sources such as educational supervisors, programme directors, specialty deans, other contacts such as at PYAs which SAC members attend, service providers and patients.

Trainee involvement in curriculum review will be facilitated through the involvement of trainees in local faculties of education and through informal feedback during appraisal, RITA, College meetings

The SAC will respond rapidly to changes in health service delivery. Regular review will ensure the coming together of all the stakeholders needed to deliver an up to date modern specialty curriculum. The curriculum will indicate the last date of formal review monitoring and document revision.

Curriculum revision needs to be informed by a review of how the trained CCT specialist performs within the National Health Service. There are two aspects to this:

1 Specific to the person

Was the trained specialist able to carry out the duties of the consultant post they were appointed to, ie did they have the requisite skills, knowledge and attitudes required for the post, did the possession of a CCT in that specialty meet the requirements of the person specification?

2 Specific to the role

Did the specialty competencies meet the requirements of the service, i.e. was the design of the specialist fit for purpose?

EQUALITY AND DIVERSITY

In the exercise of these powers and responsibilities, the Royal Colleges of Physicians will comply, and ensure compliance, with the requirements of relevant legislation, such as the:

- Race Relations (Amendment) Act 2000;
- Disability Discrimination Act 1995 and Special Educational Needs and Disabilities Act 2001;
- The Disability Discrimination Act 1995 (amendment) (further and higher education) regulations 2006
- Age Discrimination Act in October 2006

The Federation of the Royal Colleges of Physicians believes that equality of opportunity is fundamental to the many and varied ways in which individuals become involved with the Colleges, either as members of staff and Officers, as advisers from the medical profession, as members of the Colleges' professional bodies or as doctors in training and examination candidates. Accordingly, it warmly welcomes contributors and applicants from as diverse a population as possible, and actively seeks to recruit people to all its activities regardless of race, religion, ethnic origin, disability, age, gender or sexual orientation.

Compliance with anti-discriminatory practice will be assured through:

- Monitoring of recruitment processes
- Ensuring all College representatives and Programme Directors have attended appropriate training sessions prior to appointment or within 12 months of taking up post
- Ensuring trainees have an appropriate, confidential and supportive route to report examples of inappropriate behaviour of a discriminatory nature
- Monitoring of College examinations

Ensuring all assessments discriminate on objective and appropriate criteria and do not unfairly disadvantage trainees because of gender, ethnicity, sexual orientation or disability (other than that which would make it impossible to practise safely as a physician). All efforts shall be made to ensure the participation of people with a disability in training.

STATUTORY RESPONSIBILITIES

The Royal Colleges of Physicians will comply, and ensure compliance, with the requirements of legislation, such as the:

- Human Rights Act 1998
- Freedom of Information Act 2001
- Data Protection Acts 1984 and 1998

APPENDIX 1

MSc/DIPLOMA IN AUDIOVESTIBULAR MEDICINE

Introduction

The MSc in Audiovestibular Medicine has been running successfully at University College London for a number of years and from September 2007 a diploma and post-graduate certificates in Audiovestibular Medicine will be introduced. The core academic content of the MSc in Audiovestibular Medicine will remain unchanged, as will the defined aims and objectives and learning outcomes of the programme.

Aim of the Programme

The programme aims to meet some or all of the academic needs of doctors in training in a number of specialties, including Audiological (or Audiovestibular) Medicine, ENT, Neurology, Paediatrics and Geriatrics. It introduces course students to the basic sciences underpinning the clinical practice of, and research in, audiovestibular medicine, and aims to integrate the scientific and pathological aspects of audiovestibular medicine with the provision of a clinical service in both paediatric and adult auditory and vestibular disorders.

Type of Programme

This is a modular programme offering

180 credits for a Masters

120 credits for a Postgraduate Diploma

60 credits for a Postgraduate Certificate

MSc students will be required to take six taught modules (120 credits) assessed by coursework and written examinations; and a research project (60 credits).

Postgraduate Diploma students will be required to take six taught modules (120 credits) assessed by coursework and written examinations.

Postgraduate Certificate students will be required to take three modules (60 credits) assessed by coursework and written examinations.

Length of the programme

Master's degree

One calendar year of full-time study, two years of part-time study, and three to five calendar years of flexible study.

Postgraduate Diploma

One academic year of full-time study, two years of part-time study, and three to five academic years of flexible study

Postgraduate Certificate Twelve weeks of full-time study or up to two academic years of part-time study.

Learning Hours

Estimated total student learning time is 1800 hours (MSc); 1200 hours (Postgraduate Diploma); and 600 hours (Postgraduate Certificate)

Contact Hours

Estimated contact time for modules is 500 (MSc and Postgraduate Diploma) and 250 hours (Postgraduate Certificate); estimated contact time for dissertation is 20 hours; estimated contact time for academic/personal tutoring is 20 hours.

Programme Structure.

Postgraduate Certificate will require a total of 60 credits, and will be based on a combination of three of the modules outlined below (20 credits per module).

Postgraduate Diploma will require a total of 120 credits, and will be based on the six existing taught modules (20 credits per module):

- Audiovestibular Physics (Part 1 - Physics & Acoustics; Part 2 - Statistics)
- Anatomy and Physiology of the Audiovestibular System
- Audiovestibular Diagnostics
- Clinical Sciences Allied to Audiovestibular Medicine
- Vestibular Medicine
- Auditory Medicine in Adults and Children

MSc (already running) will be based on the six Postgraduate Diploma modules (120 credits) and a dissertation (60 credits).

Programme outcomes

The programme provides opportunities for students to develop and demonstrate knowledge and understanding, qualities, skills and other attributes in the following areas:

A: Knowledge and understanding	
Knowledge and understanding of:	Teaching/learning methods and strategies
<ul style="list-style-type: none"> • The principles of physics, acoustics, statistics, anatomy, physiology and technology relevant to the auditory and vestibular systems. • How to assess scientific evidence critically and synthesise data from original articles, textbooks and electronic sources. • Pathology, diagnosis, investigation and management of audiovestibular disorders, using appropriate sources to ensure evidence-based medicine. 	Acquisition through taught lectures, including specific lectures, how to access evidence and teaching on evidence-based medicine/clinical governance. Students are required to attend lectures on how to write a paper, how to give a presentation, how to use the library, study widely on their own, and prepare essays for submission in each module of the course.
<ul style="list-style-type: none"> • Subject-specific skills, for example, the practice and interpretation of auditory and vestibular test techniques and assessment of relevant epidemiological, public health, pathological and radiological data. 	Acquisition through attendance at clinics across the disciplines within audiological medicine and/or continuing to undertake their permanent clinical position, integrating the practical aspects of the teaching into their clinical practice.
<ul style="list-style-type: none"> • Relevance of audiovestibular medicine at the primary, secondary and tertiary levels of health care. 	Acquisition through attendance at secondary and tertiary clinics.
	<p>Assessment of A:</p> <p>Students will be assessed by a variety of methods: unseen examinations; long essays; scientific presentations and clinical case presentations.</p>

B: Skills and other attributes	
Intellectual (thinking) skills:	Teaching/learning methods and strategies:
<p>a) the programme aims to help students to be precise, critical in their interpretation of evidence, and to understand through practice the concepts of evidence-based medicine/clinical governance;</p> <p>b) evaluate standard teaching by reference to original source of material, re-appraisal and re-assessment of evidence, writing reasoned essays and presenting scientific reviews/case presentations;</p>	<p>Acquisition of (a) and (b) is fostered by comprehensive review of necessary information, specific teaching and clinical governance, and presentation of conflicting views and arguments for and against perceived wisdom.</p>
<p>c) development of research question, analysis of current state of knowledge and development of research programme.</p>	<p>c) By submission of research dissertation and presentation of research seminar.</p>
	<p>Assessment of B: students will be assessed by a variety of methods: unseen examinations; long essays; scientific presentations; and clinical case presentations.</p>

C: Skills and other attributes	
Practical skills (able to):	Teaching/learning methods and strategies:
This programme aims to help students with the following practical skills:	
a) to communicate effectively in writing;	a) through the writing of long essays and dissertations;
b) improve their knowledge of evidence-based medicine;	b) through lectures, reading and presentations
c) use databases, word-processing programs and digital resources;	c) through hands-on instruction and regular usage;
d) formal oral presentations on both scientific and clinical topics;	d) through regular modular presentations;
e) listen and discuss ideas introduced during such presentations;	e) through regular discussion following each presentation;
f) learn research techniques in a variety of specialised research units and institutes;	f) through visits to libraries and academic/ clinical units undertaking research in audiovestibular medicine;
g) maintain a disciplined programme of learning and research over one or two years;	g) through the setting of clear deadlines for the submission of work;
h) chose their own research dissertation topic and undertake detailed library database research of the topic;	h) through individual discussion of students' proposals;
i) apply their knowledge to their on-going clinical practice.	i) discussion of application of new knowledge/skills in context of their work.
	Assessment of C: These skills are all assessed by unseen examination, course work, long essays and dissertations.

D: Skills and other attributes	
Transferable skills (able to):	Teaching/learning methods and strategies:
The programme will encourage students to:	
a) write clear, well-structured essays and dissertations;	a) long essays and research project dissertation;
b) improve their practice of clinical evidence-based medicine;	b) presentations and reading evidence-based medicine and the original source documents allowing evidence to be formulated;
c) use computer resources and information technology;	c) submitting word processed written work using databases consulting online library resources using website material;
d) present material orally;	d) modular scientific and/or case presentations;
e) contribute in group discussion;	e) discussion after presentations;
f) understand concepts that are controversial;	f) reading topics from different medical perspectives in paediatric, geriatric, neurological, psychological, and audiological journals;
g) study a variety of written and digital scientific material in libraries and research institutes that have often not been used by medical graduates unfamiliar with research;	g) essays, dissertation, presentations, and library visits;
h) evaluate novel material orally;	h) discussion of new material at presentations;
i) reflect on their own evaluation of differing and conflicting evidence;	i) discussion;
j) make original contributions to a specific area of audiological medicine;	k) essays, dissertation, and discussions;

l) assess evidence for themselves	j) essays, dissertations, and discussions.
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Taken from a document prepared for University College London by Professor Linda M. Luxon 'PIQ (PG) Questionnaire for the Institution of a Proposed New Graduate Degree/ Diploma/ Certificate Programme' February 2006.

Postgraduate Diploma in Audiovestibular Medicine

Modular Syllabus

Module 1 - Audiovestibular Physics

Module 1.1 - Physics and Acoustics [full-time and 1st year students]

Introduction. Students are expected to have a working knowledge of maths and basic physics. Students are required to assess their own standard to take immediate remedial action to enable them to do the following:

- Formulate and manipulate first and second order algebraic equations
- Understand and use logs, exponential, trigonometric functions and also the decibel
- Describe and use Newton's Laws of Motion and Ohm's Laws for electrical circuits
- Understand the concepts of inertia, stiffness and friction
- Describe, understand and perform basic calculations with kinetic and potential energy
- Formulate and perform calculations related to velocity, distance and acceleration, voltage and current
- Know the graphical form of simple functions and be able to draw and interpret the behaviour of simple mathematical functions graphically.

Topic 1 - Physical Acoustics. This section is an introduction to basic acoustic concepts. Following this section the students will be expected to:

- Have a clear understanding of wavelength in relation to sound.
- Understand how sound waves interact with physical objects
- Understand the formation and impact of standing waves
- Understand the way sound waves and transverse waves propagate, and how the propagation alters when sound is transmitted between different media.
- Absorption of sound.
- Understand the principles of room acoustics (insulation, echo, reverberation, and requirements for audiometric test rooms).

Topic 2 - Signals. The focus of this topic is the measurement of sound in octaves and decibels. By the end of the topic, students will be expected to be able to:

- Describe the four physical characteristics of sound (amplitude, frequency, wave form and wave envelope)
- Draw waveforms from written descriptions of signals
- Describe and draw common waveform types including sine, square, triangle pulse, white noise, pink noise, band-limited noise, frequency and amplitude modulated signals, gated, compressed, threshold and clipped signals

- Understand velocity and frequency parameters of waves, and their relationship to wavelength.
- Understand the frequency scale & its relation to pitch: the octave, half tone & tone. *The Hertz*, the power scale and its relationship to intensity: definition of *the bel* and *decibel* and
 - Understand their mathematical expression
 - Understand sound pressure level (SPL) and hearing level (HL)
 - The theory of Fourier transformation and its practical implementation
 - The Fourier transformation and the spectrum of common signals.

Topic 3 - Signal Processing and Systems. This topic focuses on acoustic resonators and on signal enhancement methods. At the end of the topic students will be expected to be familiar with:

- The frequency response of a system - its bandwidth
- Representation of the frequency response of a simple resonant. Q factor
- The nature of signals and noise, and their quantitative description
- The use of synchronous signal averaging for signal enhancement. Should be able to make calculations stressing the effectiveness of various averaging profiles.
- Filtering and band limiting, type of filters, their quantitative description and the advantage of filtering for signal enhancement
- The identification and description of noise contamination within signals

Topic 4 - Calibration and Instrumentation. The focus of this topic is on calibration and instrumentation. At the end of the topic students will be expected to know:

- The purpose of calibration
- Principles of acoustic calibration
- Specific calibration techniques appropriate to response measuring equipment and clinical audiological instruments.
- Performance of sound field measurement, weightings etc.

Topic 5 - Signal Processing and Enhancement for Physiological Signals. This topic will focus on the basic principles and mechanism of generation of otoacoustic emissions. Students will be expected to be familiar with the following:

- The form, properties and mechanism for generation of otoacoustic emissions.
- Classes of otoacoustic emissions.
- Relation of physiological OAE responses to function in hearing.
- Relation of physiological OAE responses to auditory physiology.
- Effect of pathology on OAE.

Topic 6 - The Auditory Periphery - A Systems Approach. To understand this topic, students will need to be adequately familiar with the anatomical details of the peripheral auditory system, which will be reviewed within this section. Following this topic, students should be able to:

- Describe the transformations in signals that occur throughout the peripheral auditory system.

- Trace the signal in its transmission and analysis through the middle ear, through the cochlear travelling wave system and finally to the intracellular potential of the inner hair cells and the activity of the auditory nerve.
- Describe the filtering mechanism of the cochlea, its parameters, its origin, its value and the changes, which occur during cochlear disorder.
- The form of the travelling wave in detail with the reasons for its form related to anatomical factors.
- The function of the middle ear and the travelling wave analyzed in relation to the energy flow.
- The inner hair cell potentials analyzed with respect to their waveforms and its relation to the incoming signal.
- The transduction mechanism by the hair cells in the inner ear.
- The response of the auditory nerve (physiological, pathological)
- The filter-bank analogy.

Topic 7 - Basic Psychoacoustic Phenomena. Following this topic, students will be expected to have an understanding of the nature, basic principles and measurement of the following psychoacoustic phenomena:

- Equal loudness
- Binaural hearing: Localisation of sound
Masking release
- Loudness / Pitch / Timbre
- Frequency selectivity (the filter-bank analogy)
- Temporal analogy

Topic 8 - Psychoacoustics of Hearing Impairment. At the end of this topic, students should be able to answer questions on the following:

- Loss of audibility
- Loudness recruitment
- Impairment of frequency selectivity
- 'Dead' regions.

Module 1.2 - Statistics [full-time and 2nd year students]

This module comprises 10 2 -2½ hour sessions covering the basics of statistics. The first session is devoted to research design, and the importance of approaches to selection and collection of data in interpreting study results is stressed throughout the module. Students are introduced to the concepts of sampling and inference from samples to populations. P-values and confidence intervals are fully discussed, both in terms of calculation and interpretation. The analyses of different data forms (continuous, categoric, parametric, non-parametric) are considered and compared. One session is devoted to the estimation of sample size and within this session the concept of statistical power is introduced. The later sessions describe extensions of basic methodology to more than two group comparisons and the use of various forms of regression for data interpretation. Throughout the course the emphasis is on understanding the nature of statistical analysis, its limitations, interpretation and usefulness. This knowledge must be integrated into the research project (Module 8), and will also enable the student to judge the importance and value of findings that were published in professional journals.

The module comprises the following 10 topics:

1. Introduction to statistics and study design;
2. Reliability and validity; presenting data
3. Measures of centre and spread. The normal distribution
4. Confidence intervals; one sample t-tests;
5. 2 sample tests
6. Non parametrics; more than 2 groups
7. Analysing proportions;
8. Sample size [during Reading Week]
9. Regression I /Regression II/Overview of statistics
- 10 Correlation; more than 2 groups

Module 2: Anatomy and Physiology [full-time and 1st year students]

Objectives of module

The aim of this module is to provide an understanding of the auditory and vestibular systems proceeding from the gross anatomy of the ear to the more detailed structure of the cochlea and vestibular organs. It will be aimed at providing an overview of the structural and functional relationships of the various components of both auditory and vestibular systems in the transmission and processing of external stimuli passing from the peripheral sensory cells to the cortex. The module will also be aimed at providing an outline of the normal embryological development of the auditory and vestibular systems and how genetic defects may affect these processes. Consideration will also be given to the way in which ototraumatic agents (drugs, noise, disease) result in damage to both systems, and may lead to repair and regenerative mechanisms.

Topic 1. Cell and molecular biology

- Basic cell biology
- Cellular organization of the inner ear
- Cochlear and vestibular system

Topic 2. Gross anatomy and embryology of the ear

Topic 3. Structural and functional relationships in the cochlea and vestibular system

- Cell physiology
- Molecular biology

Topic 4. The auditory pathway - efferent and afferent pathways

- Outline of auditory pathway

Topic 5. Effects of ototrauma on the inner ear and the central auditory pathway:

- Noise and ototoxic drugs
- Importance of afferent input into the auditory pathway during development

Topic 6. Physiology of the auditory system

Topic 7. Embryology and molecular aspects of the development of the inner ear at the cellular level

Topic 8. Effects of loss of sensory input in development

- Genetic failures in development of the auditory system and the effects of sensory loss on the auditory pathway at different stages of development.
- Relevance of this knowledge in terms of cochlear implants in sensorineurally deaf children.

Topic 9. Repair and regeneration in the inner ear

Topic 10. Physiology of the vestibular system

Module 3: Audio-Vestibular Diagnostics [full-time and 2nd year students]

Objectives of Module:

To cover the theory and application of audio-vestibular diagnostic testing, and underpin the Practical Module 7.

Topic 1: Pure-tone audiometry

- Methods, threshold criteria, air conduction and bone conduction
- Classification of audiograms, configurations, classification of severity, symmetry, disability.
- Masking and the use of masking charts,
- Principles of masking, choice of maskers, critical band, upward spread of masking, clinical methods for masking air and bone conduction thresholds, when is masking necessary/impossible.
- Forward and backward masking, central masking.

Topic 2: Middle ear immittance audiometry

- Basic principles of impedance audiometry.
- Tympanometry (Jerger's classification) in children and adults.
- Acoustic reflex measurement. Parameters affecting ART, I/L ART, artefacts, ART and s/n hearing loss, criteria, clinical application, ARD (MC).

Topic 3: Clinical tests and examinations

- Overview of hearing disorders: Perforations, glue ears, otosclerosis, tinnitus, Menière's, VIIIth nerve tumours, brainstem lesions
- Clinical tests of hearing function - tuning fork tests and otoscopy
- Taking patient history of adults and children
- Clinical tests of balance: gait, Romberg and Unterberger. Case histories.

Topic 4: Otoacoustic emissions

- Background and introduction
- Advanced OAEs - use, artefacts, hearing screening and diagnostic applications

Topic 5: Electrophysiology

- EcochG, ABR, Corticals, P300 and MLR mis-match negativity and mapping.
- Case histories.

Topics 6 & 7: Test of balance function - vestibulometry

- Overview of vestibular disorders
- Labyrinthine disorders: Menière's, BPPV, common central vestibular disorders
- Techniques of eye-movement recording: AC and DC, video oculography, coil and infra-red, basic principles
- Electronystagmography: Gaze, saccades, OKN, VOR, VORS, impulse rotation - assessment of vestibular function using ENG test battery
- Scientific basis of caloric testing: Technique (creating a thermal gradient in the canal), COWS, CP, DP, Jongkees formula, combined patterns, other parameters, effect of fixation removal on SCV and duration in different pathologies, fixation index, advantages and disadvantages of the caloric test

- Scientific basis of rotation tests: Impulse and sinusoidal; passive and active rotation tests
- Scientific basis of static and dynamic posturography.

Topic 8: Paediatric Testing

- Behavioural tests in children.
- Objective assessment of auditory function in children.
- Principles of hearing screening in children (PW).

Topic 9: Alternative audiometric tests

- Assessment of tinnitus
- Békésy Sweep audiometry test: specifications, threshold definition, patterns, clinical applications.
- Audioscan. Tinnitus matching and masking
- Traditional diagnostic tests
- Tests of recruitment: LDL and ABLB
- Tests of abnormal adaptation: the tone decay test (two versions). Speech recognition test.
- Clinical applications separately and together
 - Clinical relevance
 - Psychoacoustic tuning curves + demonstration
 - Tests of brainstem function: Theories regarding the role of the brainstem in auditory processing;
 - Monaural degraded speech tests: masked Speech and SSI-ICM
 - Binaural interaction tasks: binaural fusion, RASP, MLD.
 - Diagnosis vs Function: The brainstem test battery; Brainstem hearing loss. Tests of cortical function: Function of auditory cortex and corpus callosum, Kimura's model
 - Dichotic tests: Digits, CVs, DSI, DRT, Interaural attention and sequencing tests, problems in interpreting dichotic test results, lateralisation, case presentations

Topic 10: Diagnostic testing strategy

- Application of tests as part of a diagnostic testing strategy
- Relationship between test results
- Dealing with conflicting and supportive data
- Writing patient reports
- Patient confidentiality
- Health and safety issues
- Case Histories - adult rehabilitation, neuro-otology and paediatrics

Module 4 - Clinical Sciences Allied to Audiological Medicine

Objectives of Module:

The range of disciplines allied to Audiological Medicine included in this module should provide the students with the foundation to understand the pathological, immunological and genetic mechanisms underpinning medical conditions presenting with vestibular, and/or auditory dysfunction.

In addition the basic principles of radiological investigation and imaging techniques will be covered. The speech component given will provide a basis of knowledge of speech and language disorders and provide an understanding of the effect of deafness on the development of speech.

The module is divided into two sections.

Module 4.1 [full-time and 1st year students]

This will comprise Pathology, Speech and Language, Genetics and Radiology.

Topic 1: Pathology

- Aspects of general pathology
- Pathology of the conditions of the external, middle and inner ear
- Tumours of the external and middle ear
- Pathology of choleastatoma and epithelial migration
- Pathology of noise-induced hearing loss, ototoxicity
- Pathology of the vestibular system
- Neuropathology

Topic 2: Speech and Language

- Neuromechanism of speech
- Development of normal speech, language and communication
- Assessment of speech, language and communication
- Communication options for profoundly deaf children
- Role of speech and language therapy for deaf children
- Development speech and language disorders
- Role of speech and language therapy for children with other communication disorders.

Topic 3: Genetics

- Basic models of inheritance
- Mouse models of hearing loss
- Non-syndromic genetic hearing loss
- Syndromes including hearing loss
- Clinical approach to genetic hearing loss, including family history and pitfalls
- Genetic counselling

Topic 4: Radiology

- Imaging equipment and techniques to visualise the structures of the middle and inner ear
- Radiological demonstration of normal and abnormal anatomy of the middle and inner ear
- Demonstration and extent of disease processes and, if possible, indication of the nature of the lesion

Module 4.2 [full-time and 2nd year students]

This will comprise Immunology, Ophthalmology, Psychiatry, Clinical Governance and Evidence-Based Medicine.

Topic 1: Immunology

- Innate immunity
- Acquired immunity (humoral and cellular)
- Hypersensitivity Types I - IV including mucosal immune function, middle ear immunity, effects of nasal disease on middle ear, and audio-vestibular manifestations of auto-immune disease

Topic 2: Ophthalmology

- Value of ophthalmology in hearing and balance disorders

Topic 3: Psychiatry

- Psychological aspects of tinnitus
- Psychological disorders in hearing-impaired children and adolescents; psychiatric disorders in hearing-impaired adults
- Psychiatric disorders and vestibular function
- Behavioural therapy in vestibular disorders

Topic 4: Clinical governance and evidence-based medicine

- Understanding of evidence-based medicine
- Methodology of critical appraisal of scientific/research papers
- Planning, conducting and writing up research projects
- Oral presentation of scientific/research data

Module 5: Vestibular Medicine [*full-time and 2nd year students*]

Objectives of Module:

This will cover all aspects of balance including epidemiology; overview of causes of balance problems in children and adults; diagnostic strategies; interpretation of tests; rehabilitation and specific disorders.

- Epidemiology of balance disorders and falls
- The vestibular system and balance in man, including the vestibulo-ocular reflex and the vestibulo-spinal reflexes, together with strategies used for balance with an understanding of the normal development of balance in childhood.
- Ageing of the vestibular system and balance mechanisms, in terms of both anatomical and physiological changes.
- Physiology of smooth pursuit, saccades and optokinetic nystagmus.
- Pathophysiology of deranged balance and vestibular function.
- Pathophysiology of abnormal eye movements.
- Understanding of the principles and techniques of vestibular function tests, with specific reference to (a) the caloric test, (b) the rotational test, (c) posturography, (d) galvanic testing, (e) vestibular perceptual tasks, and (f) otolith tests.
- The physiological basis of the vestibular function tests, including their indications, advantages and limitations.
- The various techniques of eye movement recording, their uses, indications and limitations.
- Understanding of the value of tympanic membrane displacement measurements in the evaluation of the dizzy patient.
- Knowledge of a diagnostic approach for the evaluation of dizziness and falls in both the adult and paediatric population.
- Knowledge of the clinical presentation, methods of diagnosis, and outline management of specific vestibular disorders:
 - Labyrinthitis and vestibular infections
 - Menière's Disease
 - Traumatic vestibular disorders
 - Benign positional vertigo of paroxysmal type
 - Vascular disorders giving rise to disequilibrium
 - Neurological causes of imbalance
- Cervical vertigo, visual vertigo and general medical causes of vertigo imbalance
- Physical exercise regimes and possible repositioning procedures
- The practicalities of the setting up of services in vestibular disorders and balance dysfunction.
- The prevention of balance disorders
- Management of children with balance disorders
- Outcome measures in balance disorders

Module 6: Clinical Auditory Medicine - Children and Adults

[full-time and 1st year students]

Objectives of Module:

To provide the student with knowledge of medical conditions affecting hearing in children and adults. The importance and methods of hearing screening and assessment of the hearing of a child of different chronological and developmental age will be taught.

Effects of deafness on speech and language development, its psychological consequences and the methods of management of deafness will be presented. The role of members of the paediatric audiology team in management of the deaf child will be discussed.

- Epidemiology of hearing impairment and tinnitus in the adult population
- The normal physiological ageing process versus pathology
- Ageing of the auditory system in terms of anatomical/histological and physiological changes.
- Relevant pathology, clinical presentation, methods of diagnosis and management of specific auditory disorders.
- Conditions of the external and middle ear - acquired and congenital:
 - Otitis externa
 - Osteoma
 - Meatal atresia
 - Acute/chronic cholesteatoma
 - Otosclerosis
 - Foreign body obstruction
 - Exostosis
 - Otitis media
 - Serious otitis media
 - Trauma
- Conditions of the inner ear:
 - Menière's Disease
 - Ototoxicity
 - Presbycusis
 - Metabolic/renal/vascular/neurological/immunological disorders presenting with hearing impairment
 - Neurofibromatosis
 - Central auditory disorders
 - Central auditory disorders
 - Noise-induced hearing loss
 - Viral/bacterial infections
 - Sudden hearing loss
 - Non-organic hearing loss
- Assessment of hearing impairment:
 - Clinical assessment :
 - Otoscopy, free field hearing assessment, tuning fork tests, ENT examination.
 - Audiological assessment :
 - Assessment of site and side of lesion, using audiometric and electrophysiological techniques.
 - Assessment of specific aetiology using laboratory and/or radiological investigations.

Adult Auditory Rehabilitation

- Methods of assessment of disability/handicap models of rehabilitation (Goldstein-Stephens)
- The components of an auditory rehabilitation programme:
 - Comprehensive audiological evaluation

- Understanding of the impact of hearing loss upon the patient's everyday communication skills.
- Psychosocial consequences of hearing loss (introduction to self-assessment questionnaires)
- Selection of the most appropriate electro-acoustic systems, based on lifestyle, type of hearing loss and communication difficulties.
- Adequate hearing-aid orientation and follow-up programme.
- Knowledge of additional components of the programme, e.g., formal speech reading, auditory training and individual counselling.
- Self-help groups
- Role of multidisciplinary team in rehabilitation process (audiological physician, hearing therapist, speech and language therapist, audiological scientist, medical technical officer, psychologist)
- Knowledge of educational and employment practice support and resources available.
- Understanding of the nature, advantages and limitations of hearing aids.
- Knowledge and understanding of physical aspects of hearing aids and moulds/impressions (i.e. volume control, off/on switch) and fault finding.
- Hearing strategies: Assistive listening devices, human aids to communication, telecommunications, direct input systems.
- Communication strategies: use of visual clues, use of lip reading, manipulation of the environment, auditory rehabilitation.
- Auditory rehabilitation in special needs groups, e.g. learning disabled or deaf/blind.
- Current models of tinnitus, its effect on life, predisposing factors, investigation.
- Management strategies. of tinnitus, assessment of its effect on patients, treatment of identifiable pathology, reassurance, retraining programme.
- Surgical and medical management of tinnitus.

Auditory Medicine in Children

- Epidemiology of sensorineural hearing loss, otitis media with effusion, tinnitus in childhood.
- Development of the normal/abnormal/handicapped child and of auditory behaviour/attention.
- Understanding of what is normal and what is handicapping hearing loss in a child and effect of conductive or sensorineural loss on development of speech and language
- Identification of hearing impairment

Screening

- Historical perspective and evolution of screening for hearing impairment
- Principles of screening and its advantages and disadvantages
- Setting up a screening programme
- Quality standards and outcome measures
- Types of screening programmes:

Targeted neonatal	Universal neonatal
Distraction test (6-9 months)	Parental questionnaire
Intermediate screening (18/12-4 years)	School entry screening
Screening special populations	Definition of high risk group

Special importance of bacterial meningitis Screening options

- Referral pathways for assessment
- Surveillance
- Raising and maintaining parental and professional awareness
- Specific active parental and professional education programmes
- Importance of parental concern

Audiological Assessment

- Knowledge of range of audiological responses in children with neuro-developmental problems
- Effect of neuro-developmental problems on auditory behaviour
- Audiological responses in children with visual impairment
- Compounding effect of dual sensory impairment
- Difference between screening and diagnostic tests
- Distraction, co-operative and performance tests.
- Behavioural Tests:
 - Behavioural observation audiometry
 - Visual reinforcement audiometry.
 - Pure tone/warble tone in sound/closed field
 - Speech discrimination tests
 - Test for central auditory dysfunction
- Objective Tests:
 - Tympanometry
 - Acoustic reflexes
 - Auditory brainstem responses
 - Electrocochleography
 - Middle and late latency responses
 - Otoacoustic emissions
 - Protocols for sedation
- Knowledge of diagnostic strategy for evaluation of a child presenting with hearing impairment or speech delay.
- Medical conditions in children presenting with hearing impairment
- Relevant pathology and clinical presentation of specific auditory disorders - acquired/congenital.
- Conditions of the external, middle and inner ear, such as :

Meatal atresia	Otitis media
Glue ear	Cleft palate
Disruption of ossicular chain	Ototoxicity
Noise-induced hearing loss	Rhesus incompatibility
Hereditary loss	Non-organic hearing loss
Unilateral deafness	Tinnitus in children

 - Bacterial and viral conditions causing sensorineural hearing loss
 - Metabolic and endocrine causes of sensorineural hearing loss
 - Syndromic, non-syndromic causes of sensorineural, conductive or progressive hearing loss.
 - Central auditory disorders.
- Relations between speech and language disorders and behaviour disturbance/autism.
- Psychiatric aspects of working with the deaf child and his/her family

- Aetiological investigation protocols
- Importance of investigations at different ages
- Management of children with hearing problems
- Recognition of the linguistic, psychological and social effects of the various types and degrees of hearing loss.
- The multidisciplinary approach to the hearing impaired child and family, to the choice of communication methods, to children with complex problems, to promotion of active family/ carrier involvement.
- Roles of others (audiological scientist, medical technical officer, child psychologist (educational, clinical) deaf community worker, social worker, speech and language therapist, teacher of the deaf, educational audiologist, clinical geneticist, ENT surgeon, ophthalmologist, paediatrician, plastic surgeon, psychiatrist.
- Selection of hearing aids according to its physical and electro-acoustic characteristics (i.e. body worn, behind the ear, in the ear), ear moulds, hooks, tubing, battery technology, adaptations for young infants and special needs children, output limiting, gain-frequency response.
- Appropriate choice of hearing aid systems - bone-anchored hearing aids, vibro-tactile aids, frequency transposition aids, programmable aids, cochlear implant.
- Selection of FM/infra red systems
- Verification of function (behavioural and electro-acoustic methods)
- Validation of aided auditory functions to show benefits/limitations of aided listening abilities
- Counselling/ monitoring of hearing aid users and their families
- Cochlear implant:
 - Protocols of selection
 - Assessment
 - Surgery
 - Post-operative management and rehabilitation
 - Limitations of cochlear implants
 - Medical and administrative procedures for referral and funding
 - Awareness of the psychological and social implications of assessment and implantation.
 - Awareness of attitudes of the deaf community to cochlear implantation.
- Educational provision and knowledge of educational goals for hearing impaired children
- Pre-school support through teachers of hearing impaired children and speech and language therapists.
- Supported specialist nursery provision
- Varying needs of children with hearing impairment and the range of school placements - e.g., a partially hearing unit attached to a mainstream special school.
- Statutory aspects of special educational needs related to hearing impairment
- Provision of effective medical and audiological advice for statutory assessments.
- Social issues - special problems of the hearing impaired child in the hearing world and the importance of social interaction.
- Use of technology including mini-com, type-talk telephone, visual-tactile systems, for communication, independence and safety.
- Statutory duties of health, education and social services, and statutory benefits and allowances.

- Understanding how deaf role models can improve the identity and self-esteem of children with hearing impairment.
- Recognition of the problems of family interaction of a child/adult with hearing impairment in a hearing family
- Access to health and social services for adolescents with hearing impairment.

taken from Diploma in Audiovestibular Medicine, University of London