

HIGHER SPECIALIST TRAINING  
CURRICULUM  
FOR  
MEDICAL OPHTHALMOLOGY  
LEADING TO QUALIFICATION AS  
OPHTHALMIC PHYSICIAN  
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## GENERAL DESCRIPTION

Many fields of general medicine such as rheumatology, neurology, endocrinology and diabetology, cardiovascular disease and inflammatory or infectious disease overlap with medical ophthalmology. Some of these conditions can be treated by the primary care ophthalmologist adequately. However, many conditions require the expertise of the specialist medical ophthalmologist. A broad experience in general medicine is considered essential for the practice of medical ophthalmology. This is incorporated in the overall programme as two years of BST in general medicine. In addition, a broad experience in general ophthalmology is considered essential for the practice of medical ophthalmology and this is incorporated in the overall programme as two years of BST in general ophthalmology.

The trainee should have experience of primary care ophthalmology and general ophthalmic emergencies such as might present to an Accident and Emergency Unit, an Eye Casualty or a GP surgery. The trainee should be able to distinguish between surgical and medical ophthalmic patients in order to ensure appropriate further management of ophthalmic cases if necessary. Participation in general ophthalmic clinics is essential as part of BST. The trainee should also have exposure to, but need not have direct experience of, general ophthalmic surgical procedures. BST programmes in ophthalmology may therefore be modified to exchange "hands-on" surgical sessions and goals, with equivalent medical ophthalmic outpatient and "procedures" sessions. During this time they should acquire the knowledge, experience and skills detailed in the syllabus (Appendices A,B and C) and record these in the training record.

For most medical eye conditions specialist expertise is required. The management of many aspects of medical eye disorders has become so specialised that specific training is the only way to gain experience and skills.

Areas which fall within the remit of the ophthalmic physician (OP) include the following:

- *Diabetic retinopathy.*, This is predominantly the remit of the OP who can provide not only specialist expertise in the treatment of active retinopathy but also can make many of the decisions determining when and how much laser therapy to apply. In addition, the decision when to refer to the vitreo-retinal surgeon is often critical. New pharmacological treatments for diabetic retinopathy are likely to be introduced and this will exert further pressure for the expansion of OP posts in order to best deliver new therapies. To decide which patients require follow up in an ophthalmology clinic or can be safely reviewed by diabetologists or primary care physicians may be difficult. The establishment and supervision of screening services for diabetic retinopathy are properly the remit of the OP and are currently an area of considerable interest. It is at present unclear who will have ultimate responsibility for this service, but the OP is clearly the most appropriate.

- *Cardiovascular disease* includes hypertensive retinopathy and retinal vascular occlusion. Recent advances in our understanding of coagulopathies and thrombophilia requires knowledge of medical genetics and counselling .

- *Endocrine disease*, particularly thyroid and pituitary disease, is increasingly important as medical options in the management of dysthyroid eye disease become more widespread, including immunosuppression and radiotherapy.

- *Neuro-ophthalmology* requires the acquisition of considerable diagnostic skill in the investigation and management of disorders including optic neuropathies and retinal degenerations, new therapeutic skills in the use of botulinum, in addition to the established role of the neuro-ophthalmologist in the interpretation of visual field defects and neuro-imaging.

- *Inflammatory eye disease including uveitis*, requires training in the correct use of immunosuppressive therapy. Treatable blindness, due to ocular inflammatory disease has an incidence equal to that of diabetic retinopathy which is not always recognised. A particular subgroup requiring special expertise are immunosuppressed patients with infective retinitis who require a high level of therapeutic skill to ensure best clinical care.

- *Rheumatological disease* includes a wide spectrum of anterior segment diseases such as corneal melt, scleritis and ocular cicatrising disease, in addition to a large numbers of patients with keratoconjunctivitis sicca (dry eye).

- *Medical retinal disorders* include age-related macular degeneration (ARMD), and a large number of retinal dystrophies, including many forms of retinitis pigmentosa and other inherited retinal disorders.

## **ENTRY REQUIREMENTS**

HST in the specialty of Medical Ophthalmology may be entered from one of two routes; either:

- a surgical route via BST in Ophthalmology and attainment of the MRCOphth, or,
- a medical route via BST in Medicine and attainment of the MRCP.

In either case, the first two years of HST in Medical Ophthalmology involve acquiring BST in the reciprocal specialty. Thus, entry with the MRCOphth will normally require the trainee to undertake two years of BST in General Medicine and entry with the MRCP will normally require the trainee to undertake two years BST in General Ophthalmology.

## **AIMS OF POST GRADUATE TRAINING**

To enable SpRs to acquire the 'Attributes of an Independent Practitioner' (as identified by the GMC) in preparation for appointment as a Consultant Medical Ophthalmologist / Ophthalmic Physician.

To specify a coherent programme of attainment of the knowledge, understanding, skills and attitudes required of an SpR in order that he/she may obtain a CCST in Medical Ophthalmology with either the MRCP or MRCOphth.

To ensure that the intended learning outcomes of HST are achieved and measured through the RITA assessment.

To meet the need for consistency in judging competence and performance in the completion of 'core' training while recognizing the value of flexibility in meeting the needs of individual SpRs (eg through advanced subspecialty training).

To reflect not only the reasonable career aspirations of SpRs (eg towards a fulfilling professional practice) but also the needs of the service (eg a capacity for comprehensive service provision).

To promote an appreciation among SpRs of the importance of continuing self-learning, knowledge reinforcement, audit and research to their expert and effective service to patients in the future.

## TEACHING & LEARNING METHODS

The opportunities and facilities for teaching and learning will vary between training centres. For this reason, trainers will be expected to identify methods appropriate to their local circumstances and to specify these in their trainees manual. Examples of methods which are likely to be appropriate and effective are listed below, but are not intended to be prescriptive or exhaustive.

## DURATION AND ORGANISATION OF TRAINING

This is a 5 year programme.

Entry with MRCP will require 2 years of Basic Specialist Training in Ophthalmology and entry with MRCOphth will require 2 years of BST in General Medicine, followed in each case by 2 years of a Higher Specialist Training rotation in Medical Ophthalmology and 1 year which may be spent in Advanced Specialist Training in Ophthalmology (ASTO) or research (or a combination of both)

These final three years of HST in Medical Ophthalmology require the trainee to attain competencies in four areas of expertise:

- *General Medical Ophthalmology including vascular disease, diabetes and endocrinology*
- *Neuro-Ophthalmology and Neurology*
- *Inflammatory eye disease (including HIV) and Rheumatology*
- *Medical Retinal disorders*

The fifth year of HST in Medical Ophthalmology is a year in which the trainee may opt to undertake a period of advanced specialist training (ASTO) or research. In both cases the trainee's elective programme will be supervised by a named supervisor and will be prospectively approved by the Postgraduate Dean. If the programme is 'out of service', designated funding may be required. It is also possible for the trainee to undertake this component of their training *pari passu* with their basic programme, providing it does not interfere with the quality of the programme or the service commitments, and that the basic curriculum objectives are met. It may also be possible for trainees to exchange posts with a trainee in another unit. Overseas training requires prospective approval by the Postgraduate Dean and the Specialist Advisory Committee.

## BST IN MEDICAL OPHTHALMOLOGY

[Ophthalmology component]

Applicants for Higher Specialist Training (HST) should have completed [a minimum of two years] Basic Specialist Training (BST) in approved posts and obtained the MRCOphth.

Normally a minimum of 2 years in approved posts with direct involvement in patient care offering a wide range of experience in ophthalmology.

SHOs should undertake no more than 8 clinical sessions per week to include

General Clinics 3 (maximum)

Casualty 2 (maximum)

Theatre 2 or Medical Ophthalmic Clinic / Ward round / "Procedures" session 2

Other 1<sup>\*\*</sup>

There should be not more than 5 general sessions including casualty and primary care

<sup>\*\*</sup>This may include laser and/or special clinics

Appropriate time should be allocated to ward work, supervised cases documentation, inpatient investigation and ward rounds.

During BST there should be the opportunity to assist in theatre and learn minor/extraocular procedures. Trainees wishing to learn intraocular procedures must attend a basic microsurgical skills course before they are allowed to undertake intraocular procedures on patients.

Experience should be gained in Accident and Emergency Ophthalmology and all trainees should be involved in management of ophthalmic casualties and a regular on-call commitment, although this should not necessarily mean that postholders must be resident.

The Trainee should be involved in regular audit meetings and personal audit within weekly teaching and research sessions. Attendance of all kinds should be recorded in the log book.

## BST IN MEDICINE

[Medicine Component]

Applicants for Higher Specialist Training (HST) should have completed [a minimum of two years] Basic Specialist Training (BST) in approved posts and obtained the MRCP (UK) or (I).

- Normally a minimum of 2 years in approved posts with direct involvement in patient care and offering a wide range of experience in a variety of medical specialties
- 12 months must be spent in posts providing experience in the admission and early follow-up of acute medical emergencies
- At least 6 months must be spent on a service or services on which the emergency medical take is 'unselected'
- 'Unselected take' is defined as acute medical intake encompassing the broad generality of medicine ie not restricted to any single or small group of specialties. If any major component of acute medicine (eg cerebrovascular accidents, myocardial infarctions) is excluded from the take, this experience must be obtained in other posts. During the period on 'unselected take' trainees should have an on-call commitment which averages no less than 4 takes per month

Non-UK graduates without the MRCP or MRCOphth who compete for HST posts must provide evidence of appropriate knowledge, training and experience, particularly in the care of acute medical conditions.

## HST PROGRAMME AND LOCATION

HST will provide experience in both teaching hospital(s), or other major centres with academic activity, and in DGH(s). The programme to which the trainee is appointed will have named consultant trainers (Educational Supervisors). In addition, one consultant within the same region, but not normally involved in the particular training scheme, will act as Programme Director to the trainee.

## RESEARCH

A period of supervised research of good quality is considered a highly desirable part of HST in Medical Ophthalmology. A relevant research period may contribute up to 12 months towards the total duration of HST, the balance to be clinical 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. This is perfectly acceptable but only one full year will count towards the 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 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 higher training programme.

## APPROVAL OF TRAINING PROGRAMMES

It is emphasised to both trainees and supervising consultants that any training programme should be carefully thought out. If either party has doubts about a particular programme, prospective advice should be sought from the SAC. Academic posts (eg Lecturers) are perfectly acceptable for Higher Medical Training provided prospective approval has been obtained from the SAC.

### TRAINING RECORD

A written record of training will be maintained by the trainee, to be countersigned by the relevant trainer and trainee annually; it will remain the property of the trainee and must be produced at the annual assessment. It contains details of training requirements and competences to be achieved within the context of the broad curriculum outlined below.

### 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 limiting 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 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).

### ASSESSMENT

Assessment of trainees will be based upon the standard format of annual review, including the Penultimate Year Assessment (PYA) to which particular importance attaches. Full details may be found in the Introduction to the JCHMT handbook. The award of the CCST will be based on satisfactory completion of the entire series of annual assessments agreed by both RCOphthalmology and JCHMT assessors. A member of Medical Ophthalmology Committee will attend as a PYA external assessor.

## TEACHING METHODS

### 1. Knowledge acquisition

Personal study including effective use of medical literature  
Tutorials  
Post graduate courses

### 2. Clinical skills and attitudes

Demonstration of examination skills in normal subjects & patients to trainer  
Presenting history, demonstrating clinical findings & use of investigations on ward rounds or in tutorial sessions  
Presenting cases for group discussion at grand rounds, PG meetings, imaging, etc  
Review of paper or electronically based problem cases  
Observation of consultant trainers managing clinical problems in day to day practice  
Observation of consultant trainers communicating with patients and members of team in day to day practice  
Use of role play or video taping of interviews  
Reinforce skills by practice during on the job training with both in-patients and out-patients - the latter should include unselected general medical ophthalmology cases

### 3. Procedures

Demonstration of injection technique by trained operator in patients requiring the procedure.  
Perform procedure under observation  
Reinforce skills during on the job training with both in-patients and out-patients

## SYLLABUS (SEE APPENDIX C)

### Knowledge

The overall aim is to acquire a sound knowledge of the natural history and pathophysiology of medical ophthalmological conditions and the basic science principles and evidence base underpinning the current practice of medical ophthalmology. This knowledge base will be applied to ensure safe and competent clinical practice.

The trainee will be required to demonstrate working knowledge, as applied to ophthalmological diseases, of:

### Basic Science

Anatomy  
Embryology  
Biochemistry  
Physiology  
Genetics  
Microbiology  
Histopathology

Immunology  
Pharmacology

### **Ophthalmological Disorders**

Epidemiology  
Screening and prevention  
Aetiology  
Pathogenesis  
Immunology  
Clinical features and Natural History including at the extremes of age  
Management, and its evidence base

### **CLINICAL SKILLS AND ATTITUDES**

The overall aim is to develop the ability to perform a clinical examination of patients with medical ophthalmological disorders, select and interpret appropriate investigations, formulate a differential diagnosis and management plan and perform practical procedures. The trainee should be able to communicate effectively with the patient and other clinical colleagues.

#### **History**

To be able to elicit and correctly interpret a history of :

- The presenting symptom of ocular disease eg loss of vision, pain, redness and  
of non-ocular manifestations
- The disability and handicap caused by ophthalmic disease
- The psychosocial problems associated with ophthalmic disease  
The link with systemic disease

#### **Examination**

To be able to undertake a physical examination as detailed in Appendix B and identify:

- the normal eye and visual pathways and its variations at extremes of age
- the ophthalmological signs associated with:
  - general medical ophthalmology including vascular disease, diabetes, and endocrinology
  - neurology and neuro-ophthalmology
  - rheumatology, ocular inflammatory disease (including HIV)
  - medical retinal disorders

#### **Differential Diagnosis**

To be able to formulate a differential diagnosis and plan of investigation for patients with

- Loss of vision - acuity, field or perception
- Disturbance of vision
- Pain in and around the eye
- Red eye
- Discharge from the eye
- Swelling around the eye
- Swellings in the orbit and proptosis

- Diplopia and ocular motility disorders
- Ocular symptoms and signs associated with systemic disorders
- Ophthalmic emergencies

### USE OF INVESTIGATIONS

To know the indications for, and limitations of the laboratory and imaging techniques used in the diagnosis and management of medical ophthalmic diseases.

To be able in the light of the clinical assessment, to select and interpret the most appropriate

- *Laboratory investigations*
  - Haematology
  - Biochemistry
  - Immunology
  - Histopathology
  - Cytopathology and recognise the macroscopic appearance of normal and abnormal CSF and ocular fluids
  - Microbiology
  
- *Ophthalmic investigations*
  - Refraction including low vision aid
  - Orthoptic assessment
  - Visual Field testing
  - Test of visual perception - colour vision, stereopsis etc
  - Electrophysiology
  - Imaging techniques
  - Fundus angiography
  - Cranial angiography
  - Scanning laser ophthalmoscopy
  - Plain radiography as applied to medical ophthalmology
  - CT
  - MRI
  - Ultrasound
  - Radioisotope scanning
  - Photography/OCT

### Procedures

To be able to identify the correct indications for and perform

- Aqueous and vitreous tap
- Botulinum toxin injection
- Laser therapy
- Peri / Intra-ocular injections of drugs
- Lumbar puncture

### CLINICAL MANAGEMENT AND COMMUNICATION

To be able to communicate and discuss with the patient

- The diagnosis

- The need for further investigations
- The evidence-based management options, their risks and benefits and the need for clinical monitoring
- The need for surgical intervention and the main risks and benefits
- The patient's views on causation, management, and the risks and benefits of complementary or non-conventional approaches

To be able to identify the need for

- Paramedical intervention and aids to assist visual rehabilitation
- Intervention by other specialists which includes most medical specialties and ophthalmic surgeons
- Education
- Disability benefits or retraining to reduce the socio-economic impact of visual disability on the patient
- Multidisciplinary management of visual needs of the patient. To communicate these needs effectively with
  - Members of the multidisciplinary team
  - Other clinical colleagues
  - Relevant support workers and social services / voluntary agencies

#### CLINICAL AUDIT AND ASSESSING OUTCOMES

**Specific objectives & subject matter:**

To be able to design, plan and carry out an audit project on a relevant clinical topic. To achieve this the trainee will be required to -

- specify an appropriate standard of practice for audit
- identify suitable outcome measures
- apply appropriate statistical methods to achieve a robust study design and analysis of results
- complete the audit 'loop' to demonstrate whether change in practice has occurred.

#### MANAGING A MEDICAL OPHTHALMOLOGY UNIT

**Specific objectives & subject matter:**

To acquire the management skills relevant to participation in and leadership of a medical ophthalmology team. To achieve this the trainee will be required to demonstrate -

- Effective time management
- Negotiating skills
- Participation in staff organization

## SYLLABUS

### APPENDIX A

#### BST IN OPHTHALMOLOGY

##### (a) Competencies

Competence attained through BST in Ophthalmology requires that the trainee be proficient in performing a clinical examination of the eye and visual system. The trainee should be able to demonstrate competence in examination of

##### **Basic ocular assessment**

- Visual function, including visual acuity, visual fields and visual perception
- Slit lamp biomicroscopy
- Fundoscopy, using direct and indirect ophthalmoscopy
- Refraction
- Ocular movements and cover testing

##### **Adnexae - lid, lacrimal, orbital**

- Discolouration, swelling, displacement or protrusion, discharge

##### **Ocular surface**

- Discolouration, loss of surface regularity, dryness, discharge

##### **Cornea**

- Loss of clarity, opacification, thinning, vascularisation, endothelial defects

##### **Anterior chamber**

- Cells, flare, infiltration, iris abnormalities

##### **Pupils**

- Shape, size, inequality, asymmetry. Afferent and efferent defects

##### **Intraocular pressure**

- Correct estimation of IOP by different techniques
- Detection of glaucoma, differentiation of primary from secondary
- Detection of ocular hypertension
- Detection of abnormalities of the anterior chamber angle, gonioscopy

##### **Lens**

- Position, shape, clarity,

##### **Vitreous**

- Clarity, cells, detachment, pars plana lesions

##### **Retina**

- Exudates, haemorrhage, abnormal vessels, detachment, elevation, holes, degeneration, fibrosis

##### **Optic Nerve**

- Cupping, swelling, atrophy, configuration

## **Choroid**

Exudates, atrophy, degeneration, rupture, abnormal vessels

## **Ocular movements**

Tropia and phoria, cover test

Ocular myopathies

Motor cranial nerve palsies

Defects of accommodation or convergence

Gaze palsies and nystagmus

## **Neuro-Ophthalmic**

To understand the importance of history and examination in patients presenting with acute neuro-ophthalmic symptoms, including:

- causes of acute visual loss, both monocular and binocular

To interpret the results of tests including:

- visual acuity
- visual field plot
- colour vision
- basic orthoptic assessment including Hess chart

## **(b) Essential Experience**

Normally a minimum of 2 years in approved posts with direct involvement in patient care offering a wide range of experience in ophthalmology.

SHOs should undertake no more than 8 clinical sessions per week to include:

General Clinics 3 (maximum)

Casualty 2 (maximum)

## **(c) Desirable Experience**

Trainees entering HST in Medical Ophthalmology with MRCOphth will already have had exposure to ocular surgery during their period of BST in Surgical Ophthalmology. Trainees entering HST in Medical Ophthalmology with MRCP will have the option of exposure to ocular surgery as designated session of BST or alternatively may participate in Medical Ophthalmic Clinics / Ward rounds / "Procedures" sessions (see HST Form B) as appropriate after discussion with their trainer. This may include laser and/or special clinics.

There should be not more than 5 general sessions including casualty and primary care

## APPENDIX B

### BST IN MEDICINE

#### (a) Competencies

Good clinical care -

(a) History taking, examination and note keeping skills.

Objective - To be able to take a history and examine patients, as well as keep an accurate and relevant medical record.

(b) Time management, risk management and decision making.

Objective - To manage time and problems effectively.

Communication skills -

Objective - To communicate effectively with patients, relatives and colleagues in the circumstances outlined.

Maintaining good medical practice

(a) Learning

Objective - To understand the necessity of life-long learning in medical practice

(c) Evidence, audit and guidelines

Objective - To be able to use evidence, guidelines and audit to benefit patient care

Working with colleagues (team working)

Objective - To understand the role of colleagues and to work with them effectively.

#### Maintaining trust

(a) Professional behaviour

Objective - To develop the knowledge, skills and attitudes necessary to act in a professional manner at all times.

(b) Ethics and legal issues

Objective - To acquire the knowledge and skills to cope with ethical and legal issues which occur during the management of patients with general medical problems.

(c) Patient partnership and health promotion

Objective - To be able to educate patients effectively and sensitively.

#### Teaching and training

Objective - To acquire the knowledge, skills and attitudes to become life-long learners and teachers.

#### General medical care

Objective - To be able to provide general care for medical inpatients

Subject - non specific symptoms, eg lethargy, anorexia

Knowledge - causes; organic; psychiatric

Skills - Initiate investigations to explore possible causes; recognize depression

#### Nutrition

Knowledge - impact of: disease on nutritional status; malnutrition on clinical outcomes principles and routes of nutrition support; role of nutrition support team  
Skills - Assess nutritional status; recognize cultural and religious issues; identify those needing nutrition support advice. Recognise the skills of others, eg special nurses, pharmacists, dieticians; when to consult NST.

### Pain

Knowledge - Causes; disease or treatment related; exacerbating factors, eg psychological state; pain pathophysiology, eg nociceptive, neuropathic

### Cardiology clinical scenarios

Objective - To be able to assess and initiate management of patients presenting with the cardiac problems outlined below. For each scenario SHOs should in particular gain knowledge and skills to: assess symptoms and signs; formulate a differential diagnosis; select appropriate investigations and accurately interpret investigation reports; communicate the diagnosis and prognosis; commence appropriate treatment.

#### Outpatient-based scenarios

##### Stable angina

Knowledge - Risk factors; indications, contraindications and side effects of 1<sup>st</sup> line agents; strategies for primary and secondary prevention

Skills - Recognise when to consult to consider exercise stress test or coronary angiogram

##### Hypertension

Knowledge - causes (including pregnancy); indications, contraindications and side effects of 1<sup>st</sup> line agents; complications.

Skills - Discuss necessity for long-term treatment

##### Palpitations

Knowledge - Causes

Skills - Initiate investigations to explore the differential diagnosis

##### Heart failure

Knowledge - Causes and precipitating factors; indications, contraindications and side effects of 1<sup>st</sup> line agent

Skills - Initiate investigations to identify the cause

##### Valvular heart disease

Knowledge - Complications; indications for anticoagulation and antibiotics in valvular heart disease

Skills - Use echocardiography appropriately; explain to patients the risk/benefit ratios of treatments including anti-coagulation

### Clinical pharmacology and therapeutics clinical scenarios

Objective - to be able to prescribe drugs safely

#### Therapeutics

Knowledge - Effects of disease on prescribing: hepatic; renal. Effects of patient factors on prescribing: drug allergy; genetic susceptibility to adverse drug reactions; pregnancy. Effects of drug interactions: metabolism by CYP450 isoenzymes. Drugs that require therapeutic monitoring. Evidence based prescribing.

Skills - Taking a drug history; use of the BNF and other sources of information; writing a clear and unambiguous prescription; liaising with ward pharmacist; explaining drug therapy to patient; safe prescribing in pregnancy.

Objective - To assess and initiate management of patients presenting as general medical outpatients requiring steroids.

#### Steroid treatment

Knowledge - Indications; side effects; strategies to prevent / minimize osteoporosis

Skills - Educate / counsel patients about risk / benefit profile ; appropriate use of steroid leaflet, card, and medic alert

#### Dermatology clinical scenarios

Objective - To be able to assess and initiate management of patients presenting with dermatology problems. For each scenario SHOs should in particular gain knowledge and skills to: assess symptoms and signs; formulate a differential diagnosis; select appropriate investigations and accurately interpret investigation reports; communicate the diagnosis and prognosis; commence appropriate treatment.

#### On take and ward based scenarios

##### Skin failure, eg toxic epidermal necrolysis, erythroderma

Knowledge - Causes; Emergency management; complications

Skills - Assess mucosal involvement and systemic effects including estimation of fluid requirements. Start initial treatment rapidly. Recognise when to consult dermatology, ophthalmology.

##### Urticaria, angio-oedema, anaphylaxis

Knowledge - Precipitating circumstances and associated conditions. Complications.

Skills - Assess airway competence and manage upper airway obstruction. Initiate rapid treatment.

##### Cellulitis

Knowledge - Causal microbial agents, antibiotic rationale. Associated conditions

Skills - Assess the possibility of venous thrombosis. Recognise need for nursing skills for local treatments including dressings.

##### Cutaneous drug reactions

Knowledge - Patterns and common precipitants. Serious complications, eg Stevens-Johnson syndrome.

Skills - Assess mucosal involvement

##### Herpes zoster and disseminated herpes simplex

Knowledge - Patterns. Complications. Treatment options.

Skills - recognize high risk patients; severe infections; when to consult other specialty, eg ophthalmology

##### Acute cutaneous vasculitis

Knowledge - Causes. Complications.

Skills - Assess systemic involvement

#### Outpatient based scenarios

##### Pruritus

Knowledge - Causes and associated conditions including: infestation; primary skin disease; systemic disease. Management options  
Skills - Initiate investigations to explore the differential diagnosis. Identify contacts and refer to infection team if scabies diagnosed.

#### Psoriasis and eczema

Knowledge - Patterns and clinical variants. Indications, contraindications and side effects of first line therapies. Serious complications.  
Skills - Describe and record patterns. Recognise; the role of the dermatology nurse; psychosocial effects.

#### Skin cancer

Knowledge - Effects of UV exposure on skin. Risk factors. Features and initial management of: basal cell carcinoma; squamous cell carcinoma; melanoma.  
Skills - Differentiate from common benign tumours. Recognise when to consult other specialty. Advise on prevention, eg strategies for UV protection.

#### Manifestations of systemic disease affecting skin, hair or nails

Knowledge - Cutaneous signs in: endocrine and metabolic disease; gastrointestinal disease; malignancy; connective tissue disease; immunosuppression; TB and sarcoid.  
Skills - Recognise the underlying disease.

#### Diabetes and endocrinology clinical scenarios

Objective - To be able to assess and initiate management of patients presenting with diabetic and endocrinology problems. For each scenario SHOs should in particular gain knowledge and skills to: assess symptoms and signs; formulate a differential diagnosis; select appropriate investigations and accurately interpret investigation reports; communicate the diagnosis and prognosis; commence appropriate treatment.

#### On take and ward based scenarios

##### Diabetic ketoacidosis (DKA)

Knowledge - Precipitating circumstances. Complications. Strategy for long term follow up.  
Skills - Prescribe fluids, insulin and potassium appropriately including need for repeated review.

##### Non ketotic hyperosmolar coma (HONK)/severe hyperglycaemia

Knowledge - Precipitating circumstances  
Skills - Prescribe fluids, insulin and potassium appropriately including need for repeated review.

##### Hypoglycaemia

Knowledge - Precipitating circumstances.  
Skills - Measure blood glucose; Rapidly administer glucose/20% dextrose / glucagons if indicated

##### "ill" or perioperative diabetic

Knowledge - Effect of disease process / procedure on glycaemic control. Effect of poor glycaemic control on disease processes / procedure

Skills - Monitor and manage insulin and oral hypoglycaemic agents whilst patients are lasting.

#### Acute adreno-cortical insufficiency

Knowledge - Hypothalamo-pituitary-adrenal axis - function and assessment. Causes. Complications.

Skills - Management of emergency. Initiate investigations to establish the diagnosis and identify the cause.

#### Hyper / hypocalcaemia

Knowledge - Causes. Complications

Skills - Initiate investigations to identify the cause. Management - see also Oncology section.

#### Hyponatraemia

Knowledge - Causes. Complications.

Skills - Ability to assess severity and volume status and initiate appropriate fluid balance management. Initiate investigations to identify the cause.

#### Outpatient based scenarios

##### Diabetes (new)

Knowledge - Diagnostic criteria; pathophysiological differences between Type 1 and Type II diabetes and recognition of insulin dependence. Monitoring glycaemic control and effects of diet and exercise. Strategies for primary and secondary prevention of complications. Role of diabetes specialist nurse.

Skills - Use of glucose tolerance test. Rationally manage oral hypoglycaemic agents and insulin regimes. Perform patient education including individualized plan for therapy agreed by patient.

##### Diabetes (complications)

Knowledge - Long term complications: macrovascular IHD / stroke / peripheral vascular disease; microvascular eye / kidney / nerves; diabetic foot; infections. Relationship of complications to glycaemic control and other factors.

Skills - Recognise when to consult other specialty.

##### Dyslipidaemia

Knowledge - Classification. Complications and effects on natural history of other diseases. Role of diet. Indications, contraindications and side effects of lipid lowering agents.

Skills - Interpret lipid biochemistry results. Take accurate family history.

##### Thyroid dysfunction

Knowledge - Pathophysiological effects of thyroid dysfunction. Causes.

Skills - Interpret thyroid function tests.

Initiate investigations to establish the diagnosis and identify any underlying cause.

#### Gastroenterology clinical scenarios:

Objective - To be able to assess and initiate management of patients presenting with gastroenterology problems. For each scenario SHOs should in particular gain knowledge and skills to: assess symptoms and signs; formulate a differential diagnosis; select appropriate investigations and accurately interpret investigation reports; communicate the diagnosis and prognosis; commence appropriate treatment.

### On take and ward based scenarios

#### Abdominal pain (acute)

Knowledge - Causes: gastrointestinal; surgical; gynaecological/urological; cardiac/vascular. Appropriate analgesia and routes of administration.

Skills - Initiate investigations to explore the differential diagnosis. Assess need for: nil by mouth; IV fluid replacement / resuscitation. Liaise with surgeons when appropriate.

#### Diarrhoea (acute)

Knowledge - Causes; indications for isolation; indications and contraindications for antibiotics, steroids and anti-diarrhoeal agents. Diagnosis and initial management of acute severe colitis

Skills - Initiate investigations to explore the differential diagnosis. Manage diarrhoea including infectious and non-infectious causes. Correct fluid and electrolyte imbalances.

#### Gastrointestinal bleeding

Knowledge - Causes; indications and complications of: transfusion of blood products; insertion of a central venous line; urgent endoscopy. Local guidelines and indicators of rebleeding risk.

Skills - Urgent and rapid assessment of: haemodynamic state; co-morbid disease; likelihood of variceal bleeding. Immediate management of hypovolaemic shock.

#### Abdominal distension

Knowledge - Causes

Skills - Initiate investigations to explore the differential diagnosis.

#### Jaundice

Knowledge - Causes including precipitating or exacerbating drugs. Indications for: liver biopsy; ERCP

Skills - Recognise the presence of chronic liver disease and/or fulminant liver failure. Initiate investigations to look for cause. Recognise, prevention and management of: sepsis including cholangitis; renal impairment.

#### Decompensated cirrhosis and fulminant liver failure

Knowledge - Causes and precipitants. Specific complications including; encephalopathy; sepsis; fluid and electrolyte disturbance; renal impairment; hypoglycaemia; coagulopathy; bleeding; malnutrition.

Skills - Initiate investigations to establish the diagnosis and identify the cause. Prevent / manage complications (as listed in knowledge) Avoid precipitating / exacerbating drugs. Recognise need to discuss referral to liver unit early.

#### Alcohol withdrawal syndrome

Knowledge - Strategies for prevention and management. Complications. Acute and long term effects of alcohol excess.

Skills - Recognise need for: correction of vitamin deficiencies; nutritional assessment; other specialty or service, eg psychiatry or social services.

### Outpatient based scenarios

#### Upper abdominal pain, dyspepsia or reflux symptoms

Knowledge - Causes. Local and national guidelines for investigation and management. Indications, contraindications and side effects of 1<sup>st</sup> line therapies. Role of H.pylori.

Skills - Initiate investigations to explore the differential diagnosis.

#### Chronic diarrhoea

Knowledge - Causes

Skills - Initiate investigations to explore the differential diagnosis.

#### Dysphagia

Knowledge - Causes: organic; functional

Skills - Recognise need for: rapid assessment; nutritional assessment; surgical input when appropriate. Initiate investigations to explore the differential diagnosis.

#### GI cancer

Knowledge - Principles of staging. Indications for surgery.

Skills - Recognise need for: rapid assessment; nutritional assessment; other specialty when appropriate, eg oncology, surgery. Breaking bad news.

#### Irritable bowel syndrome

Knowledge - Diagnostic criteria. Indications, contraindications and side effects of 1<sup>st</sup> line agents.

Skills - Have a balanced approach to investigation. Be sensitive to psychological distress.

#### Iron deficiency anaemia

Knowledge - Causes; bleeding, dietary, malabsorption. Roles / risks of blood transfusion.

Skills - Initiate investigations to establish the diagnosis and identify the cause.

#### Malabsorption, including celiac disease

Knowledge - Associated conditions

Skills - Recognise role of dietician

#### Inflammatory bowel disease

Knowledge - Differences between ulcerative colitis, Crohn's disease and infectious colitis. Indications and side effects of 1<sup>st</sup> line agents. Complications including acute severe colitis.

Skills - Create individualized treatment plan. Recognise the role of: nutritional assessment; specialist nurses.

#### Chronic liver disease

Knowledge - Causes; strategies for prevention of viral hepatitis; complications.

Skills - Interpret viral serology reports and understand their implications. Recognise patients who may require referral to liver unit; the role of nutritional assessment.

#### Genitourinary medicine clinical scenarios

Objective - To be able to assess and initiate management of patients presenting with genitourinary problems outlined. Students should in particular gain knowledge and skills to; assess symptoms and signs; formulate a differential diagnosis; select appropriate investigations, accurately interpret reports and initiate appropriate treatment; communicate the diagnosis and prognosis; commence appropriate treatment.

### On take and ward based scenarios

#### HIV

Knowledge - Natural history. Presentations of seroconversion illness. Common presentations of immunodeficiency and opportunistic infection. Markers of disease progression. Principles and side effects of anti-retroviral therapy. Principles of universal infection control. Precautions and safe disposal of sharps.

Skills - Take a sexual history. Perform pre-test discussion and get consent prior to HIV testing. Recognise associated sexually or parentally transmitted diseases.

#### Percutaneous injuries and exposure to blood and body fluids.

Knowledge - Local policy and procedures. Immediate management of percutaneous injury in relation to blood-borne viruses. Indications for post exposure HIV prophylaxis.

Skills - Perform risk assessment of source patient.

### Outpatient scenarios

#### Vaginal / urethral discharge. Genital ulcers. Genital warts.

Knowledge - Causes of vaginal and urethral discharge and genital ulcers including microbiological aetiologies.

Skills - Take a sexual history. Examine external genitalia.

#### Pelvic pain in women (non acute)

Knowledge - Causes in women in the reproductive years. Aetiology of pelvic inflammatory disease (PID)

Skills - Take a sexual history.

### Geriatric medicine clinical scenarios

Objective - To be able to assess and initiate management of patients, particularly older people, presenting with the problems outlined below. For each scenario SHOs should in particular gain knowledge and skills to: assess symptoms and signs; formulate a differential diagnosis; select appropriate investigations and accurately interpret investigation reports; communicate the diagnosis and prognosis; commence appropriate treatment.

### On take and ward based scenarios

#### Stroke

Knowledge - Causes and risk factors. Indications and complications of anti-thrombotic strategies. Benefits and role of stroke units. Complications. Preventative strategies (primary and secondary)

Skills - Recognise - social and psychological impact; importance of rehabilitation; role of multidisciplinary team; patients requiring supportive treatment only; patients requiring urgent / specific interventions. Use stroke unit protocols / guidelines.

#### Management of complex, multipathology states

Knowledge - Possible pathologies. Nutritional factors. Role of rehabilitation. Social implications for disease management.

Skills - Comprehensive assessment. Timely and appropriate discharge planning.

### Age related pharmacology

Knowledge - Altered pharmacokinetics in older people

Skills - Management of polypharmacy, non compliance and adverse drug reactions in older people.

### Haematology clinical scenarios

Objective - To be able to assess and initiate management of patients presenting with the haematology problems outlined. For each scenario SHOs should in particular gain knowledge and skills to: assess symptoms and signs; formulate a differential diagnosis; select appropriate investigations and accurately interpret investigation reports; communicate the diagnosis and prognosis; commence appropriate treatment.

### On take and ward based scenarios

#### Bone marrow failure

Knowledge - Causes. Specific complications including: sepsis; bleeding. Local guidelines.

Skills - Recognise patients requiring: isolation; blood product transfusion; prophylactic antimicrobial agents; referral to haematology.

#### Sickle cell crisis

Knowledge - Precipitating circumstances. Complications: sepsis; aplasia; acute sequestration; haemolysis.

Skills - Manage fluid balance and analgesia. Liaise with haematology.

#### Disseminated intravascular coagulopathy and other bleeding disorders

Knowledge - Diagnostic criteria. Associated conditions and complications.

Skills - Initiate investigations to identify underlying cause. Initiate emergency management.

#### Transfusion of blood products

Knowledge - Indications for blood products. Complications including: transfusion reactions; transmission of infection.

Skills - Prescribe blood products safely. Explain benefits / risks to patient.

#### Anticoagulation

Knowledge - Indications for thrombolysis; heparins; oral anticoagulants. How to monitor anticoagulation including recommendations for: target INR and APTT; duration of therapy.

Skills - Start and adjust dose of anticoagulant. Manage over-anticoagulation.

### Outpatient based scenarios

#### Anaemia

Knowledge - Classification and how to differentiate the likely causes: bleeding; haematinic deficiency; haemolysis; haemoglobinopathy; bone marrow problems. Complications. Role of replacement therapy.

Skills - Initiate investigations to establish the diagnosis and identify the cause.

#### Thrombophilia

Knowledge - Classification; content of a thrombophilia screen; role of anticoagulation.

Skills - Explain benefits / risks of antithrombotic strategies to patients.

## Infectious diseases clinical scenarios

Objective - To provide the SHO with a range of knowledge and skills which will enable him / her to: safely assess the patient; carry out appropriate investigations; initiate treatment when patients are admitted with a suspected infection related general medical problem; communicate the diagnosis and prognosis; commence appropriate treatment.

### On take and ward based scenarios

#### Sepsis

Knowledge - Definition of sepsis, severe sepsis, septic shock. Complications of sepsis, eg ARDS, pulmonary oedema, DIC. Site of origin and microbiology. Local common patterns of infection. Understand difference between community and hospital acquired infections. Be familiar with common community acquired infections; LRTI, UTI, skin and soft tissue infections, viral exanthema, food poisoning.

Skills - Assess severity. Select appropriate investigations. Obtain accurate history including contact / occupational / pets history.

#### Antimicrobial therapy

Knowledge - Rationale for prescribing common antimicrobials; choice (spectrum of microbiological cover), route, dose, duration and safety profile. Role of patient co-morbid illness in antibiotic handling and role of therapeutic drug monitoring; appreciate the consequences of inappropriate prescribing: eg antibiotic resistance; local antibiotic policy. Strategies to ensure patient compliance

Skills - Liaise with local microbiology / ID and clinical pharmacist re prescribing and monitoring. Assess 'allergy' Recognise role of microbial sensitivities and antibiotic levels (eg gentamicin). Recognise need to seek specialist advice when unsure.

#### Fever from abroad.

Knowledge - Likely causes, especially malaria. Travel causes of fever and STD. Understand patient education regarding prevention of future infection.

Skills - Take a travel history and vaccination / prophylaxis, especially ask about compliance. Take a sexual history. Select appropriate investigations including serial blood film for malaria parasites, fresh stool microscopy for parasites ± serology (eg amoeba). Recognise when to consult for tropical medicine advice. Refer for pre-travel advice.

#### Immuno-compromised host

Knowledge - Typical immuno-compromised hosts and atypical presentation of infections (elderly, steroids / other immuno-suppressive drugs, chemotherapy, prosthesis) Appreciate the principles of HIV counseling and testing.

Skills - High index of suspicion of infection in this 'risk' patient population. Discussion with appropriate specialists regarding specific investigations (eg induced sputum for PCP)

#### Microbiological investigations

Knowledge - Knowledge of simple microbiological investigations, their interpretation and limitations.

Skills - Complete request form appropriately to get most out of test. Discuss with microbiologist if unsure.

#### Prophylaxis

Knowledge - Role of immunization and public health in infection practice. Chemoprophylaxis, eg anti-malarial. Notification of public health for infectious diseases.

Skills - Complete forms for notifiable diseases (eg meningococcal infection, food poisoning). Ensure high risk patients are immunized appropriately.

#### Infection Emergencies.

Knowledge - Understand the pathophysiology of sepsis causing shock

Skills - Recognise and rapidly resuscitate sick patients with presumed meningitis, toxic shock syndrome and severe sepsis / shock.

#### Medical oncology clinical scenarios

Objective - To be able to assess and initiate management of patients presenting with the oncology problems outlined. For each scenario SHOs should in particular gain knowledge and skills to: assess symptoms and signs; formulate a differential diagnosis (including associated tumour type); select appropriate investigations and accurately interpret investigation reports; communicate the diagnosis and prognosis; commence appropriate treatment.

#### On take and ward based scenarios

##### Neutropenic sepsis

Knowledge - Patients at risk. Features of specific infections. Appropriate: microbiological samples; broad spectrum antibiotics; isolation and infection control procedures; supportive measures.

Skills - Initiate management urgently. Recognise need for repeated review and monitoring.

#### Intercurrent illness in patients with malignancy

Knowledge - Specific complications of therapy: toxicity; renal impairment and failure; drug interactions. Specific complications of disease: local invasion; distant metastases; paraneoplastic manifestations.

Skills - Recognise importance of quality of life. Keep patients and families informed and listen to their concerns. Consult on appropriateness of resuscitation.

#### Outpatient based scenarios

##### Lung, breast, colon cancer and carcinoma of unknown primary

Knowledge - Risk factors. Natural history. Principles and methods of cancer staging. Understand the principles, indications and complications of: surgical treatment; chemotherapy; radiotherapy; endocrine therapy.

Skills - Recognise warning symptoms / signs. Recognise the need for rapid assessment. Breaking bad news. Recognise when to consult appropriate specialists including palliative care.

##### Metastatic cancer

Knowledge - Routes of dissemination of common cancers. Management strategies for patients with bony, liver, pleural and cranial metastases.

Skills - Breaking bad news. Recognise when to consult appropriate specialist. Recognise the importance of symptom control.

#### Neurology clinical scenarios

Objective - To be able to assess and initiate management of patients presenting with the neurology problems outlined. For each scenario SHOs should in particular gain knowledge and skills to: assess symptoms and signs; formulate a differential diagnosis; select appropriate investigations and accurately interpret investigation reports; communicate the diagnosis and prognosis; commence appropriate treatment.

#### On take and ward based scenarios

##### Headache

Knowledge - Causes

Skills - Initiate investigations to explore the differential diagnosis.

##### Status epilepticus

Knowledge - Causes; Complications; Indications for intubation and ventilation.

Skills

Provide emergency management. Awareness of pseudo-status. Rapid detection of cause, eg hypoglycaemia.

##### Subarachnoid haemorrhage

Knowledge - Risk factors. Timing and correct analysis of lumbar puncture if CT scan negative

Skills - Recognise atypical presentations. Liaise with neurosurgeon.

##### Meningitis, encephalitis brain abscess

Knowledge - Microbial causes; appropriate antibiotic / antiviral treatment. Indications and contraindications to lumbar puncture. Complications. Procedure for notification, contact tracing and primary prevention with antibiotics.

Skills - Liaison with microbiology. Recognise - co-morbidity, eg HIV, ear / sinus disease, alcoholism, skull fracture; need for urgent treatment.

##### Coma

Knowledge - Glasgow coma scale. Causes. Indications for intubation and ventilation.

Skills - Provide emergency management including urgent treatment of remedial causes. Initiate investigations to establish diagnosis. Role of EEG.

##### Raised intra-cranial pressure

Knowledge - Causes. Complications. Relevant anatomy (CSF circulation)

Skills - Initiate investigations to establish diagnosis. Liaise with neurologist / neurosurgeon / ITU

##### Acute paralysis, eg Guillain Barre syndrome, spinal cord compression, myasthenia gravis

Knowledge - Causes. Methods of monitoring progression. Complications.

Skills - Measure vital capacity. Liaise with neurology / neurophysiology.

##### Acute onset or relapse of multiple sclerosis

Knowledge - Usual presentations. Treatment options. Complications.

Skills - Liaise with neurologist. Urgent rehabilitation and return to home environment.

Renal medicine clinical scenarios

Objective - To be able to assess and initiate management of patients presenting with renal problems. For each scenario SHO's should in particular gain knowledge and skills to: assess symptoms and signs; formulate a differential diagnosis; select appropriate investigations and accurately interpret investigation reports; communicate the diagnosis and prognosis; commence appropriate treatment.

On take and ward based scenarios:

#### Chronic renal failure (CRF)

Knowledge - Describe: the causes, associated conditions and diagnosis of CRF; the investigations used to assess the degree of renal impairment; the role of blood pressure control and the use of angiotensin blockade in slowing progression of CRF; the pathophysiology of renal bone disease and its treatment; the pathophysiology of renal anaemia and its treatment.

Skills - Take a clinical history in the assessment of chronic renal failure including drug, surgical, family, social and environmental factors; perform a reliable clinical examination; initiate investigations to identify the cause and assess the severity of renal failure; identify complications, eg anaemia, bone disease, pericarditis; liaise with a renal unit.

#### Nephrotic syndrome.

Knowledge - Describe; the diagnosis of nephritic syndrome and identify causes and relationship to systemic diseases; how to investigate nephritic syndrome to establish its severity and cause; the indications for and complications of a renal biopsy; management of nephritic syndrome, including the indications for ACE inhibitors, and to understand the specific use of corticosteroids and other immunosuppressive agents.

Skills - Take a relevant history, including family history and perform an appropriate examination; initiate appropriate investigations; liaise with a renal unit.

#### Drugs and renal disease

Knowledge - Define: how commonly used drugs may affect renal function; the handling of commonly used drugs in the presence of renal impairment.

Skills - Recognise drug induced renal disease; prescribe safely and efficiently for patients with renal disease after consultation if necessary.

#### Rapidly progressive glomerulonephritis

Knowledge - Describe: the presentation of the condition; the cause, including its relationship to systemic vasculitis; the laboratory investigations.

Skills - Take a full history and perform a thorough examination; initiate immediate investigation and diagnosis; liaise with a renal unit.

Outpatient based scenario:

#### Proteinuria / haematuria

Knowledge - Define the causes; describe the methods of investigation

Skills - Initiate investigations to explore the differential diagnosis

#### Adult polycystic kidney disease

Knowledge - Define the mode of inheritance of APKD; describe use and timing of ultrasound scanning in confirming the diagnosis; define the natural history (and variability) of the condition.

Skills - Take a full history, including family, and perform a thorough examination; liaise with a renal unit

### Respiratory medicine clinical scenarios

Objective - To be able to assess and initiate management of patients presenting with the respiratory problems outlined. For each scenario SHOs should in particular gain knowledge and skills to: assess symptoms and signs; formulate a differential diagnosis; select appropriate investigations and accurately interpret investigation reports; communicate the diagnosis and prognosis; commence appropriate treatment.

On take and ward based scenario:

#### DVT/PE

Knowledge - Causes, risk factors and preventative measures; severity stratification; indications for thrombolysis, anticoagulation therapeutic radiology and surgery.

Skills - Recognise underlying associated diseases, eg malignancy, thrombophilia; initiate treatment and investigative pathway.

Outpatient based scenario's:

#### Haemoptysis

Knowledge - Causes: respiratory; cardiac; other

Skills - Initiate investigations to explore the differential diagnosis. Recognise need for rapid assessment and investigation.

#### Lung cancer

Knowledge - Risk factors. Role of bronchoscopy, imaging and other tests in diagnosis and staging care pathways

Skills - Breaking bad news.

#### Pulmonary TB

Knowledge - Risk factors including those for multiresistant mycobacteria. Standard treatment regimes. Side effects of drugs. Need for contact tracing.

Skills - Notify cases.

#### Interstitial lung disease and fibrosis

Knowledge - Causes. Imaging appearances. Pulmonary function abnormality. Treatment options.

Skills - Recognise occupational causes.

Rheumatology clinical scenarios

Objective - To be able to assess and initiate management of patients presenting with the rheumatology problems outlined. For each scenario SHOs should in particular gain knowledge and skills to: assess symptoms and signs; formulate a differential diagnosis; select appropriate investigations and accurately interpret investigation reports; communicate the diagnosis and prognosis; commence appropriate treatment.

On take and ward based scenarios

#### Acute mono-arthritis

Knowledge - Causes and disease associations. Indications for: antibiotic therapy; surgical drainage; physiotherapy.

Skills - Initiate investigations to explore the differential diagnosis. Recognise: underlying joint or bone disease; when to consult rheumatologist, orthopaedic surgeon.

### Acute polyarthritis

Knowledge - Causes and disease associations. Indications for physiotherapy.

Skills - Recognise when to consult rheumatology.

### Acute low back pain

Knowledge - Causes: malignant; septic; locomotor; renal/urological; neurological causes.

Skills - Initiate investigations to explore the differential diagnosis. Recognise: underlying systemic, joint or bone disease; when to consult other specialty, eg orthopaedics, neurosurgery.

### Polymyalgia rheumatica & temporal arteritis

Knowledge - Indications for: temporal artery biopsy; steroids; bone prophylactic therapy.

Skills - Initiate investigations to explore the differential diagnosis. Recognise the need for long term disease monitoring.

### Acute connective tissue disease

Knowledge - Know the main clinical features and complications of: systemic lupus erythematosus; scleroderma; poly and dermatomyositis; Sjogren's syndrome; vasculitis.

Skills - Recognise: side effects of drugs including immunosuppressants; when to consult rheumatologist.

Outpatient type scenarios:

### Osteoarthritis

Knowledge - Patterns of disease. Indications for surgery. Conservative management including analgesic and physical measures.

Skills - Identify and assess disability and handicap. Recognise role of multidisciplinary team.

### Rheumatoid arthritis

Knowledge - Patterns of disease and multisystem involvement. Indications for and side effects of drugs. Complications.

Skills - Recognise effects of handicap and disability; role of multidisciplinary team; liaison with other specialty, eg rheumatology, orthopaedics.

### Crystal arthropathy: gout and pseudo-gout

Knowledge - Causes of gout and pseudo-gout. Patterns of disease. Complications.

Skills - Initiate and monitor therapy.

### Osteoporosis

Knowledge - Risk factors and causes. Strategies for: prevention; management including both drugs and lifestyle changes.

Skills - Recognise patients at risk and how to minimize risk - for steroids. Use national / local guidelines.

### Soft tissue problems, eg shoulder pain fibromyalgia

Knowledge - patterns of disease

Skills - Recognise effects of disability and handicap. Initiate treatments including physiotherapy.

### Spinal pain

Knowledge - Patterns of disease

Skills - Recognise effects of disability and handicap including psychosocial. Initiate investigation and treatment and involve the multidisciplinary team.

#### Specific knowledge and skills for procedures

##### Procedure - Central venous lines

Knowledge - Anatomical markers for central veins; strategies to ensure measurements are accurate

Skills - Safely cannulate vein; perform the seldinger technique; secure line in place / review position on X-ray; connect manometer and measure CVP

##### Procedure - Pleural and ascitic fluid aspiration

Knowledge - Safe approach

Skills - Puncture pleural / ascitic space; withdraw fluid

##### Procedure - Intercostal drain

Knowledge - Anatomical markings; how an underwater seal functions

Skills - Perform safe blunt dissection to pleural space and insert intercostals tube; connect underwater seal and secure in place; assess and manage a drain; safely remove the tube.

##### Procedure - Nasal support ventilation

Knowledge - Principles of BiPAP and CPAP; monitoring and limitations

Skills - Fit masks; understand pressures

##### Procedure - joint aspiration

Knowledge - Anatomical markers of joint space

Skills - Safely puncture the joint; remove samples

##### Procedure - Lumbar puncture

Knowledge - Anatomical markers; appropriate timing of procedure

Skills - Safely puncture; measure CSF pressure; remove samples and interpret results

#### Additional topics in the specialties

##### Cardiology

Prosthetic heart valves: types; indications; complications.

##### Clinical Pharmacology

Criteria for selecting drugs from the same class: approved indications; clinical trial data; pharmacokinetics; pharmacodynamics; adverse effects; drug interactions; cost effectiveness.

Role of: National Institute for Clinical Excellence; Committee on Safety of Medicines; Hospital formulary committee.

Prescribing for: the elderly; pregnancy and breast feeding; patients with renal disease; patients with hepatic disease.

##### Genitourinary medicine

Causes, investigations and initial therapy of: prostatitis; epididymo-orchitis; genital herpes; vulvitis and balanitis

Clinical features of syphilis and interpretation of treponemal serology.

Clinical features and investigations of disseminated gonococcal infection and sexually acquired reactive arthritis.

Non genital manifestations of bacterial and viral sexually transmitted infections.

Confidentiality / partner notification.

Knowledge of sexual behaviour and associated risks.  
Sexual health promotion.  
Common causes of sexual dysfunction and simple therapy.

#### Geriatric Medicine

Osteoporosis - diagnosis, prevention and treatment - see rheumatology and include fracture prevention strategies.

#### Haematology

Congenital and acquired haemolytic anaemias  
Presentation, classification, diagnosis and management (broad aspects) of:  
leukaemias; lymphomas; myeloma; myeloproliferative disorders.  
Indications for, complication of and safe care of long lines.  
Safe handling and administration of chemotherapy.  
Thrombocytosis and thrombocytopenia  
Bleeding disorders including haemophilia  
Indications, complications and procedure for bone marrow aspiration.

#### Neurology

Intracranial tumours - presenting features and initial management  
Alcohol related neurological syndromes  
Cancer and nervous system  
Causes and the nervous system  
Causes and investigation of: peripheral neuropathy; myopathy  
Causes of: cerebellar syndromes; paraparesis  
Clinical features, initial investigation and management of: motor neurone disease;  
myasthenia gravis; muscular dystrophies; myotonic dystrophy; vitamin B12  
deficiency; benign intracranial hypertension; vertigo; Bell's, 3<sup>rd</sup> and 6<sup>th</sup> nerve  
palsies.

#### Renal medicine

Incidence, natural history, assessment initial management and complications of:  
diabetic nephropathy; glomerulonephritis; hypertensive renal disease.

#### Respiratory medicine

Presentation, investigation and initial management of: sarcoidosis; pulmonary  
vasculitis

#### Rheumatology

Diagnosis and management of: Pagets; ankylosing spondilitis;  
Systemic vasculitic syndromes  
Bechet's syndrome

The trainees should be competent in basic general medical knowledge in several  
fields including those relevant to the awarding of the MRCP diploma. These  
include:  
cardiovascular, endocrine, neurological, rheumatological, dermatological and  
genetic (see generic curriculum, JCHMT website).

#### (a) Essential Experience

The emphasis is directed towards gaining experience in clinical examination, procedures, ethics, communication skills, and appropriate investigations and their interpretation. A minimum of two years experience is required. A typical rotation would include the following:

diabetes and endocrinology	- 4 months
neurology	- 4 months
cardiology / hypertension	- 4 months
rheumatology	- 4 months
infectious disease / GUM	- 3 months
haematology / oncology	- 3 months

#### **(b) Optional Experience**

General Medicine has a very broad remit and most if not all is relevant to Medical Ophthalmology. Optional experience in aspects of internal medicine not detailed above include

Specials: Renal / Dermatology	- 1 month
Gastroenterology	- 1 month

### **APPENDIX C**

#### **HST IN MEDICAL OPHTHALMOLOGY**

##### **1 Diabetes, vascular disease and endocrinology**

###### *(a) Competencies*

To have acquired by active involvement in supervised clinics demonstrable and certified proficiency in the contemporary management of diabetes and endocrinological disorders. The trainee will be expected to demonstrate a sound knowledge of:

Diabetic ocular complications including indications for laser treatment and surgery  
Insulin and non-insulin dependent diabetes  
Diabetes in pregnancy  
Diabetic emergencies  
Management of diabetes peri-operatively  
Diabetic associations, including hypertension and hyperlipidemia  
Disorders of the pituitary  
Disorders of the thyroid  
Selecting and interpreting blood tests and imaging appropriate to these disorders

###### *(b) Essential experience*

To have attended clinics in:

Diabetes (20)  
Screening for diabetic retinopathy (30)  
General endocrinology (20)  
Thyroid (20)

To have attended fluorescein angiography reporting sessions (30)

To have carried out laser photocoagulation for diabetic eye disease  
maculopathy (50 cases)  
pan retinal (50 cases)

To have attended neuro-imaging meetings

To have demonstrated competence in the interpretation of blood tests in diabetes and endocrinology

*(c) Desirable experience*

To have been exposed to surgical management of:

Pituitary tumour

Thyroid ophthalmopathy, including orbital decompression, eyelid and extra ocular muscle surgery

## 2 Neuro-Ophthalmology

*(a) Competencies*

To have acquired by active involvement in supervised clinics demonstrable and certified proficiency in the diagnosis and management of neuro-ophthalmic problems. The trainee will be expected:

To assess a patient presenting with neuro-ophthalmic symptoms in order to reach a diagnosis and formulate a differential diagnosis.

To know when to refer for investigation or further management.

To explain to patients and relatives the implications of their findings.

To know the symptoms, signs, aetiology and appropriate investigations of visual loss and lesions of the afferent visual pathway, including optic neuropathies, chiasmal and retrochiasmal disorders.

To understand disorders of visual perception and higher visual function.

To diagnose cranial nerve anomalies, including diplopia and facial palsy/spasm and pupillary abnormalities.

To have knowledge of vascular disorders appropriate to neuro-ophthalmology including retinal vasculopathies, ischaemic optic neuropathies and vasculitis, including giant cell arteritis.

To diagnose eye movement abnormalities including supra- and infra-nuclear lesions, nystagmus and ocular myopathies.

To understand disorders of neuroimmunology including multiple sclerosis and myasthenia gravis.

To investigate patients with headache and facial pain.

To be able to take an accurate history and to perform an accurate and reliable clinical neuro-ophthalmic examination.

To select appropriate investigations.

To interpret the results of:

Psychophysical tests including those to assess visual acuity, visual fields and colour vision.

- Neurophysiological tests including tests of retinal and optic nerve function.
- An orthoptic examination, including Hess charts.
- neuroimaging, including CT and MRI of eye, orbit and brain.  
CSF analysis

To undertake treatment with botulinum toxin for disorders of facial musculature and disorders of eye movement.

To communicate effectively with patients, including those with impaired visual function.

To understand and appreciate the importance of:

- effective communication with patients and relatives.
- anxiety caused by visual loss and other neuro-ophthalmic disorders.
- the importance of visual rehabilitation and the management of visual handicap.
- involvement of other professionals in the management of patients with neuro-ophthalmic problems.
- communication with colleagues and effective teamwork.

### *(b) Essential Experience*

To have attended clinics in:  
neuro-ophthalmology (20)  
neurology (20)  
glaucoma(10)

To have attended and participated in neuroimaging meetings including interpretation and reporting of images (20)

To have received training in botulinum toxin injection for:  
facial disorders (20)  
lumbar puncture (10)

### *(c) Optional Experience*

To have experience of neuro-ophthalmic problems presenting in childhood

To have been exposed to:

Surgical and Botox injection techniques for management of paralytic strabismus

Control of raised intracranial pressure and optic nerve sheath decompression

Rehabilitation unit including patients with visual handicap

### 3 Ocular inflammatory disease and rheumatology

#### (a) Competencies

To have acquired by active involvement in supervised clinics demonstrable and certified proficiency in the diagnosis and management of inflammatory disorders of the eye, adnexae and orbit, and ocular complications of rheumatological and systemic inflammatory disease, including infections. The trainee will be expected to demonstrate a sound knowledge of

#### Uveitis

##### Infective

- Viral, including cytomegalovirus retinitis
- Bacterial, including:
  - Endogenous bacterial endophthalmitis
  - Fungal
  - Protozoal including toxoplasmosis
  - Helminthic and other infestations
- The safe and rational usage of antimicrobial therapy

##### Non-infective

- Uveitis in association with arthropathy including juvenile idiopathic arthropathy and ankylosing spondylitis
- Uveitis in association with inflammatory bowel disease
- Idiopathic uveitis syndromes
- Sympathetic uveitis and Vogt-Koyanagi-Harada disease
- Sarcoidosis and other granulomatous diseases
- Retinal vasculitis
- Inflammation of the choroid and retina including:
  - The safe use of anti-inflammatory, immunosuppressive and immunomodulatory therapy
- Uveitis masquerade syndromes

#### Scleritis and sclerokeratitis

Necrotising and non-necrotising

Rheumatoid arthritis, vasculitis including Wegener's disease

#### Periocular and orbital inflammatory disease

Orbital cellulitis

Orbital pseudotumour and lymphoproliferative disease

Thyroid eye disease

Orbital inflammation in association with systemic vasculitis

#### Corneal inflammatory disease

Rheumatoid corneal complications including corneal melting diseases

Peripheral ulcerative keratitis including Mooren's ulcer

#### Ocular surface disease

Dry eye including Sjögren's disease

Graft versus host disease

Cicatricial pemphigoid

## Secondary glaucoma

- Visual field assessment and interpretation
- The pharmacology and metabolism of anti-glaucoma medication
- Strategies for glaucoma prevention and management
- Indications for laser/surgical intervention

## Investigations

- Ophthalmic imaging including fluorescein and indocyanine green retinal angiography
- Visual electrophysiology, ERG EOG VEP
- Optical coherence tomography
- Radiology and isotope studies
- Haematology, immunology, biochemistry
- Anergy testing
- Pulmonary function

## Anti-inflammatory, Immunosuppressive and Immunomodulatory Treatments

- Corticosteroid use, topical, regional and systemic.

- Prevention and management of complications

- A strategy for safe use of immunosuppressive treatment and management of complications.

- Cyclosporin, Azathioprine, Cyclophosphamide and newer immunosuppressive agents

- Immune therapy including cytokine, anti-cytokine and anti-lymphocyte treatments

## Pain management

- Management of macular oedema

## The principles of management of systemic inflammatory disorders

- Rheumatoid arthritis

- Systemic vasculitis including ANCA+ve vasculitis, Systemic lupus erythematosus

- Seronegative arthropathies

- Multiple sclerosis

- Sarcoidosis

- Tuberculosis, HIV infection and AIDS

- Atherosclerosis

- Graft versus host disease

## *(b) Essential Experience*

- Ocular inflammatory clinics (20)

- Rheumatology clinics (20)

- Renal / systemic vasculitis clinics (10)

- Received training in interpretation of contemporary imaging modalities to assist in the diagnosis and management of ocular inflammatory disorders

- Experience in management and prevention of steroid-induced osteoporosis

*(c) Desirable experience*

Use of contemporary biologic therapy in treatment of inflammatory disorders  
Management of HIV related disorders

**4 Medical Retinal Disorder**

*(a) Competencies*

To have acquired by active involvement in supervised clinics demonstrable and certified proficiency in the diagnosis and management of medical retinal problems. The trainee will be expected to demonstrate a sound knowledge of

**1 Age related macular degeneration**

Detection and differentiation of

ARMD, drusen

Atrophic dry macular degeneration, geographic atrophy

Exudative, wet macular degeneration, classic, occult and mixed

forms

Extramacular age related subretinal neovascular membranes

Knowledge of

Natural history of ARMD lesions including need for urgent assessment and intervention

Current good clinical practice recommendations for ARMD treatment (NICE)

**2 Inherited Retinal Dystrophies (RD)**

Detection and differentiation of the range of inherited retinal dystrophies including rod and cone dystrophies from other forms of retinitis - infectious, non-infectious and traumatic

Knowledge of the natural history including modes of inheritance

Ability to provide relevant counselling to families

Knowledge of current approaches to management

**3 Other non inflammatory retinal and choroidal lesions**

Detection and differential diagnosis of pigmentary lesions, nutritional retinal disorders, peripheral retinal degenerations associated with age, congenital lesions, ocular tumours including metastases and disorders of the retinal pigment epithelium

**4 Investigations**

To have demonstrated ability to select and interpret appropriate investigations for medical retinal disease including:

Fluorescein angiography

Indocyanine green angiography

Ultrasonography

Scanning laser ophthalmoscopy

Optical coherence tomography  
Electrophysiology including ERG, VEP

#### 5 Practical skills

To demonstrate skill in delivery of laser therapy for medical retinal diseases  
Argon green / blue laser  
Diode laser

#### *(b) Essential experience*

Attended medical retina clinics (minimum 30)  
Attended and participated in visual electrophysiology sessions (10)  
Participated in ocular imaging sessions including interpretation of data (20)  
Received training in laser therapy for medical retinal diseases (20)

#### *(c) Desirable experience*

Training in modern techniques for treatment of macular disease including photodynamic therapy  
Training and attended clinics in medical genetics relevant to ophthalmology

### APPENDIX D

#### APPRAISAL, ASSESSMENT & COMPETENCE

##### APPRAISAL

*Personal appraisal* conducted at suitable intervals during each year, ie outwith the RITA process, would ensure that personal goals and educational needs are being met. Depending on the calibre and progress of the trainee a half yearly review might be sufficient, for others more frequent review might be needed.

##### ASSESSMENT

Methods of assessment are currently under review by the JCHMT. Set out below are a *provisional* outline of some of the features expected to be included in the assessment process.

*The main tool of formative assessment* will be observation of the trainee's performance in day to day practice. This requires close interaction between the trainee and trainer, allowing direct observation of the trainee's performance in a range of clinical settings. Formative assessment of knowledge may be undertaken in future using MCQs, when a reliable and valid set has been developed.

*The summative assessment* of competence is the annual RITA. A portfolio of material documenting the trainees progress and clinical performance may also be required for review at the RITA. This would be maintained by the trainee and might include:

- summaries of exemplary clinical case material,
- profile of clinical case mix seen and procedures performed each month, training/educational courses attended, published or unpublished audit, critical review of literature
- presentations of audit, clinical cases & research work at local or national meetings

- peer reviewed publications

*Progression to the next year of training* would require demonstration of progress and improvement to higher levels of competence during each year of training as assessed at the annual RITA.

### COMPETENCE

HST in Medical Ophthalmology requires that the trainee should acquire competence in each of the four modules forming the core basic training (see below). Competence is defined as 'that level of knowledge, understanding and skill that allows appropriate delegation of consultant responsibility to a junior in an unsupervised clinical setting'. A Consultant's professional responsibility towards any of his/her patients has always included such a requirement to establish the competence of trainees before delegating clinical care.

Suggested levels of attainment to have been certified for each SpR in each subspecialty section during/after each placement are as follows:

- |          |   |
|----------|---|
| Level 1. | Requires continuing supervision in most/all areas of this section of the core curriculum.   |
| Level 2  | Competent in a subset of areas in this section of the core curriculum, as specified.  |
| Level 3  | Competent in most areas of this section of the core curriculum, except those specified.   |
| Level 4  | Competent in all areas of this section of the core curriculum i.e. to a level appropriate to a Consultant not specializing in this field.   |
| Level 5  | Competent in all areas of this section of the core curriculum and highly competent in many areas within/outwith the core (usually after Advanced Subspecialty Training Opportunities [ASTOs]) i.e. to a level appropriate to a newly-appointed Consultant specializing in this field. |

Even if SpR competence at level 4 or 5 has been certified, recertification of SpR competence should be undertaken by succeeding trainers wherever possible.

### **Essential experience**

The target number of Consultant supervised special clinics to have been attended and educational experiences acquired is specified. These mandatory requirements must have been recorded and countersigned in the relevant part of the trainee's log-book.

### **Desirable experience**

The list identifies those aspects of competence and experience which are not essential 'core' attainments during HST. Where such experience is indeed acquired, however, evidence of this should also have been recorded in the trainee's log book. Advanced ("in depth") subspecialty training during clinical fellowships is intended to

extend competence and to include the majority of experiences specified only as desirable in the core curriculum.