



ROYAL COLLEGE OF  
PHYSICIANS OF IRELAND

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# HIGHER SPECIALIST TRAINING IN NEUROLOGY



The Curriculum of Training in Neurology was developed by Prof Daniel Healy, National Specialty Director, and Dr. Ann O' Shaughnessy, Head of Education and Professional Development and reviewed by the Neurology Specialty Training Committee. The curriculum was approved by the Irish Committee of Higher Medical Training Executive.

<b>Version</b>	<b>Date published</b>	<b>Last edited by</b>	<b>Version comments</b>
Agreed numbering convention	Date approved by EPD for circulation	Name of administrator to make changes	Brief overview of changes made e.g. section edited, content added/edited/deleted
<i>1.0</i>			

## INDEX:

Introduction .....	5
Aims .....	5
Duration & Organisation of Training .....	6
Flexible Training .....	7
Training Programme .....	7
Teaching, Research & Audit.....	8
Logbook .....	8
Assessment Process .....	9
Annual Review – The PeTRA Process.....	9
Facilities.....	10
Teaching, Learning & Assessment Methods.....	12
Record of Training .....	12
Assessment of Competencies .....	12
Learning Methods .....	13
Assessment Methods .....	15
Mini-CEx .....	15
DOPS:.....	15
Case Based Discussion (CBD).....	16
Mandatory Training Courses: .....	18
Specialty Study Days:.....	18
Annual Assessments .....	18
Generic Components.....	20
Communication & Interpersonal Skills.....	21
Professionalism & Autonomy.....	23
Maintaining Good Practice .....	27
Standards Of Care.....	29
Patient Safety .....	32
Therapeutics and Safe Prescribing .....	34
Infection Control.....	35
Leadership .....	37
Management Information Systems & Management Skills.....	39
Teaching & Research .....	41
Ethics .....	42
Dealing with and Management of Acutely ill Patients in Appropriate Specialties .....	45
Specialty Section for Neurology .....	47
Basic Neurological Knowledge and Skills .....	48
Relating Structure and Function to Physical Findings and Complaints.....	48
Basic Sciences: Specialities Relevant To Neurology Used To Support Neurological Practice .....	49
Clinical Neurophysiology .....	49
Neuropathology .....	50
Neuroradiology and Imaging .....	51
Pharmacology and The Nervous System .....	52
Immunology .....	53
Genetics.....	54
Cerebrospinal Fluid.....	55
Neuroophthamology - Otology.....	56

Psychology and Neuropsychiatry .....	57
Clinical Encounters in Neurology.....	58
Infections of the Nervous System.....	58
Cerebrovascular Disease .....	60
Disordered Consciousness.....	62
Epilepsy and Altered Consciousness .....	63
Head Injury .....	64
Dementia .....	65
Demyelinating Diseases .....	66
Disorders of The Spine And Spinal Cord.....	67
Movement Disorders.....	68
Motor Neurone Disease.....	69
Disorders of Peripheral Nerves And Muscles.....	70
Disorders Affecting The Cranial Nerves .....	71
Neurotoxicology .....	72
Headache .....	73
Pain.....	74
The Autonomic Nervous System (ANS) .....	75
Uroneurology .....	76
Sleep Disorders .....	77
Endocrinology .....	78
Oncology.....	79
Neurosurgery (Optional) .....	80
Intensive Care.....	81
Rehabilitation .....	82
Neurological Diseases in Special Groups .....	83
Neurological Diseases in Children (Optional).....	83
Reproduction and Pregnancy In Neurology .....	84
Neurological Diseases in the Elderly.....	85
Tropically Acquired Neurological Disease .....	86
Minimum Requirements for Training .....	87

## Introduction

A Neurology trainee must take responsibility for seeing new patients, undertake ward consultations, and operate at a level of responsibility which would prepare him/her for practice as an autonomous consultant neurologist. The trainee should undertake three outpatient clinics weekly throughout the training period. This may be reduced to two, but never routinely increased to four. New patients should be seen throughout the training period under suitable supervision in outpatients and the consultant trainer should review ward consultations directly with the trainee. Supervision should be particularly close during the first one or two years. Particularly experienced trainees may undertake the running of an outpatient clinic on their own without direct consultant supervision.

The trainee must be involved in the day to day care of neurological patients, supervise their clerking and investigation, and be responsible for organisation and dictation of discharge summaries. The trainee must have experience in organising an inpatient waiting list, counselling patients and their relatives and communicating with GPs.

## Aims

Upon satisfactory completion of specialist training in Neurology the doctor will be **competent** to undertake comprehensive medical practice in that specialty in a **professional** manner, unsupervised and independently and/or within a team, in keeping with the needs of the healthcare system.

**Competencies**, at a level consistent with practice in the specialty of Neurology, will include the following:

- Patient care that is appropriate, effective and compassionate dealing with health problems and health promotion.
- Medical knowledge in the basic biomedical, behavioural and clinical sciences, medical ethics and medical jurisprudence and application of such knowledge in patient care.
- Interpersonal and communication skills that ensure effective information exchange with individual patients and their families and teamwork with other health professionals, the scientific community and the public.
- Appraisal and utilisation of new scientific knowledge to update and continuously improve clinical practice.
- The ability to function as a supervisor, trainer and teacher in relation to colleagues, medical students and other health professionals.
- Capability to be a scholar, contributing to development and research in the field of Neurology.
- Professionalism.
- Knowledge of public health and health policy issues: awareness and responsiveness in the larger context of the health care system, including e.g. the organisation of health care, partnership with health care providers and managers, the practice of cost-effective health care, health economics and resource allocations.
- Ability to understand health care and identify and carry out system-based improvement of care.

**Professionalism** describes the knowledge, skills, attitudes and behaviours expected by patients and society from individuals during the practice of their profession (*as a doctor*). It includes such concepts as:

- The skills of lifelong learning and the maintenance of competence
- Information literacy

- Ethical behaviour
- Integrity, honesty
- Altruism
- Service to, justice and respect for others
- Adherence to professional codes

## Entry Requirements

Applicants for Higher Specialist Training (HST) in Neurology must have completed a minimum of two years Basic Specialist Training (BST) in approved posts and obtained the MRCPI or (UK).

BST\* should consist of a minimum of 24 months involved with direct patient care.

### **BST in General Internal Medicine (GIM) is defined as follows:**

- A minimum of 24 months in approved posts, with direct involvement in patient care and offering a wide range of experience in a variety of specialties.
- At least 12 of these 24 months must be spent on a service or services in which the admissions are acute and unselected.
- For further information please review the BST curriculum

Those who do not hold an MRCP or equivalent qualification must provide evidence of equivalent qualification.

Other valuable experience at SHO grade would be in Psychiatry, Neurosurgery or Ophthalmology.

## Duration & Organisation of Training

The duration of HST in Neurology is 5 years, one year of which may be gained from a period of full-time research.

During the period of training the trainee must take responsibility for seeing new patients, undertake ward consultations, and operate at a level of responsibility which would prepare him/her for practice as an autonomous Consultant Neurologist. The trainee should undertake three outpatient clinics weekly throughout the training period. This may be reduced to two, but never routinely increased to four. New patients should be seen throughout the training period under suitable supervision in outpatients and the consultant trainer should review ward consultations directly with the trainee. Supervision should be particularly close during the first one or two years. Particularly experienced trainees may undertake the running of an outpatient clinic on their own without direct consultant supervision.

**Essential Training:** Trainees must attend study days as advised by the National Speciality Director.

**Minimum Procedures:** currently, 300 OGD, 100 Colon, ERCP (see sub-specialisation module)

No particular order or sequence of training will be imposed and programmes offered should be flexible i.e. capable of being adjusted to meet trainees' needs.

The earlier years will usually be directed towards acquiring a broad general experience of Neurology under appropriate supervision. An increase in the content of hands-on experience follows naturally, and, as confidence is gained and abilities are acquired, the trainee will be encouraged to assume a greater degree of responsibility and independence.

“Generic” knowledge, skills and attitudes support competencies which are common to good medical practice in all of the medical and related specialties. It is intended that all Specialist Registrars should re-affirm those competencies during Higher Specialist Training. No time-scale of acquisition is offered, but failure to make progress towards meeting these important objectives at an early stage would cause concern about a SpR’s suitability and ability to become independently capable as a specialist.

By the end of the five-year period the trainee must have obtained experience in Clinical Neurophysiology, Rehabilitation Medicine, Neuropathology, Intensive Care, Neuroradiology and Clinical Audit. In addition, the trainee is encouraged to obtain experience in Neuro-Ophthalmology, Neuro-Otology, Paediatric Neurology, Neurosurgery, Neurogenetics, Neuropsychiatry and Research. Sub-specialities may be studied on a sessional basis or during a continuous period of release from other duties. Special attention must be paid to Clinical Neurophysiology, Neuroradiology and Neuropathology. The trainee will be required to record the number of EMG clinics and the EEG, Neuroradiology, and Neuropathology reporting sessions attended. In the final two years of the training period the trainee may be encouraged to develop a special interest in one of the sub-specialities if the trainee so wishes.

## 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:

*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;*

*The competent authorities shall ensure that the total duration and quality of part-time training of specialists are not less than that of full-time trainees.*

The above provision must be adhered to. A flexible trainee should undertake a *pro rata* share of the out-of-hours duties (*including on-call and other out of hour’s commitments*) required of their full-time colleagues in the same programme and at an equivalent stage.

For details of appointment and funding arrangements for flexible trainees, please see the current issue of the HST training Handbook.

## Training Programme

The training programme offered will provide opportunities to fulfil all the requirements of the curriculum of training for Neurology programme and will offer posts in both general hospitals and teaching hospitals. Each post within the programme will have a named trainer/educational supervisor and programmes will be under the direction of the National Specialty Director for Neurology. Programmes will be as flexible as possible consistent with curricular requirements, for example to allow the trainee to develop a sub-specialty interest.

The experience gained through rotation around different departments is recognised as an essential part of HST. A Specialist Registrar may **not** remain in the same unit for longer than 2 years of clinical training; or with the same trainer for more than 1 year

While a full training programme in Neurology is possible in Ireland, in order to obtain broad exposure to specialised neurological disorders, it is suggested that all trainees should consider spending at least one year overseas, e.g. in Europe or in the USA.

Where an essential element of the curriculum is missing from a programme, access to it should be arranged, by day release for example, or if necessary by secondment.

## Teaching, Research & Audit

All trainees are required to participate in teaching. They should also receive basic training in research methods, including statistics, so as to be capable of critically evaluating published work.

A period of supervised research relevant to Neurology is considered highly desirable and will contribute up to 12 months towards the completion of training. Some trainees may wish to spend two or three years in research leading to a MSc, MD, or PhD, by stepping aside from the programme for a time. Additional educational credit may be granted at the discretion of the NSD and STC for clinical work relevant to the Curriculum undertaken during the second and subsequent years of this research, up to a maximum of six months credit. For those intending to pursue an academic path, an extended period of research may be necessary in order to explore a topic fully or to take up an opportunity of developing the basis of a future career. Such extended research may continue after the CSCST is gained. However, those who wish to engage in clinical medical practice must be aware of the need to maintain their clinical skills during any prolonged period concentrated on a research topic, if the need to re-skill is to be avoided.

Trainees are required to engage in audit during training and to provide evidence of having completed the process.

## Logbook

Up-to-date training records and a portfolio of achievements will be maintained by the trainee throughout HST. The training records will be countersigned as appropriate by the trainers to confirm the satisfactory fulfilment of the required training experience and the acquisition of the competencies set out in the Neurology Curriculum. They will remain the property of the trainee and must be produced at the annual assessment review.

Each trainee is responsible for maintaining an up-to-date record of progress through training and compiling a portfolio of achievements for presentation at annual assessment review. The trainee also has a duty to maximise opportunities to learn, supplementing the training offered with additional self-directed learning in order to fulfil all the educational goals of the curriculum. Trainees must co-operate with other stakeholders in the training process. It is in a SpR's own interest to maintain contact with the Medical Training Office and Dean of Higher Specialist Training, and to respond promptly to all correspondence relating to training. "Failure to co-operate" will be regarded as, in effect, withdrawal from the HST's supervision of training (*see the HST Training Handbook*).

At annual review, the Training Record will be examined. The results of any assessments and reports by educational supervisors, filed in the portfolio submitted, together with other material capable of confirming the trainee's achievements, will be reviewed.

## Assessment Process

The methods used to assess progress through training must be valid and reliable. The Neurology curriculum has been re-written, describing the levels of competence which can be recognised. The assessment grade will be awarded on the basis of direct observation in the workplace by consultant supervisors. Time should be set aside for appraisal following the assessment e.g. of clinical presentations, case management, observation of procedures. As progress is being made, the lower levels of competence will be replaced progressively by those that are higher. Where the grade for an item is judged to be deficient for the stage of training, the assessment should be supported by a detailed note which can later be referred to at annual review. The assessment of training may utilise the Mini-CEx, DOPS, Case Based Discussions (CBD) and methods adapted for the purpose. These methods of assessment have been made available by HST for use at the discretion of the NSD and nominated trainer. They are offered as a means of providing the trainee with attested evidence of achievement in certain areas of the Curriculum *e.g. competence in procedural skills, or in generic components*. Assessment will also be supported by the trainee's portfolio of achievements and performance at relevant meetings, presentations, audit, in tests of knowledge, attendance at courses and educational events.

The AAN Residency In-service Training Exam (RITE) is listed as one of the assessment methods in the specialty section of this curriculum. The purpose of this exam is not as a certifying or qualifying examination but to be used as a self- assessment tool designed to gauge knowledge of neurology and neuroscience.

## Annual Review – The PeTRA Process

An annual review of progress through training will be undertaken on behalf of HST. The training record will be examined at the review. Assessments and reports by educational supervisors, confirmation of achievements and the contents of the portfolio will be reviewed. A decision is made regarding progress, as detailed in the Training Handbook. At some or all of these annual reviews a non-specialty assessor will be present capable of addressing core competencies. An external assessor will participate in the penultimate year review (PYA) which is held to a standard format usually 12-18 months before the planned end of training. The award of a CSCST will be determined by a satisfactory outcome after completion of the entire series of PeTRA assessments.

Each year trainees undergo a formal review by a panel including the Dean, the National Specialty Director, and whenever possible, a representative member from another specialty. The panel will review in detail the training record, will explore with the trainee the range of experience and depth of understanding which has been achieved and consider individual trainer's reports. Attendance by the trainer is highly desirable and essential for the first year and PYA assessments. An opportunity is also given to the trainee to comment on the training being provided; identifying in confidence any deficiencies in relation to a particular post.

A decision on progress through training is reached at each of these annual assessments. The determination and the evidence considered is entered on one of a set of standard PeTRA Forms as follows:

- successful completion of a year of training – **PeTRA Form C**
- completion but with a need for additional targeted training – **PeTRA Form C<sub>1</sub>**
- repeat training year – **PeTRA Form C<sub>2</sub>**

The penultimate year assessment (*the PYA*) reviews the evidence provided in the logbook on the results of the assessment methods employed (*see above*); the evidence provided will be further questioned during the assessment. At the PYA, the panel identifies the residual

training outstanding, advising adjustments to the training schedule as necessary, and finally confirming the estimated date for completion (***PeTRA Form T and CSCST issuance***).

## **Facilities**

A consultant trainer/educational supervisor has been identified for each approved post. He/she will be responsible for ensuring that the educational potential of the post is translated into effective training which is being fully utilized. The training objectives to be secured should be agreed between trainee and trainer at the commencement of each posting in the form of a written training plan. The trainer will be available throughout, as necessary, to supervise the training process.

All training locations approved for HST have been inspected by the medical training department. Each must provide an intellectual environment and a range of clinical and practical facilities sufficient to enable the knowledge, skills, clinical judgement and attitudes essential to the practice of Neurology to be acquired.

Physical facilities include the provision of sufficient space and opportunities for practical and theoretical study; access to professional literature and information technologies so that self-learning is encouraged and data and current information can be obtained to improve patient management.

Trainees in Neurology should have access to an educational programme of e.g. lectures, demonstrations, literature reviews, multidisciplinary case conferences, seminars, study days etc, capable of covering the theoretical and scientific background to the specialty. Trainees should be notified in advance of dates so that they can arrange for their release.

The curriculum will be taught on a monthly day release programme which will run for nine months each year excluding April, July and August, and which will be divided on a proportional basis between Belfast, Dublin, Cork and Galway. The five year teaching programme has been devised to cover all aspects of neurological training and trainees will be released for one day each month in order to attend these courses which will be run by the local consultant trainers at each of the centres above.

**Teaching, Learning & Assessment  
Methods**

## Teaching, Learning & Assessment Methods

*This section relates to the clinical competencies that are required for your training. During your training you will be assessed by methods such as Mini-CEx, DOP and Case Based Discussion. It is extremely important that you read this so that you are aware of the requirements of your training.*

### Record of Training

The evidence required to confirm progress through training includes:

- Details of the post(s) occupied, the training plan agreed with weekly timetables and duty rosters; case-mixes and volumes, numbers of practical procedures and outcomes.
- Confirmation of attendance at events in the educational programme, at departmental and inter-departmental meetings and other (optional) educational events.
- Confirmation (certificates) of attendance at subject-based/skills-training/instructional courses; (certificate or diploma from appropriate authority).
- Recorded attendance at conferences and meetings.
- A properly completed logbook with entries capable of testifying to the training objectives which have been attained and the standard of performance achieved.
- Evidence of regular contact with trainers, i.e. appraisals; confirmation of workplace/clinical encounters significant in relation to activities specified in the curriculum.
- Evidence of personal study, e.g. journals taken, membership of specialist society, web-based research, special interest developed.
- CPD/CME activity, returns, study leave records.
- Copies/examples of material prepared for presentation e.g. for audit, teaching, best-practice development, collection of cases, topic reviews, output from research.
- Educational supervisor's reports on **observed** performance (in the workplace): of duties, practical procedures, of presentations made and teaching activity: of advising and working with others, of standards of case notes, correspondence, communication with others e.g. at handover. Results of Mini-CEx, CBDs and DOPS encounters.
- Collective opinions, multi-source feedback (360 degree assessments) – as used to ascertain a range of generic skills e.g. professionalism, maintaining trust.
- Result (diploma, certificate from recognised body) of completed knowledge-based test and/or practical examination.

### Assessment of Competencies

The competencies to be acquired during training are listed within the Generic and Specialty Sections of this Curriculum.

The competencies will be assessed on a regular basis during your training programme and must be documented in the Training Record (*Logbook*). Progress through training is confirmed by entries which must be authenticated/ countersigned by the educational supervisors.

Documents which provide evidence of satisfactory completion of other necessary components of the curriculum must be filed in the portfolio of achievements compiled by the trainee and reviewed annually.

A report from the educational supervisor will be included. This will be prepared following appraisal, based on his/her assessment of observed performances by the trainee of practical procedures and other duties. The standard of case notes, summaries, correspondence and

other material, of presentational ability can also be the subjects of such report, as could the trainee's enthusiasm, judgement, team working or professionalism.

The trainer's report will also be based on a structured pro-forma, as used in the short form of clinical evaluation exercise (*Mini-CEx*); following observation and appraisal of the performance of a procedure (*DOPS*); after discussion of the (*clinical*) reasoning involved in the management of a problem faced by a trainee (*Case-Based Discussion, CBD*); The results of any summative tests of knowledge taken, e.g. *MCQs and problem-solving tests, including self-administered tests*, should be filed and retained. Confirmation of the acquisition at a particular stage of a specified professional examination may be required in order to make progress towards the completion of training.

## **Learning Methods**

This section gives examples of the learning methods that can be used as guidance to acquire competencies as they appear in the curriculum.

### **Experiential:**

- Working under supervision
- Documenting/reporting progress (*case notes*), preparing summaries (*discharge notes*) other professional correspondence; communicating information to patients/to other health professionals.
- Consults, referrals between departments, handover, providing cross-cover.
- (*In certain specialties*), procedure room and investigation/assessment sessions offer practical opportunities to learn and develop skills under supervision and to exercise judgement when to seek assistance.

### **Self-directed learning:**

- Curriculum-based personal study *e.g. textbooks, journals, literature search, retrieval of web-based information.*
- Information gathering and evaluation
- Active participation in audit
- Tests of knowledge *e.g. RITE exam*

### **Group learning:**

- Workplace discussions
- Multidisciplinary meetings
- Programmed meetings within the workplace

### **Performance based:**

- Observing, learning, assisting, performing, demonstrating a technique or practical procedure.
- Simulations, role-play

### **Learning through teaching and research:**

- Teaching, giving tutorials, lecturing.
- Mentoring and supervising junior colleagues and other staff.
- Presenting at meetings - local and international.
- Research
- Publication

### **External Courses:**

- Specialty study/training days
- Attending mandatory and non-mandatory courses
- Attendance at seminars, relevant conferences, regional, national and international meetings.

**Reflection:**

- In your logbook there is an area to record reflections on training, learning, clinical events and career discussions. In recent years the importance of reflecting as part of the learning process on what you are doing has been shown to improve professional practice. Reflection on what you know and don't know helps to understand that learning is individual and reflection of professional activities can be used to highlight your strengths, weaknesses and areas for development.

## Assessment Methods

### Mini-CEx

**Definition:** Mini-CEx is designed to provide feedback on skills essential to the provision of good clinical care by observing an actual clinical encounter.

**Description:** The mini-CEx is a “snapshot” of a doctor/patient interaction and is based on a 15 minute observation of a single interaction. It is designed to assess the clinical skills and behaviors of trainees assessing such skills as history taking, physical examination skills, clinical judgement, professionalism, organisation/efficiency and overall clinical care. Not all elements will be assessed on each occasion. Immediate feedback should be provided after each encounter by the observer assessing the trainee.

**Frequency of assessment:** At least two Mini-CEx assessments should take place in each year of training. Where appropriated, one should be based in an outpatient setting and one in an acute setting. The assessments include assessment of skills in history taking, physical examination, appropriate use of investigations, cost-effectiveness, interpretation of investigations, making medical notes, making a diagnosis, treatment and management of disease, appropriate referral to other specialities, standards of care.

#### Competencies assessed:

- Consideration/Professionalism:
- Recognises/accepts patient’s rights (to consent, confidentiality, information). Establishes trust, shows professional approach.
- Communication:
  - Informs, explains, advises using appropriate language. Obtains consent, enlists patient’s co-operation.
- Interviewing Skills:
  - “Active” listening facilitating relevance; effectively using questions, responding to non-verbal clues.
- Examination Skills:
  - Prepares patient, minimises discomfort/unease. Proceeds logically, efficiently, thoroughly, completely.
- Judgement:
- Correctly identifies/lists problems, prioritises actions in realistic and timely schedule.

**Opportunities for assessment:** The assessment should take place in the usual place of work (*in-patient, clinic, office or department*) where the assessor must directly **observe** the trainee’s performance

### DOPS:

**Definition:** Directly Observed Procedural Skills (DOPS) is a method, similar to the mini-CEX that has been designed specifically for the assessment of practical skills. DOPS assess the capabilities of a trainee while they perform a procedure.

**Description:** The DOPS is a structured assessment of actual performance. Each DOPS should represent a different procedure. The trainee chooses the timing, procedure and observer.

**Frequency of Assessments:** The number and frequency of assessments of procedural skills will vary from speciality to speciality.

**Competencies assessed:**

- Understanding of Procedure:
  - Relevant anatomy; purpose, indications, contra-indications; outcomes, risks, complications; choice of methods available, technique of procedure.
- Consideration for the Patient:
  - Gives reassurance, minimises discomfort, explains procedure fully; confirms informed consent obtained.
- Preparation:
  - First re-checks all relevant details correct. Safety check; instrumentation, equipment (drugs); positioning; cleansing/aseptic technique; sedation, analgesia, anaesthesia confirmed.
- Professional/technical ability:
  - Dexterity, accuracy, efficiency; obtains, interprets diagnostic material/information; informs, directs staff courteously; recognises own limitations; seeks help where appropriate; manages risk.
- Post-Procedure:
  - Completes documentation; regulates recovery phase, observations; anticipates/deals with complications. Informs/counsels patient/relatives.
- Overall ability to perform Procedure:
  - Ability to complete/undertake procedure; technical abilities as demonstrated; appropriately confident, team/ leadership skills.

**Opportunities for assessment:** While supervising, assisting, observing actual performance in appropriate setting (office, theatre, day procedure, ICU etc.). The assessment should be made under appropriate conditions e.g. with all equipment and personnel necessary to support the procedure.

**Case Based Discussion (CBD)**

**Definition:** Case-based discussion (CBD) is used to enable the documenting of conversations about, and presentations of, cases by trainees. This activity happens throughout training, but is rarely conducted in a way that provides systematic assessment and structured feedback. CBD is used to evaluate core skills that can be demonstrated during an interactive discussion based on a single case in which the trainee has been actively involved.

**Description:** CBD is designed to assess clinical decision-making and the application or use of medical knowledge in relation to patient care for which the trainee has been directly responsible. It also enables the discussion of the ethical and legal framework of practice, and in all instances, it allows trainees to discuss why they acted as they did. Although the primary purpose is not to assess medical record keeping, as the actual record is the focus for the discussion, the assessor can also evaluate the record keeping in that instance. The case for discussion can either be selected by the trainee or chosen by the assessor. The assessment will be based on oral discussion and written information available. It includes a bi-lateral (trainee's and trainer's) critical appraisal of the reasoning and judgements made, and of the management of the case. Whenever possible the assessment should include issues such as disease notification, health promotion and screening.

**Frequency of Assessment:** This method of assessment has not been validated as yet, however it is a very useful method and can be easily incorporated into journal clubs, post-graduate teaching sessions or on-line etc

**Competencies assessed:**

- **Problem Definition:**
  - All relevant facts established, from current/previous history, investigations, interventions; reports, correspondence reviewed.
- **Record Keeping:**
  - Legible, tidy, legally defensible records seen.

- **Reasoning:**
  - Appropriately selected, sequenced investigations/procedures planned. Evidence-based, logical judgements made; (differential) diagnosis established; action plan made with realistic goals.
- **Case Management:**
  - Effective, safe (responsible) prescribing; aware of protocols/guidelines, best practice; monitoring progress, handling complications/mistakes; timely, appropriate referrals, case closure.
- **Reflective Practice:**
  - Shows analytical, constructive approach to case, willingness to learn; acknowledges and prepared to consider other management options; aware of change, possible advances, when to seek help.

**Opportunities for assessment:** The presentation should take place in a suitable environment, with due consideration given to the patient's sensitivities, to confidentiality e.g. in any ward or clinical setting; an office, side- or seminar-room may be found convenient. Case presentations and discussions, e.g. at handover, ward-rounds (inter-) departmental meeting

## **Mandatory Training Courses:**

*(Note: this list only included the generic mandatory courses)*

### **Mandatory Communication course:**

To be completed in Year 1. The course is a short 1 -2 hour course at the start or the end of specialty study days to reduce time spent away from the hospitals.

Communication skills will be assessed as part of the miniCEX

### **Audit:**

Mandatory 1/2 day on audit to be completed in Year 1.

Audit reports are submitted on a yearly basis

### **Ethics:**

Four mandatory study days are to be completed during the training programme. Three study days are for all specialties - Ethics & Law, Ethics in Research and Professionalism. The fourth day 'End of life' is for all specialties except Public Health Medicine, Occupational Medicine and Histopathology who have a speciality specific ethics day.

### **Leadership Skills:**

Mandatory 3 day course to be taken in year 3 - 5.

### **ACLS:**

**Compliant in appropriate specialties**

## **Specialty Study Days:**

The Topics of specialty specific study days to completed during training are listed in appendix 1.

## **Annual Assessments**

### **Consultant feedback:**

End of year assessment completed by the Trainers include assessment in areas such as: Team working skills, Leadership skills, Handling of complaints, conflict management

Questions such as the following are included in the assessment form:

- Have there been any complaints from nursing staff, AHP, patients regarding this trainee or their team?
- If so:
  - How did the trainee respond to a complaint about a member of his/her team?
  - How did the trainee respond to a complaint against him/her?.
- Have you any serious issue with your SpR?
- Where there any instances of serious conflict?
- Do you think he/she behaved appropriately?

### **Audit:**

It is difficult to complete the audit cycle in a one year period. Each year the trainee should take part in an audit - either to develop and start an audit or to review and change practice as a result of an audit - the complete audit cycle should be understood. In hospitals that have audit systems set up, the trainee should complete a full audit.

Trainees will be required to submit a full audit report and will be encouraged to present audit results at local, national or international meetings.

### **Attendance at In- Hospital Speciality Radiology conferences**

**Time spent in Laboratory/Pathology or attendance at Laboratory/Pathology conferences** (Depending on speciality)

**Committee membership**

Many specialty curricula have identified participation in committees.

**Teaching skills**

Number of undergraduate and postgraduate tutorials, number of membership tutorials.

**Presentations/Publications****On-Call take**

## **GENERIC COMPONENTS**

## Communication & Interpersonal Skills

**Objective:** To be able to communicate effectively and sensitively with patients, their relatives, carers and with professional colleagues in different situations.

**Medical Council Domains of Good Professional Practice:** No. 2: Relating to Patients; No 3. Communication and Interpersonal Skills.

### KNOWLEDGE

#### Within a consultation

- How to structure an interview to obtain/convey information; how to identify concerns, expectations, priorities; how to promote understanding, reach conclusions; use/choose appropriate language. Knowledge of procedures/investigations available and alternative options; of strategies to promote compliance through understanding of objectives.
- Able to elicit facts, question using open, followed by closed questions; “active listening”. Gives information clearly, avoids jargon, confirms understanding, is able to encourage co-operation, compliance; obtain informed consent.
- Considerate, shows respect for other’s culture, opinions, patient’s right to be informed, make choices.

#### In difficult circumstances

- Understands potential areas for difficulty “awkward situations”, knows how and when to break bad news, how to circumvent cultural, language barriers, deal with sensory or mental impairments, how to deal with challenging or aggressive behaviour.
- Able to communicate essential information where difficulties exist, appropriately uses assistant, interpreter, chaperone, relatives. Able to deal with anger, frustration in self and others.
- Selects an appropriate environment; seeks assistance, makes and takes time. Avoids unrealistic optimism or pessimism.
- Respects another’s right to opinions and to accept or reject advice.

#### With professional colleagues and others

- How best and when to communicate with doctors and other members of the healthcare team; how to provide concise, problem-orientated statement of facts and opinions (*written, verbal or electronic*). Knows legal context status of records and reports, of data protection (*confidentiality*), Freedom of Information (FOI) issues.
- Understands relevance to continuity of care and the importance of legible, accessible, authenticated records. Knows when urgent contact becomes necessary and the appropriate place for verbal, telephone, electronic, written communication.
- Communicates effectively, promptly; recognises roles and skills of other health professionals.
- Able to judge own abilities/limitations and when to seek help or give assistance, advice to others; when to delegate responsibility, when to refer.
- Values perspectives of others contributing to management decisions.

#### In maintaining continuity of care

- Understands the relevance to outcome of continuity of care, within and between phases of healthcare management.
- The importance of completion of tasks and documentation *e.g. before handover (to another team, department, specialty)*, of identifying outstanding issues, uncertainties.
- Maintains (*legible*) records, is available, contactable, time-conscious, sets (*and attempts to reach*) realistic objectives, identifies/prioritises outstanding problems.
- Alert to avoid potential confusion or misunderstanding through communications failure.

### **Giving explanations**

- The importance of possessing the full facts, and of recognising uncertainty and conflicting evidence on which decisions have to be based.
- How to secure, retain attention avoid distraction. Understand how adults receive information best, the relative value of the spoken, written, visual means of communication, use of reinforcement to assist retention. Risk of information overload.
- Need to interpret results, significance of findings, diagnosis, to explain objectives, limitations, risks of treatment, in terms and by means adjusted to recipients' ability to comprehend.
- Uses language, literature (*leaflets*) diagrams, educational aids and resources appropriately.
- Able to achieve level of understanding necessary to achieve co-operation (*compliance, informed choice, acceptance of opinion, advice, recommendation*).
- Prepared to discuss, repeat information, resolve uncertainty, confusion, respond to questioning, challenge.

### **Responding to complaints**

- Value of hearing and dealing with complaints promptly; the appropriate level, the procedures (*departmental and institutional*); sources of advice, assistance available.
- The importance of obtaining and recording accurate and full information, seeking confirmation from multiple sources.
- Able to establish facts, identify issues and respond quickly and appropriately to a complaint received.
- Accepts responsibility, involves others, consults appropriately.
- Open, prepared to accept criticism, acknowledge shortcomings where they exist, offer an apology.

## **SKILLS**

- Communication
- Conflict resolution
- Dealing with complaints
- Communicate decisions in a clear and thoughtful manner
- Presentation skills

## **ASSESSMENT & LEARNING METHODS**

- Communication course (Year 1)
- Consultant feedback at annual assessment
  - Workplace based assessment e.g Mini-CEx, DOPS, CBD
  - Educational supervisor's reports on observed performance (in the workplace): communication with others e.g. at handover. ward rounds, multidisciplinary team members
- Presentations

## Professionalism & Autonomy

**Objective:** To have the knowledge, skills and attitudes to act in a professional manner at all times and in partnership with patients and colleagues. To develop the attributes of someone trusted to be able to manage complex human, legal and ethical problems.

**Medical Council Domains of Good Professional Practice:** No. 1 Patient Safety and Quality of Patient Care; No 2. Relating to Patients; No. 7 Professionalism

### KNOWLEDGE

#### Patient Centred Care;

- The provision of Patient Centre Care should be at the core of the service a doctor provides
- To put the quality and safety of patient care as a prime objective

#### Behaviour in the workplace;

- **Relationships with patients**
  - Know patients' rights e.g. to be informed sufficiently to enable them to be involved in decisions about their treatment and care. Know boundaries limiting consultations including ethical, duty of care.
  - How to deal with inappropriate behaviour e.g. aggression, threats, violence, harassment, racism.
  - Potential obstacles e.g. cultural, educational, ethical – also preconceptions and prejudices.
  - Ensures confidentiality, respects privacy. Focuses investigation on patient's needs and expectations. Shows sensitivity, develops empathy but avoids personal involvement.
  - Non-judgemental in approaching patient's perceived problems. Prepared to accommodate idiosyncrasies, respecting patients as individuals. Altruistic.
- **Working with colleagues**
  - Know the potential roles and contributions of other specialists – medical, surgical, general practitioners and of other hospital or community-based agencies e.g. social services, also patient support groups and other providers of care.
  - How to arrange cover, safeguarding the handover process, know where responsibility begins and ends, when and where to seek advice.
  - Aware of the extent and limitations of own areas of practice/expertise; recognises and respects others' inputs, capabilities; is able to work co-operatively with other health professionals; refers, delegates appropriately.
  - Realistically schedules and completes tasks and provides full documentation for handover, referral; strives to maintain continuity and standard of care especially across shifts and when arranging rotas and covering absences.
  - Conscientious, reliable, responsible and professional at all times, considerate, shows respect for opinions of others, values good advice, accepts constructive criticism.

### **Creating an environment conducive to learning and improvement**

- Endeavours to foster an environment conducive to learning
- Shares knowledge with trainees, students and other members of the multidisciplinary team
- Encourages and is open to reflective practice
- Seeks out role models and learns from the best practice behaviours of others.
- Participates in quality assurance and clinical improvement systems & training
- Uses evidence based practice in decision making
- Participates in journal clubs, case presentations, grand rounds

### **Time management & continuity of care**

- Is punctual for duty, meetings, handovers and other duties
- Prioritises workload
- Delegates when appropriate to do so
- Knows when to call for help
- Ensures satisfactory handover to ensure continuity of care
- Ensures satisfactory transfer of patients to other medical teams or services when required
- Makes adequate arrangements to cover holidays, study and other leave

### **Honesty & Integrity**

- Acts with honesty and integrity at all times in the delivery of patient care and in working with professional colleagues
- Acts fairly in all situations.

### **Moral Reasoning & Legal and ethical issues (see also Ethics section)**

- Describes and demonstrates an understanding of the main principles of medical ethics including autonomy, justice and confidentiality
- Understands correct procedures for obtaining consent (for treatment, investigations, procedures, research project, post mortem). Legal responsibilities surrounding death/disease certification; regarding mental illness; referrals to coroner; also in criminal cases.
- Understands issues surrounding confidentiality, disclosure/release of information; discovery (FOI) of records. Legal and ethical issues in context of resuscitation, organ donation/transplantation.
- Able to complete certificates, documents, respects patient's wishes, rights, but accepts a doctor's (legal) obligations to society. Able to obtain/provide in full, information relevant to consent.
  - Alert to possible legal implications and ethical aspects of actions
  - Ensures privacy when discussing sensitive issues
  - Seeks timely advice where patient abuse is suspected

### **Team working and leadership**

- How teams work, know how to assign individual and collective responsibilities which respect an individual's (*professional*) status within a team. How to set goals, initiate/co-ordinate action, audit performance, give feedback, e.g. developing guidelines, protocols.
- Positively contributes to planning, motivating, organising activity, employs negotiating, human relations, interpersonal skills appropriately.
- Able to set and apportion individual and team objectives, energise and fortify others to sustain efforts to achieve goals, appraise performance.
- Co-operates as team player; respects the contributions, expertise of others; tolerant but determined as team leader.
- Adopts a holistic approach to patient care
- Knowledge of principles of audit and self assessment

### **Health-Physical health and Handling Stress & Fatigue**

- Know how stress can affect performance, how to reduce stress and develop coping mechanisms to deal with pressure. When to enlist support.
- Understand the relevance of personal health to performance at work: the risks of self-medication, potential for drug and alcohol abuse: know that support is available from Occupational Health Services.
- Able to recognise, cope with stress; asks for help when necessary, is aware of responsibility (*to others*) of having health problems dealt with. Willing to take time off; and, if necessary, re-train/redevelop skills.

### **Commitment to Continuous Improvement in Health care Systems**

- Understands the principles of quality and safety improvement
- Participates in quality improvement activities, including standard setting, follows established practice guidelines, research and audit
- Undergoes training in this area where appropriate

## **SKILLS**

- Professionalism
- Multidisciplinary team working
- Ethical issues
- Leadership
- Time management
- Stress management

## **ASSESSMENT & LEARNING METHODS**

- RCPI Ethics programme: Ethics I, Ethics II, Ethics III and Ethics IV (mandatory)
- Consultant feedback at annual assessment
  - Workplace based assessment e.g. Mini-Cex, DOPS, CBD
  - Educational supervisor's reports on observed performance (in the workplace): communication with others e.g. at handover. ward rounds, multidisciplinary team members
- Leadership Programme (Year 3 – 5)

## Maintaining Good Practice

**Objective:** *To adopt the habits of lifelong learning, and to appreciate and implement the practices of clinical governance.*

**Medical Council Domains of Good Professional Practice:** *No. 1 Patient Safety and Quality of Patient Care, No. 6 Scholarship, No 7 Professionalism, No 8 Clinical Skills*

### KNOWLEDGE

#### Lifelong learning

- Aware of CME/CPD obligations, systems/process for competence assurance/revalidation. Understand the role of appraisal, assessment methods available their application.
  - Sources, resources, opportunities for self-directed and group learning including IT. Know how adults learn.
  - Recognises and makes effective use of learning opportunities, maximises the potential for personal study, plans personal development.
  - Self motivated, inquisitive, eager to learn.

#### Application of clinical governance

- Understand the principles of evidence-based practice, clinical audit and effectiveness, the development/application of best-practice protocols.
- Able to appraise and apply data from research, and to use audit to establish best practice and clinical effectiveness. Utilizes and practices evidence-based medicine.
- Accepts the need for reflective practice and to critically evaluate own work and make changes.

#### Risk management

- Systems, procedures for identifying (*clinical*) risk; correct procedures and action when things go wrong; how to handle complaints.
- Employes procedures and policy for accidents, injuries; for confirming skill and staffing levels, arranging cross-cover, on-call, for supervision.
- Potential complications or side effects of treatments, procedures and investigations; importance of accurate, recent information and available records. The assessment of risk, relative risk.
- Able to assess, anticipate, risks; recognise failure. Openly discuss bad outcomes, locate system weakness, analyse critical incidents.
- Able to discuss potential risks *e.g. with patients, to analyse and balance risk with benefit*. Able to learn from previous experience, from complaints received, errors.
- Is honest in recognising misjudgements.

#### Evidence, audit, guidelines

- Basis for developing evidence-based medicine, kinds of evidence, evaluation; methodologies of clinical trials.
- Sources from which useful data for audit can be obtained, the methods of collection, handling data, the audit cycle.
- Means of determining best practice, preparing protocols, guidelines, evaluating their performance.
- Capable of accessing relevant data (library, internet use). Able to appraise available evidence critically.
- Able to complete an audit cycle relevant to practice; to develop, evaluate, review and update a set of guidelines.
- Uses evidence / guidelines appropriately having due regard for the individual.

## **SKILLS**

- Personal development planning
- Evidence -based practice
- Risk Management
- Audit
- Research

## **ASSESSMENT & LEARNING METHODS**

- Record of attendance at journal clubs, medical grand rounds, SpR teaching sessions, local and national academic meetings
- Record of attendance at CME accredited international meetings
- Attendance at local radiology conferences
- Time spent in laboratory or attendance at laboratory conferences
- Audit Study Day (Year 1)
- Annual Audit
- Leadership Skills Course (Year 3- 5)
- Research Publications
- Consultant feedback at annual assessment
- Workplace based assessment e.g Mini-Cex, DOPS, CBD

## Standards Of Care

**Objective:** To be able to assess patients' problems investigate and treat them appropriately, efficiently, and consistently over time.

**Medical Council Domains of Good Professional Practice:** No. 1 Patient Safety and Quality of Patient Care; No. 2 Relating to Patients; No. 3 Communication and Interpersonal Skills; No. 4 Collaboration and Teamwork; No. 5 Management (including Self Management; No. 8 Clinical Skills,

### KNOWLEDGE

#### History taking and examination

- Diagnostic significance of patterns of symptoms, pathophysiology and physical signs.
- Able to take and analyse a clinical history and perform a reliable and appropriate examination, arrive at a differential diagnosis.
- Exhibit empathy and show consideration for all patients, their impairments and attitudes irrespective of cultural and other differences.

#### Investigation, indications, risks, cost-effectiveness

- Understand the pathophysiological basis of the investigation undertaken.
- Know and be able to explain the procedure for the commonly used investigations, preparations, effects or risks, the reason for the investigation, the information sought and its relevance to management.
- Sensitivity and specificity of results, possible interferences, artefacts.
- Able to understand significance, interpret and explain results of investigations.
- Shows logical approach in choosing, sequencing and prioritising investigations.
- Able to liaise, discuss, negotiate effectively with those undertaking the investigation.
- Careful to select investigations appropriately, considering (*patients*' needs, risks, value.

#### Treatment and management of disease

- Understand the pharmacology, therapeutics of treatments prescribed, choice of routes of administration, dosing schedules, compliance strategies; the objectives, risks and complications of treatment cost-effectiveness. Natural history of diseases; quality of life concepts.
- Able to assess accurately patient's needs, to prescribe administer, deliver, arrange treatment; recognise and deal with reactions / side effects. Sets realistic therapeutic goals, utilizes rehabilitation services, palliative care appropriately.
- Able to discuss rationale, objectives, risks and alternative options openly, taking into account patients' / their relatives' attitudes, beliefs or other philosophical concepts.
- Recognises that the degrading effects of illness, especially incapacity which is chronic, impacts on relationships and family, having financial as well as social effects.
- Discusses, plans, delivers care appropriate to patient's needs and wishes.

#### Disease prevention and health education

- Disease notification; methods of collection and sources of data. Screening for disease, (*methods, advantages and limitations*). Health promotion and support agencies; means of providing and sources of information for patients.
- Risk factors, preventive measures, strategies applicable to smoking, alcohol, drug abuse, lifestyle changes.
- Able to advise on and promote lifestyle change, stopping smoking, control of alcohol intake. Able to assess and explain risk, encourage positive e.g. *immunisation* and negative preventive measures.

- Enlists / requires patients' involvement in solving their health problems, provides information, education. Avails of support provided by voluntary agencies and patient support groups, as well as expert services e.g. detoxification / psychiatric services.
- Non-judgemental approach to patient's problem: values contributions of health education and disease prevention to health in a community.

### **Notes, records, correspondence**

- Understand the functions of medical records, their value as an accurate up-to-date commentary and source of data.
- Understand the need and place for problem-orientated discharge notes, letters, more detailed case reports, concise out-patient reports, focused reviews.
- Compiles adequate case notes, with results of examinations, investigations, procedures performed, sufficient to provide an accurate, detailed account of the diagnostic and management process and outcome. Provides concise, informative progress reports orally.
- Maintains legible, authenticated records, uses dictation, telephone, e-mail appropriately.
- Appreciates importance of up-to-date, accurate information, its availability, transfer and the need for communicating promptly *e.g. with primary care*.

### **Time management and decision taking**

- How to prioritise demands, respond to patients' needs, sequence urgent tasks. Understand how to establish (*clinical*) priorities *e.g. for investigations, intervention; how to set realistic goals; understand the need to allocate sufficient time, know when to seek help*.
- Understands the need to complete tasks, reach a conclusion, make a decision, take action with allocated time.
- Able to recognise when falling behind and can adjust accordingly; able to cope with changing circumstances, variable demand, prepared to re-prioritise and ask for help.
- Able to collate evidence, summarise, recognise when objective has been gained
- Knows how and when to conclude, disengage.
- Has realistic expectations of own and of others' performance. Time-conscious, punctual.

### **Relevance of professional bodies**

- Understand the relevance to practice of standards of care set down by recognised professional bodies – the Medical Council, Medical Colleges and their Faculties, and the additional support available from professional organisations *e.g. IMO, Medical Defence Organisations and from the various specialist and learned societies*.
- Actively engages with professional/representative/specialist bodies.
- Values the breadth and depth of experience that can be accessed by associating with professional colleagues.

## SKILLS

- History taking and examination
- Appropriate use of investigations
- Treatment and management of disease
- Disease notification
- Health promotion
- Screening
- Study Day - Disease prevention & health education
- Personal and professional organisation and planning; goal setting, time management

## ASSESSMENT & LEARNING METHODS

- Consultant feedback at annual assessment
- Workplace based assessment e.g Mini-Cex, DOPS, CBD
- Educational supervisor's reports on **observed** performance (in the workplace)
- Study Days
- Annual Audit

## Patient Safety

**Objective:** To ensure patient safety is at the core of the health service provided by designing safe systems and processes of care and understanding the role of healthcare systems and human factors in adverse events and errors.

**Medical Council Domains of Good Professional Practice:** No. 1 Patient Safety and Quality of Patient Care.

### KNOWLEDGE

#### Safe Systems, Competency and Safe practice

- Understands multiple factors involved in failures;
- Safe Healthcare Systems-a Safe working environment
- The relationship between 'Human factors' and patient safety
  - Safe working practice. Role of procedures and protocols in optimal practice
- Patient safety relevance in health care and its role in minimizing the incidence and impact of adverse events and maximize recovery from them.
- Knowledge and understanding of the Swiss cheese model.
- Health care errors and system failures; human and economic costs; blame culture

#### Communication

- Disclosure – know the principles of open disclosure
- Knowledge and understanding of valid consent
- Teamwork
- Continuity of care

#### Near Misses and adverse events

- Knowledge of preventing and managing near misses and adverse events. Incident reporting; root cause analysis. Understanding and learning from errors
- Understands and manages clinical risk
- Manages complaints
- Knows when and how to report a near miss or adverse event

#### Quality improvement

- Standardises common processes and procedures – checklists, vigilance
- Evidence based care
- Infection control; healthcare associated infections
- Patient safety and invasive procedures.
- Improvement medication safety; safe prescribing; common medication errors
- Ethical behaviour

## **SKILLS**

- Effective Communication with patients, families and colleagues
- Co-operation and collaboration with colleagues to achieve safe and effective quality patient care
- Being an effective team player
- Understand how and why systems break down and why errors are made
- Be able to learn from errors and near misses to prevent future errors
- Know how to use relevant information from complaints, incident reports, litigation and quality improvement reports to control risks
- Minimise infection through improved infection control practice
- Minimise errors during invasive procedures by developing and adhering to best-practice guidelines for safe surgery.
- Minimise medication errors by practicing safe prescribing principles

## **ASSESSMENT & LEARNING METHODS**

- Consultant feedback at annual assessment
- Workplace based assessment e.g Mini-Cex, DOPS, CBD
- Educational supervisor's reports on observed performance (in the workplace): prioritization of patient safety in practice
- RCPI Patient safety on-line course (recommended)
- Completion of infection control induction in the workplace

## Therapeutics and Safe Prescribing

**Objective:** To progressively develop your ability to prescribe, review and monitor appropriate therapeutic interventions relevant to clinical practice in specific specialities including non-pharmacological therapies and preventative care

**Medical Council Domains of Good Professional Practice:** No. 1 Patient Safety and Quality of Patient Care.

### KNOWLEDGE

- Indications, contraindications, side effects, drug interaction, dosage and route of administration of commonly used drugs
- Knowledge of prescribing for common medical conditions
- Knows range of adverse drug reactions to commonly used drugs, including complementary medicines
- Identifies common prescribing hazards
- Identifies high risk medications
- Knows drugs requiring therapeutic drug monitoring and interprets results
- Knows the effects of age, body size, organ dysfunction and concurrent illness or physiological state e.g. pregnancy on drug distribution and metabolism relevant to the trainees practice
- Recognise the roles of regulatory agencies involved in drug use, monitoring and licensing (e.g. IMB , and hospital formulary committees)
- Knows procedure for monitoring, managing and reporting adverse drug reaction

### SKILLS

- Knows how to write a prescription
- Prescribes appropriately in the elderly, childhood, pregnancy and breast feeding
- Make appropriate dose adjustments following therapeutic drug monitoring, or physiological change (e.g. deteriorating renal function)
- Review the continuing need for long term medications relevant to the trainees clinical practice
- Anticipate and avoid defined drug interactions, including complementary medicines
- Advise patients (and carers) about important interactions and adverse drug effects
- Provide comprehensible explanations to the patient, and carers when relevant, for the use of medicines
- Open to advice and input from other health professionals on prescribing
- Participates in adverse drug event reporting

### ASSESSMENT & LEARNING METHODS

- Consultant feedback at annual assessment
- Workplace based assessment e.g Mini-Cex, DOPS, CBD
- Educational supervisor's reports on **observed** performance (in the workplace): prioritization of patient safety in prescribing practice

## Infection Control

**Objective:** To be able to manage and control infection in patients, including controlling the risk of cross-infection, appropriately managing infection in individual patients, and within the wider community to manage the risk posed by communicable diseases.

**Medical Council Domains of Good Professional Practice:** No. 1 Patient Safety and Quality of Patient Care; No. 5 Management (including Self Management).

### KNOWLEDGE

#### Within a consultation

- Understand the principles of infection control as defined by the HIQA
- How to minimize the risk of cross-infection during a patient encounter by adhering to best practice guidelines available
- Treat and manage infection in the individual patient
- Understand the principles of preventing infection in high risk groups e.g managing antibiotic use to prevent Clostridium difficile) Knowledge and understanding the local antibiotic prescribing policy
- Aware of infections of concern, eg MRSA, C Difficile,
- Understands best practice in isolation precautions
- Knows when and how to notify relevant authorities in the case of infectious disease requiring disclosure

#### In surgery or during an invasive procedure

- Understands the increased risk of infection in these patients and adheres to guidelines for minimizing infection in such cases
- Knows the guidelines for needle stick injury prevention and management

#### During an outbreak

- Adheres to guidelines for minimizing infection in the wider community in cases of communicable diseases and seeks expert opinion or guidance from infection control specialists where necessary

### SKILLS

- Practices aseptic techniques, hand hygiene
- Follows guidelines for infection control and management
- Prescribes antibiotics according to antibiotic guidelines Encourages all staff, patients and relatives to observe infection control principles
- Communicates effectively with patients regarding treatment and measures recommended to prevent re-infection or spread
- Collaborates with infection control colleagues to manage more complex or uncommon types of infection including those requiring isolation eg transplant cases, immunocompromised host
- In the case of infectious diseases requiring disclosure:
  - Has knowledge of the diseases requiring disclosure and undertakes notification promptly
  - Collaborates with external agencies regarding reporting, investigating and management of notifiable diseases .
  - Able to advise patients on lifestyle change to minimize the risk of re-infection or spread of infection,
  - Enlists / requires patients' involvement in solving their health problems, provides information, education.
  - Avails of support provided by voluntary agencies and patient support groups, as well as expert services where appropriate

- Non-judgemental approach to patient's problem:
- Utilises and values contributions of health education and disease prevention and infection control to health in a community.

#### **ASSESSMENT & LEARNING METHODS**

- Consultant feedback at annual assessment
- Workplace based assessment e.g Mini-Cex, DOPS, CBD
- Educational supervisor's reports on **observed** performance (in the workplace): practicing aseptic techniques as appropriate to the case and setting, investigating and managing infection , prescribing antibiotics according to guidelines
- Completion of infection control induction in the workplace

## Leadership

**Objective:** To have the knowledge, skills and attitudes to act in a leadership role and work with colleagues to plan, deliver and develop services for improved patient care and service delivery

**Medical Council Domains of Good Professional Practice:** No.1 Patient Safety and Quality of Patient Care; No. 3 Communication and Interpersonal Skill; No. 4 Collaboration and Teamwork; No. 5 Management (including Self Management); No 6 Scholarship.

### KNOWLEDGE

#### Demonstrating Personal Qualities

- Develops self-awareness and understanding of personal style and its impact on others
- Efficiently and effectively manages one- self and one's time especially when faced with challenging situations
- Continues personal and professional development through scholarship and further training and education where appropriate
- Acts with integrity and honesty with all people at all times

#### Working with others

- Develops networks to expand knowledge and sphere of influence
- Builds and maintains key relationships. Adapts style to work with different people and different situations
- Encourages contributions from others including patients, carers, members of the multidisciplinary team and the wider community
- Aware of own personal style and other styles and their impact on team performance. Understands the importance of good communication in teams and the role of human factors on effectiveness and patient safety

#### Managing Services

- Knows and understands the structure and function of Irish Health Care System
- Aware of the challenges of managing in healthcare
  - Role of Governance
  - Clinical Directors
- Can contribute to the planning and design of services
- Knows and understands the financing of the health service
  - Preparing a budget
  - Defining value
  - Managing resources
- Knows and understands the importance of human factors in service delivery.
  - Manages staff training, development and education
- Managing performance
  - Performs staff appraisal and deals effectively with poor staff performance
  - Rewards and incentivises staff for quality and efficiency

#### Improving Services

- Ensures patient safety by adopting and incorporating a patient safety culture
- Critically evaluates where services can be improved by measuring performance, and acting to raise standards where possible Encourages a culture of improvement and innovation
- Facilitating transformation by creating and living a vision

## Setting Direction

- Identifies the external and internal drivers setting the context for change
- Applies knowledge and evidence of systems and resource management to guide service development
- Makes decisions using evidence based medicine and performance measures
- Evaluates the impact of change on health outcomes through ongoing service evaluation

## SKILLS

- Effective Communication with patients, families and colleagues
- Co-operation and collaboration with others; patients, service users, carers colleagues within and across systems
- Being an effective team player Being able to managing resources and people
- Managing performance, performance indicators
- How to write and develop a service plan
- How to prepare and manage a budget

## ASSESSMENT & LEARNING METHODS

- Communication course (Year 1)
- Leadership course (Year 3 – 5)
- Consultant feedback at annual assessment
- Workplace based assessment e.g Mini-Cex, DOPS, CBD
- Educational supervisor's reports on observed performance (in the workplace): on management and leadership skills
- Involvement in hospital committees where possible e.g. division of Medicine, Drugs and Therapeutics, Infection Control etc.

## Management Information Systems & Management Skills

**Objective:** To understand the organisation, regulation and structures of the health services, nationally and locally, and to be competent in the use and management of information on health and health services. To develop personal effectiveness and the skills applicable to the management of staff and activities within a healthcare team.

**Medical Council Domains of Good Professional Practice: No. 5 Management.**

### KNOWLEDGE

#### Health service structure, management and organisation

- The administrative structure of the Health Service, services provided in Ireland and their funding. Department of Health, HSE and Hospital Management structures and systems. The National Regulatory Bodies, health agencies and patient representative groups.
- Can explore, direct, pursue a project, negotiating through the relevant department at an appropriate level. Able to “operate the system”. Understand the need for business plans, annual hospital budgets, the relationship between the hospital and PCCC.
- Recognises the advantage of understanding the administrative machinery of the Health Services.

#### The provision and use of information in order to regulate and improve service provision

- Methods of collecting, analysing and presenting information relevant to the health of a population and the apportionment of healthcare resources. The common ways in which data is presented. Know of the sources which can provide information relevant to national or to local services, publications available.
- Able to seek / locate information in order to define an issue needing attention e.g. to provide data relevant to a proposal for change, establishing a priority, obtaining resources.

#### Obtaining information of value in maintaining medical knowledge with a view to delivering effective clinical care

- Understands the contribution that current, accurate knowledge can make to establishing clinical effectiveness, best practice, treatment protocols. Know sources providing updates, literature reviews and digests.
- Able to make use of information, use IT, undertake searches and obtain aggregated data, to critically evaluate proposals for change e.g. *innovative treatments, new technologies*.
- Embraces principles of clinical governance.

#### Delegation skills, empowerment and conflict management

- How to assess, develop personal effectiveness, improve negotiating, influencing and leadership skills. How to manage time more efficiently, deal with pressure and stress. How to motivate and operate within a multidisciplinary team.
- Able to adjust to change, apply management/leadership, negotiating skills to manage change. Self-awareness, able to recognise strengths and weaknesses.
- Appropriately values and uses management techniques and seeks to improve these skills and personal effectiveness.

## **Leadership**

- How to maintain, improve working relationships within a team; appropriately recognise roles, skills, status. Know when and what to delegate, provide support, appraise.
- Motivates and empowers others, knows when help is needed. Able to foresee, forestall, manage conflict.
- Sensitive to and aware of the needs of others.

## **SKILLS**

- Risk Management
- Leadership skills
- Time management
- Delegation skills
- Conflict management
- Clinical governance
- Audit

## **ASSESSMENT & LEARNING METHODS**

- Communication course (Year 1)
- Audit course (Year 1)
- Leadership course (Year 3 – 5)
- Annual audit
- Consultant feedback at annual assessment on management and leadership skills
- Involvement in hospital committees

## Teaching & Research

**Objective:** *To recognise the opportunities for personal/professional development that exist for medical teachers, educational supervisors and from involvement with research.*

**Medical Council Domains of Good Professional Practice:** *No. 6 Scholarship.*

### KNOWLEDGE

#### Teaching, educational supervision and assessment

- Know principles of adult learning, teaching and learning methods available and strategies; educational principles directing assessment, methods, formative vs. summative. Value of regular appraisal / assessment in informing training process.
- Able to identify educational objective. Able to design and deliver an effective teaching event, both small and large group. Uses technology / materials effectively. Adequate preparation, timekeeping.
- Appreciates benefit to learner is key objective of teaching sessions, key resource is adequate knowledge of subject.

#### Research, methodology and critical evaluation

- How to design and resource a research project, how to obtain ethical approval. Research methodology, valid statistical analysis, writing and publishing papers. Ethical considerations, declaring an interest.
- Reviewing the literature, framing the question, designing a project capable of providing an answer. Able to derive results and conclusions, able to write or present a paper.
- Intellectually honest.
- Present data in a clear, honest and critical fashion.

### SKILLS

- Bed-side undergraduate and post graduate teaching
- Lectures
- Ethics of research
- Presentation and writing skills

## Ethics

**Objectives:** *Medicine is predominantly concerned with the diagnosis and treatment of illness. Besides the pathological processes involved and the physical impact of each condition, the requirements for practising medicine in a fair, competent and ethical manner must be understood before a doctor is ready for independent practice.*

*Upon satisfactory completion of specialist training, the doctor will be **competent** to undertake comprehensive medical practice in that specialty in a **professional** manner, unsupervised and independently and/or within a team, in keeping with the needs of the Irish healthcare system.*

**Medical Council Domains of Good Professional Practice:** No. 1 Patient Safety and Quality of Patient Care; No. 3 Communication and Interpersonal Skill; No. 6 Scholarship; No. 7 Professionalism.

### KNOWLEDGE

- Knowledge of basic biomedical, behavioural and clinical sciences, medical ethics and medical jurisprudence and application of such knowledge in patient care.
- Interpersonal and communication skills that ensure effective informational exchange with individual patients and their families and teamwork with other health professionals, the scientific community and the public.
- Professionalism.

## Ethics I: Professionalism

**Objectives:** *To explore the relationship between ethics of healthcare delivery and professionalism including the challenges and the impact of current developments*

### KNOWLEDGE

- Knowledge, skills, attitudes and behaviours expected by patients and society from individuals during the practice of their profession (as a doctor).
  - The skills of lifelong learning and the maintenance of competence
  - Information literacy
  - Ethical behaviour
  - Integrity, honesty
  - Altruism
  - Service to, justice and respect for others
  - Adherence to professional code
- Leadership and Accountability
- Role of the Clinical Director
- Dignity & Respect
- Conflicts of interest
- Personal scope of practice & boundaries
- Adverse Events- open communication when adverse events occur
- Discussing errors

## Ethics II: Ethics & Law

**Objectives:** *To explore the relationship between ethics of healthcare and law including the challenges and the impact of current developments*

### KNOWLEDGE

- Ethical patient care and Irish Law including:
- Informed consent
- Consent and capacity
- Disclosure
- Medical Practitioner's Act
- Malpractice
- Misconduct
- Confidentiality
- Data protection
- Coroner's System
- Medical Council Ethical Guide

## Ethics III: Research

**Objectives:** *To explore the ethics of healthcare research including the challenges and the impact of current developments*

### KNOWLEDGE

- Principles of research
- Un-ethical conduct
- Genetics
- The Importance of Research in Health Care
- Dept of Health and Children Research Action Plan-implications for researchers
- Reasons for Research being Ethically Regulated
- Genetics
- Researching vulnerable groups
- Data Research/Protection and confidentiality
- Patient information bill
- Human Tissue Act
- Role of Research Ethics Committee
- Conflict of interest

## Ethics IV: End of Life

**Objectives:** *To explore the ethics of end of life challenges and the impact of current developments*

### KNOWLEDGE

- Euthanasia/Terminal Sedation
- Artificial nutrition/hydration
- Resuscitation issues
- Advanced Directives
- Organ donation
- Death Certification/Coronial System
- Prolongation
- Futility
- Decision making process

### SKILLS

- Recognises the dying patient
- Communicates bad news sensitively
- Explores the options for managing the dying patient including DNR and advanced directives
- To incorporate the above ethical concepts in their everyday practice

### ASSESSMENT & LEARNING METHODS

- RCPI Ethics programme: Ethics I, Ethics II, Ethics III and Ethics IV (Mandatory)
- Note of examples of ethical dilemmas encountered in training
- Consultant feedback at annual assessment
- Workplace based assessment e.g CBD
- Educational supervisor's reports on observed performance (in the workplace)

## Dealing with and Management of Acutely ill Patients in Appropriate Specialties

**Objective:** To have the knowledge and skills to be able to assess and initiate management of patients presenting as emergencies with the problems outlined below. For each scenario, trainees should in particular gain knowledge and skills to recognise the critically ill and:

*Immediately assess and resuscitate if necessary.*

*Formulate a differential diagnosis, treat and/or refer as appropriate.*

*Select relevant investigations and accurately interpret reports.*

*Communicate the diagnosis and prognosis – see Generic Skills.*

**Medical Council Domains of Good Professional Practice:** No. 1 Patient Safety and Quality of Patient Care, No. 8 Clinical Skills

### KNOWLEDGE

#### Management of acutely ill patients with medical problems

- Know how potentially life-threatening problems present; know the indications for urgent intervention, additional information necessary to support action (*e.g. results of investigations*) and treatment protocols (*see Addendum*).
- Know when to seek help, refer/transfer to another specialty. Know ACLS protocols. Know the ethical and legal principles relevant to resuscitation and DNR orders.
- Able to manage acute medical intake, to receive and refer patients appropriately, to interact efficiently and effectively with other members of the medical team, accept/undertake responsibility appropriately.
- Able to anticipate / recognise, assess and manage life-threatening emergencies, recognise significantly abnormal physiology *e.g. dysrhythmia* and provide the means to correct *e.g. defibrillation*.
- Able to convey essential information quickly to relevant personnel: maintains legible up-to-date records documenting results of investigations. Lists of problems dealt with or remaining, identifies areas of uncertainty; ensures safe handover.
- Remains calm, delegates appropriately, ensures good communication. Tries to meet patient's/ relatives' needs and concerns, respecting their views and right to be informed.

#### Discharge planning

- Distinguish between illness and disease, disability and dependency. Understand the potential impact of illness and impairment on activities of daily living, family relationships, status, independence. Be aware of quality of life issues.
- Know role and skills of other members of the healthcare team, how to devise and deliver a care package. Know the support available from other agencies *e.g. specialist nurses, social workers, community care*. Understand the principles of shared care with the general practitioner service.
- Show awareness of the pressures/dynamics within a family, the economic factors delaying discharge but recognise the limit to benefit derived from in-patient care. Establish liaison with family and community care, primary care, communicate / report to agencies involved.
- Demonstrates can awareness of the wide ranging effects of illness and the need to bridge the gap between hospital and home.

## **SKILLS**

- ACLS
- Deal with common medical emergencies
- Interpretation of blood results, ECG/Rhythm strips, Chest X-Ray, CT Brain
- Give clear instructions to both medical and hospital staff
- Order relevant follow up investigations
- Discharge planning
- Knowledge of patient pathways
- Knowledge of HIPE
- Multidisciplinary team working
- Communication
- Early regular and on-going consultation with family members and primary care physicians

## **ASSESSMENT & LEARNING METHODS**

- Certified ACLS
- Record of on call
- miniCEX (acute setting) - each year
- Case based discussions
- Consultant feedback at annual assessment

## Specialty Section for Neurology

*The AAN Residency In-service Training Exam (RITE) is listed as one of the assessment methods in the specialty section of this curriculum. The purpose of this exam is not as a certifying or qualifying examination but to be used as a self- assessment tool designed to gauge knowledge of neurology and neuroscience.*

## Basic Neurological Knowledge and Skills

**Objective:** To acquire basic knowledge and skills in order to benefit from engaging in clinical training in Neurology.

### Relating Structure and Function to Physical Findings and Complaints

**Objective:** In order to benefit from clinical training in the specialty, the trainee must first acquire a sound knowledge of neuroanatomy and neurophysiology and be capable of taking a full neurological history and carrying out a detailed physical examination of the nervous system.

#### KNOWLEDGE

##### Basic neurology:

- Anatomy of the central, peripheral and autonomic nervous systems. Functional anatomy and co-ordination in the nervous system: neurophysiology and biochemistry, the autonomic and neuroendocrine systems, neurotransmitters.
- Able to perform a detailed physical examination of the nervous system.
- Able to evaluate the significance of symptoms and physical findings and suggest a differential diagnosis.
- Appreciates the importance of knowledge of the structure, function and biochemistry of the nervous system in understanding the basis upon which the symptoms and physical signs of disease may develop.

#### SKILLS

- To elicit and concisely report a factual medical, occupational, family, social and personal history in a patient as relevant to suspected neurological disease.

#### ASSESSMENT & LEARNING METHODS

- miniCEX
- RITE Exam

**Assessment at SpR Year 1 - 4**

## Basic Sciences: Specialities Relevant To Neurology Used To Support Neurological Practice

**Objective:** *The trainee should have sufficient knowledge and skills in basic science and in the specialities relevant to neurology to be able to understand, assess and plan the management of neurological problems as they present in patients.*

## Clinical Neurophysiology

**Objective:** *Acquire knowledge and skills to understand the role and practice of neurophysiology investigations in patients with disorders of the nervous system.*

### KNOWLEDGE

- EEG, EMG nerve conduction, evoked potentials
- Normal range of EEG findings, common epileptiform abnormalities.
- Capabilities and limitations of EEG in neurological disorders other than epilepsy.
- Role of monitoring techniques (*telemetry, ambulatory*).
- Use of EEG in evaluation of sleep disorders.
- EEG in neurological emergencies with impaired consciousness.
- Principles of techniques of EMG, NCS.
- Abnormalities in common nerve entrapments; peripheral neuropathies, motor neurone disease; disorders of neuromuscular junction.
- Common abnormalities of Evoked Potentials (*EP*) in neurological diseases, particularly demyelination.
- Knowledge of role of intraoperative EP monitoring.
- Appreciation of the importance of close working relationship with Clinical Neurophysiologists, and need to provide clinical detail in referral.
- Appreciates the value and limitation of these techniques used in the investigation of neurological disease and the importance of critically evaluating the results obtained.
- Willing to explain to the patient the procedures involved and to interpret the results obtained in ways which can assist the patient in understanding their significance.

### SKILLS

- Ability to formulate and appropriate investigation plan.
- Interpret and explain reports/results.
- Interpretation of EEG
- Perform and report EMG and NCS

### ASSESSMENT & LEARNING METHODS

- DOPS: EMG
- DOPS: NCS
- RITE Exam
- Case based Discussion

**Assessment at SpR Year 1 - 4**

# Neuropathology

**Objective:** To understand the pathological basis of neurological disorders, recognise the scope and limitations of examination of material from biopsies and necropsies: recognise the needs and concerns of patients and their relatives.

## KNOWLEDGE

### Obtaining, preparing, interpreting pathological specimens

- Anatomy of brain sections, brain preparation.
- Histological, histochemical, immunocytochemical and E.M. techniques.
- Basic pathology of brain tumours.
- Basic pathology of:
  - *Multiple sclerosis*
  - *Alzheimer's disease*
  - *Prion disease*
  - *Friedreich's ataxia*
  - *Axonal and demyelinating peripheral neuropathy*
  - *Muscular dystrophy*
  - *Amyloid*
  - *Lewy bodies*
  - *Parkinson's disease*
  - *Meningitis*
  - *Vasculitis*
  - *Guillain Barré*
  - *Polymyositis*
  - *Meaning of gliosis*
  - *Neurofibrillary tangles*
  - *Granulomas*
- Understands of need for discussion regarding specimens with laboratory staff, especially if special precautions needed.
- Obtain informed consent for a necropsy examination.
- Appreciates the importance of a detailed knowledge and understanding of the pathological basis of neurological disorders and the limitation of the methods available for tissue diagnosis
- Recognises and is prepared to respond to the concerns of patients and their relatives.

## SKILLS

- Understand, interpret and explain a pathology report.
- Examine (*under supervision*) brain sections, stained material, in laboratory.

## ASSESSMENT & LEARNING METHODS

- Neuropathology Neuroscience weekly meeting
- Attend 3 brain cuttings
- Study Day with Pathology
- Ethics
- RITE Exam
- Optional: Attend Brain Tumour and Muscle Pathology day

**Assessment at SpR Year 1 – 4**

## Neuroradiology and Imaging

**Objective:** To provide the trainee with the skills and knowledge to: select, explain, arrange radiology and/or imaging which is appropriate to the patient's needs in the management of neurological disorders, and to understand and interpret findings and reports.

### KNOWLEDGE

- Radiographs; CT, MRI Scans; myelograms; angiography, PET and SPECT studies
- Common imaging modalities, including:
  - Plain x-ray films of skull and spine
  - MRI and CT scans of the neural axis
  - Angiographic studies (MR and DSA)
  - Basic PET and SPECT studies
  - Interventional neuro-angiography
- To know the applications, limitations, of the following investigative techniques:
  - CT Scans: cranial, angiography
  - MRI Scans: cranial, spinal, angiography
  - Catheter Angiography: diagnostic, interventional
  - Myelography
  - Ultrasound: carotid, trans-cranial, cardiac
  - Other special investigations e.g. PET, SPECT, etc.
- To be able to explain the capability, risks and limitations of all common neuroradiological techniques.
- Appreciates the need of the neuroradiologist for full clinical information to be provided.
- Appreciates the need for close working with the neuroradiology services in arriving at a diagnosis and planning treatment.

### SKILLS

- Request, interpret and utilise neuroradiological investigations for outpatients, inpatients and acutely ill patients in a cost effective manner.
- Explain the nature, risks and benefits of neuroradiological investigations to patients.
- Recognise the anatomy of the neural axis from imaging studies and to recognise abnormal images.
- Give a reasonable differential diagnosis of the observed abnormalities.
- Understand the role and place of interventional studies.

### ASSESSMENT & LEARNING METHODS

- Weekly neuroradiology meetings
- RITE Exam
- Case Based Discussion

**Assessment at SpR Year 1 – 4**

# Pharmacology and The Nervous System

**Objective:** Understand the basis of, application, limitations and risks of neuropharmacological treatments.

## KNOWLEDGE

### Drugs and their use

- Synapse and neurotransmitter physiology.
- Principles of neuropharmacokinetics and pharmacodynamics.
- Modes of actions of drugs used to treat neurological diseases.
- Principles of pharmacological treatment, especially:
  - *Vascular disease/Stroke*
  - *Pain*
  - *Multiple sclerosis*
  - *Motor neurone disease*
  - *Migraine*
  - *Psychiatric disorders*
  - *Autoimmune disorders*
  - *Epilepsy*
  - *Movement disorders*
  - *Dementia*
- Adverse effects of medications. Interactions involving medications.
- Awareness of need to respond to information needs of patients.
- Recognises the importance of a full understanding of neurotransmitter physiology and the limitations and risks of neuropharmacological treatments in the management of patients.

## SKILLS

- Able to take and evaluate a medication history.
- Able to plan treatment strategies, re-evaluate and awareness of cost implications.

## ASSESSMENT & LEARNING METHODS

- Study Day
- RITE Exam

Assessment at SpR Year 1 - 4

# Immunology

**Objective:** To have working knowledge of those neurological disorders which have an immunological or inflammatory basis.

## KNOWLEDGE

- Basic principles of immune responses in relation to the nervous system. The immunological basis underlying autoimmune neurological disease.
- The clinical phenotypes of these diseases.
- The diagnostic techniques needed to confirm or refute these diseases, and their appropriate use.
- Immunosuppressive and immunomodulatory therapies: their actions, side effects and indications, and how critically to evaluate evidence for their efficacy.
- Appreciates the importance and knowledge of immunological and inflammatory mechanisms in understanding the neurological disease processes and in guiding the development of therapeutic strategies.

## SKILLS

- Competent in the recognition, of diagnosis and management of patients with autoimmune neurological disease.

## ASSESSMENT & LEARNING METHODS

- Study Day
- Case Based discussion
- RITE Exam

**Assessment at SpR Year 1 - 4**

## Genetics

**Objective:** To understand the principles of genetics as applied to Neurology; and particularly as it applies to patients with neurological disease.

### KNOWLEDGE

- Genetics applied to neurology
- DNA, RNA, chromosomes, modes of inheritance (*Mendelian, polygenic, multifactorial, mitochondrial*).
- The genetic contribution to common multifactorial neurological disease (*stroke, multiple sclerosis, subarachnoid haemorrhage, epilepsy*).
- Methods of DNA diagnosis including southern blotting, PCR.
- Working knowledge of pathology, molecular biology in common genetic conditions.
- To be familiar with the clinical presentation and diagnosis of the common neurogenetic diseases, e.g. Huntington's disease, Hereditary ataxias, muscular dystrophies, neuropathies, and neurocutaneous syndromes.
- To understand the principles of genetic counselling including sensitive ethical issues surrounding confidentiality and consent (*e.g. in Huntington's disease and the role of specialist genetics nurses*).
- Utilize bioinformatics databases on human disease *e.g. online Mendelian Inheritance in Man*.
- Recognise when it is most appropriate to take a detailed family history, to order DNA based diagnostic tests and to liaise with colleagues in Clinical Genetics.
- Because of the rapidity of development in this field, basic skills in using electronic resources to aid in the diagnosis of Neurogenetic disease.
- Exercises care in the translation of genetic information when counseling patients.
- Is fully aware of the important issues of confidentiality and consent surrounding ethical considerations.

### SKILLS

- To be able to take a detailed family history using appropriate standard nomenclature.
- Recognises the important contributions from genetic information obtained, towards understanding neurological diseases.

### ASSESSMENT & LEARNING METHODS

- Study Day
- Case Based Discussion
- RITE Exam

**Assessment at SpR year 1 - 4**

# Cerebrospinal Fluid

**Objective:** *To understand normal and abnormal production and circulation of the CSF.*

## KNOWLEDGE

- Abnormal CSF and raised intracranial pressure
- CSF composition and dynamics. Anatomy and radiology of ventricular system. Biochemistry and immunology of CSF. Blood brain barrier.
- To understand the changes in CSF dynamics and composition in disease. Symptoms, signs and causes of raised intracranial pressure. Genesis of hydrocephalus.
- Indications and contraindications to LP. LP techniques. Methods of cranial pressure monitoring.
- To be familiar with and be able to advise on the treatment of disorders of CSF.
- Always ready to explain the details and purpose of the procedure to the patient and obtain informed consent.
- Seeks technical proficiency.

## SKILLS

- Management of raised CSF and raised intracranial pressure
- To be able to carry out LP safely and with maximum patient comfort and to be familiar with other methods of CSF examination.

## ASSESSMENT & LEARNING METHODS

- DOPS: Lumbar puncture
- RITE Exam

**Assessment at SpR Year 1 - 4**

## Neuroophthamology - Otology

**Objective:** *To be competent to assess and manage appropriately ophthalmic and otological abnormalities as they may present in patients with neurological diseases.*

### KNOWLEDGE

- Disturbances of vision, hearing and balance
- To be familiar with principal methods used in neurophthalmic diagnosis.
- To be familiar with the regulations on visual loss and driving, and the blind register.
- Applied anatomy and physiology of the visual and oculomotor system, hearing and balance.
- History taking and examination relevant to the eyes and ears, vision, hearing, and balance.
- Conditions which may affect hearing, balance, vision, eye movements, pupils and the eye lids.
- Recognises the contribution of other specialist services in this field and liaises effectively with them.

### SKILLS

- Diagnosis and management of disturbance of vision, hearing and balance
- To form a differential diagnosis for common and uncommon visual symptoms.
- To be competent in assessing dizzy patients, and managing any underlying neurological cause.
- To be able to diagnose and manage neurological causes of disturbances of hearing or balance, and to appropriately refer others.

### ASSESSMENT & LEARNING METHODS

- DOPS: Visual eye movements
- RITE Exam
- Study Day: Neurophthalmogy
- Study day: Neurotology

**Assessment at SpR Year 1 - 4**

# Psychology and Neuropsychiatry

**Objective:** To understand the basis of normal and abnormally functioning memory, attention, perception and language, and to be familiar with basic psychological testing. To understand the psychiatric consequences of Neurological disease e.g. depression in MS, personality change in head injury and to be able to identify neurological diseases with a psychiatric presentation, e.g. SLE, vCJD etc.

## KNOWLEDGE

- Neuropsychology
- The neuro-anatomical and neurophysiological basis of memory, attention, language and perception.
- Basic neuropsychology tests e.g. as employed by clinical psychologists (NART, WAIS etc).
- Understand the value and limitations of neuropsychological interventions such as cognitive behavioural therapy.
- To understand the role of the clinical neuropsychologist and when it is appropriate to refer patients.
- Appreciates the importance of basic neuropsychology to understanding brain function
- Recognises own limitations and refers appropriately to the clinical neuropsychologist.
- Identifying and managing neuropsychiatric disease
- Clinical features of functional psychosis and depression.
- Clinical features of neuropsychiatric disease such as SLE, porphyria, neurodegenerative diseases. Drug induced mood disorders.
- The commonly used sections of the 1945 Mental Health Act.
- Recognises the psychiatric aspects and consequences that may complicate neurological disease.
- Appreciates the importance of the recognition and control of psychiatric symptoms, enlisting the help of other agencies as required in the patients' best interests.

## SKILLS

- Perform simple bedside testing of higher cognitive function e.g. *mini-mental state examination*.
- Interpret a neuropsychological report in the context of the patient's overall management.
- Identifying and managing neuropsychiatric disease
- Identify and manage unexplained neurological symptoms.
- Familiar with the 1945 Mental Health Act and when it can be used.
- Competent in the management of acute organic brain syndromes.
- Provide effective liaison to psychiatric services.

## ASSESSMENT & LEARNING METHODS

- Study Day Psychology
- RITE Exam
- DOPS: Application of mini mental assessment MSE or other assessment of their choice

**Assessment at SPR Year 1 – 4**

## Clinical Encounters in Neurology

**Objective:** During higher specialist training the trainee should acquire the knowledge and skills necessary to be fully competent to assess and manage patients presenting neurological problems in the following clinical contexts:

### Infections of the Nervous System

**Objective:** To have an understanding and a working knowledge of neurological disorders which have an infectious basis and the ability to diagnose, investigate and treat infectious diseases of the nervous system

#### KNOWLEDGE

##### Causes and management of infection in the nervous system

- Basic principles relevant to pathogenesis, clinical presentation, management and complications of neurological infectious disease.
- The clinical phenotypes of these diseases.
- Clinical features, investigation findings, treatment and prognosis of:
  - *Bacterial/viral meningitis*
  - *Acute disseminated encephalomyelitis*
  - *Opportunistic infections in the immunosuppressed*
  - *Syndromes associated with herpes zoster and herpes simplex*
  - *Neurological aspects of TB and AIDS*
  - *Spinal infections and cortical thrombophlebitis*
  - *The neurological aspects of endocarditis and septicaemia*
  - *Encephalitis*
  - *Syphilis*
  - *Tetanus*
  - *Rabies*
  - *Rubella*
  - *Measles*
- Epidemiology of meningitis, TB, AIDS, poliomyelitis, cysticercosis, malaria and common viral illnesses.
- The epidemiology of common neurological infections.
- Available vaccination programmes for poliomyelitis, meningitis and childhood illness.
- Understand the effectiveness of and need for vaccination against specified neurological infections. The public health responsibilities of physicians.
- To become competent in the recognition, prevention, diagnosis and management of patients with these disorders.
- Recognises the supreme importance of the early recognition and the correct diagnosis of infection in the nervous system.
- Fully appreciates the need for close liaison and effective working with other specialists and teams in the co-ordination of multidisciplinary care.
- Demonstrates a responsible attitude to the public health aspects of infections.

## **SKILLS**

- The diagnostic techniques needed to confirm or refute infection in the nervous system and their appropriate use.
- Anti-microbial therapies and their proper use; preventative medicine in relation to neurological infections.
- Services offered by microbiology, interpretation of reports, antibiotic resistance, diagnostic methods available for common neurological infections.
- To know how to liaise and work closely with Infectious Disease Physicians, Microbiologists and ICU teams in order properly to co-ordinate multi-disciplinary care where appropriate.
- Assessment of vital signs and respiratory function in critically ill patients and timing of referral for intensive care.
- Notification of infectious disease, advice to and referral/treatment of contacts.

## **ASSESSMENT & LEARNING METHODS**

- Case based discussion
- Study Day: AIDS and other infections of the nervous systems
- RITE Exam

**Assessment at SpR year 1 - 4**

# Cerebrovascular Disease

*Objective: The trainee should have the knowledge, skills and competencies to diagnose, assess, manage effectively and advise on the care of patients who present with the neurological effects of cerebrovascular diseases.*

## KNOWLEDGE

### Stroke and TIA, vascular dementia

- Clinical features of stroke and TIA. Pathophysiology of cerebral infarction, cerebral haemorrhage.
- To be familiar with the anatomy of the cerebral circulation and its appearances on imaging, CT, MRI, and DSA appearances.
- Investigations available, including blood tests, carotid ultrasound, TCD, echocardiography, CT, MRI, MRA, and DSA. Rare causes of stroke risks and costs of investigations.
- Value and organisation of multidisciplinary stroke care, nutrition after stroke, rehabilitation techniques, community stroke care.
- Stroke scales, Rankin score, Barthel index.
- Epidemiology and prevention, risk factors for stroke. Management of hypertension, hyperlipidaemia and atrial fibrillation. Cardiac cause and investigation.
- Classification, symptoms, diagnosis and management of vascular dementia.
- Stroke charities and support services.
- Investigation and treatment of vascular dementia. Assessment of cognitive function.
- Shows willingness to use the full range of professional skills and resources available for patient's support and rehabilitation.
- Recognises the supreme importance of preventive measures in addressing the problem of vascular disease within the nervous system.

### Cerebral aneurysms and subarachnoid haemorrhage

- Anatomy and pathology of subarachnoid haemorrhage, cerebral aneurysm and AVM. Interventional, surgical and radiotherapy treatment.
- Appreciates the value of multidisciplinary team working and the need to involve other specialists in optimising patient care.

### Intracranial venous thrombosis

- Symptoms, investigation and treatment of intracranial venous thrombosis.
- Appreciates the value of multidisciplinary team working and the need to involve other specialists in optimising patient care.

## **SKILLS**

- To form a differential diagnosis of stroke and TIA.
- To order appropriate investigations for stroke.
- Manage acute stroke including thrombolysis, antiplatelet therapy, control of blood pressure, complications of stroke.
- Advise on treatment of carotid stenosis, carotid surgery, angioplasty/stenting.
- Assess impairment, activities of daily living and handicap in a stroke patient
  
- To give advice and prescribe treatment for stroke prevention.
- To advise on the treatment of subarachnoid haemorrhage, cerebral aneurysm and AVM.
- To manage intracranial venous thrombosis.

## **ASSESSMENT & LEARNING METHODS**

- Case based discussion
- Neurovascular meetings in house
- RITE Exam

**Assessment at SpR Year 1 - 4**

## Disordered Consciousness

**Objective:** *To enable the trainee to assess the unconscious, unresponsive patient, to formulate a plan of investigation and management action in the best interests of the patient and within the legal frameworks provided.*

### KNOWLEDGE

- The anatomy and physiology of consciousness, and the pathophysiology of disorders of consciousness.
- Definitions, causes, pathophysiology, clinical features and prognosis of persistent vegetative state, locked in state and brainstem death.
- Legal issues relating to disorders of consciousness.
- Assessment of patient with disordered consciousness.
- The use of tests for brainstem death.
- Interpersonal skills relating to communication, management and resolution of issues with the family of patients with disorders of consciousness.
- Appreciates the right of the patient (*and of their relatives*) to be kept informed of the results of investigations, other assessments and treatment intentions and their right to challenge or refuse advice.
- Fully aware of the need for effective communication in difficult circumstances and of legal and ethical aspects in forming decisions.

### SKILLS

- Assess and manage the unconscious patient

### ASSESSMENT & LEARNING METHODS

- DOPS: (> 5 years post graduate) Brainstem death
- Study Day
- Ethics I, II, III, IV
- RITE Exam

**Assessment at SpR Year 1 - 4**

# Epilepsy and Altered Consciousness

**Objective:** To acquire knowledge, skills and attitudes to evaluate and treat patients with epilepsy.

## KNOWLEDGE

- Distinction of epilepsy from other paroxysms, management of epilepsy
- Differential diagnosis of paroxysmal and transient events.
- Indications, scope and limitations of: EEG, brain imaging, psychology, haematology and biochemistry.
- Understand the principles of antiepileptic drug treatment: efficacy, adverse effects, interactions; treatment of chronic epilepsy; treatment of refractory seizures, psychological and psychiatric concomitants of epilepsy.
- Role of neurosurgery.
- Epilepsy in relation to pregnancy, contraception, driving, legal aspects, risk of sudden death.
- Psychological and social consequences of epilepsy. Patient support groups and charities.
- Arrange appropriate investigation in evaluating patients with epilepsy, and possible epilepsy.
- Advising, explaining antiepileptic drug treatment appropriate to patient's needs.
- Able to convey important relevant information to patients and their relatives.
- Ability to manage emergency situations *e.g. serial seizures, status epilepticus*.
- Sensitive to and willing to deal with the concerns of patients (*and their relatives*) and the legal and employment implications of the diagnosis of epilepsy in an individual.

## SKILLS

- Diagnose and management of epilepsy

## ASSESSMENT & LEARNING METHODS

- miniCEX
- Case based discussion
- Study Day
- RITE exam

**Assessment at SpR Year 1 - 4**

# Head Injury

**Objective:** To provide trainee with the skills and knowledge to assess the head injured patient, including gaining the ability to perform immediate resuscitative measures and formulate a strategy for immediate and short-term management.

## KNOWLEDGE

- Immediate and early phase management of head injury
- Primary and secondary effects of head injury.
- The Glasgow Coma Scale.
- Recognises symptoms and signs of head injury including extradural and subdural haematomas, increased intracranial pressure.
- Understand and can manage post-concussion syndrome, post-traumatic headache and post-traumatic epilepsy.
- Serial assessment of head injury patient, indications for intervention including urgent and delayed neurosurgery.
- Appreciates the value of multidisciplinary team working and the need to involve other specialists at times in optimising the care and rehabilitation of patients following head injury.
- Willing to meet and respond to the concerns and anxieties of relatives.

## SKILLS

- Management of acute and subacute head injury
- Rehabilitation aspect of head injuries

## ASSESSMENT & LEARNING METHODS

- Study Day (part of neurosurgery study day)
- miniCEX : in ICU
- RITE exam

**Assessment at SpR Year 1 - 4**

# Dementia

*Objective: To be able to assess and manage patients with dementia*

## KNOWLEDGE

- Cognitive impairments, dementia: causes, differential diagnosis and management
- Definition and epidemiology of dementia. Pathology and clinical features of individual dementias. Treatable causes of dementia.
- Blood tests, CT, MRI, MRA and DSA appearances in various causes of dementia. Rare causes of dementia. Risks and costs of investigations. Genetic causes and investigations. Neuropsychology tests.
- Community and support services available.
- Mental status and cognitive examination.
- Dementia and mood scales.
- Dementia charities and support services.
- Shows appropriate interest in the assessment and investigation of dementia.
- Recognises the impact of dementia on other members of the patient's family/carers and potential for risk.
- Understands and values the support available in the community and from carers and support services. Consults and engages with them.

## SKILLS

- Assess cognitive impairment at the bedside.
- Form a differential diagnosis.
- Manage and treat dementia.
- Give advice and communicate prognosis to patient and carer.

## ASSESSMENT & LEARNING METHODS

- DOPS: Cognitive or other neurological impairment assessment at bedside
- Study Day
- RITE exam

**Assessment at SpR Year 1 - 4**

# Demyelinating Diseases

**Objective:** To be competent to diagnose, assess and advise on the early and long term management of patients with demyelinating diseases and disability arising as a result.

## KNOWLEDGE

- Demyelination: causes, recognition, management
- Pathogenesis, presentation and clinical manifestations of multiple sclerosis and related conditions, such as acute disseminated encephalomyelitis, Behcet's disease, leucodystrophies.
- The role of imaging and other investigations in the assessment of demyelinating disease.
- The contributions from a multi-disciplinary team and rehabilitation services, to the management of disabilities.
- Drugs and other available treatments.
- The ability to formulate a strategy for investigation, assessment and management of a patient with demyelinating disease.
- Recognises how an improved understanding of demyelinating diseases has influenced and guided treatment to date, and the importance of using emerging knowledge appropriately to the advantage of patients.
- Tysabri and MFL - recognition MFL and investigation of suspected cases

## SKILLS

- Able to take a history from a patient with demyelinating disease; identify the salient features, and identify signs through the neurological examination.
- Effectively uses the full range of professional skills and resources available to support patients during their illness and for rehabilitation.
- Appreciates the right of the patient (*and their relatives*) to be fully informed and a patient's right to accept or refuse advice regarding treatment.
- Application of McDonald criteria in the diagnosis of MS
- EDSS assessment for Tysabri

## ASSESSMENT & LEARNING METHODS

- DOPS: EDSS assessment
- Journal Club
- RITE exam
- Test ability of application of McDonald criteria

**Assessment at SpR Year 1 - 4**

## Disorders of The Spine And Spinal Cord

**Objective:** To provide trainees with skills and knowledge to assess and manage the patient with a neurological disturbance affecting the spinal cord.

### KNOWLEDGE

- The anatomy of the spine and spinal cord, features of regional damage at different levels.
- Clinical features of spinal cord, nerve root and cauda equina syndromes including cervical myelopathy, cord compression, cauda equina compression, lumbosacral and cervical spondylotic radiculopathy, spinal abscess, spinal cord ischaemia, infarction and haemorrhage, and subacute combined degeneration of the spinal cord.
- Indications for urgent investigation including an understanding of the potential and limitations of spinal MRI scanning; indications for myelography and indications and risks of spinal angiography.
- Common neurosurgical procedures performed on the spine and spinal cord. Their indications, limitations and risk.
- Principles of management of paraplegia and the role of specialist spinal injury units.
- Advise on and expedite the emergency management of spinal cord or cauda equina compression.
- Advise on the management of cervical spondylosis, low back pain and sciatica.
- Assist in the assessment and long-term management of patients with disability due to spinal cord disease.
- Recognises the importance of urgent investigation and treatment and the contributions made by the neuroradiological and neurosurgical services in dealing with a neurological disturbance affecting the spinal cord.
- Appreciates the need to involve other health professionals in optimising the care of the patient. Shows willingness and the capacity to work within the multidisciplinary teams.

### SKILLS

- Recognition and management of acute and progressive spinal cord damage
- To identify important symptoms and signs of spinal cord dysfunction through neurological examination.
- The ability to formulate a strategy for investigation of patients with disorders of the spine and spinal cord.
- Management of spinal injury.

### ASSESSMENT & LEARNING METHODS

- Case based discussion
- Study Day
- RITE exam

**Assessment at SpR Year 1 - 4**

## Movement Disorders

**Objective:** *To be able to diagnose, investigate and manage common movement disorders to include Parkinsonism, chorea/athetosis, dystonia, tics and tremor.*

### KNOWLEDGE

- Parkinsonism, chorea/athetosis, dystonia's
- Specific knowledge of MRI/CT scan appearances in movement disorders: use of gene testing and other blood tests.
- Knowledge of optimal appropriate therapy/treatment of movement disorders.
- Awareness and use of support services and patient organisations for patients and carers.
- Appreciates the importance of how knowledge of movement disorders has guided therapy to date and the importance of considering applying emerging knowledge to the advantage of patients.
- Prepared to recognise and discuss the concerns of patients (*and their relatives*) in relation to the diagnosis offered.

### SKILLS

- Interpret clinical features and make differential diagnosis in Parkinsonism, chorea/athetosis, dystonia, tics and tremors.
- Use of appropriate investigations to make a diagnosis and guide treatment.

### ASSESSMENT & LEARNING METHODS

- Case based discussion
- Study Day
- RITE exam
- DOPS: BoTox injection

**Assessment at SpR Year 1 - 4**

## Motor Neurone Disease

**Objective:** *The trainee will be able to diagnose and manage motor neurone disease and distinguish the condition from other causes of muscle wasting.*

### KNOWLEDGE

- Understand the pathology of motor neurone disease, presentations, clinical patterns, prognosis.
- Diagnostic features, differential diagnosis.
- Principles of palliative care.
- Take a history from patient and care; examine the nervous system with particular attention to evidence of muscle wasting.
- Knowledge of investigatory technique (e.g. *EMG, NCS*) and use of mimic screen.
- Symptomatic treatment and management of complications.
- Involvement of multidisciplinary team.
- Breaking bad news.
- Values the importance of treating symptoms and the life threatening complications of motor neurone disease and the need to take control of symptom management and to enlist the help of other agents and services as required in the patient's best interests.

### SKILLS

- Diagnose and manage motor neurone disease

### ASSESSMENT & LEARNING METHODS

- Case based discussion
- Study Day
- RITE exam

**Assessment at SpR Year 1 - 4**

## Disorders of Peripheral Nerves And Muscles

**Objective:** *To be familiar with the clinical presentation and diagnosis of common neuromuscular conditions, to recognise typical patterns of motor and sensory deficit and formulate an appropriate differential diagnosis.*

### KNOWLEDGE

- Background knowledge of the anatomy and pathology of peripheral nerve and muscle.
- Neuropathies:
  - *Axonal and demyelinating*
  - *Entrapment neuropathies and plexopathies*
  - *Environmental toxin and drug-induced neuropathy Inflammatory/immune*
  - *Critical illness neuropathies and myopathies*
- Motor neurone disease, inflammatory muscle disease
- Inherited disease of muscle and nerve; muscular dystrophy, Charcot-Marie-Tooth disease.
- Disorders of the neuromuscular junction; myasthenia gravis etc.
- Appreciates the importance of neuroanatomy, neurophysiology and medical genetics in understanding diseases of the peripheral nerves and muscles and guiding the development of the therapeutic strategies employed.
- Appreciates the need for close working with laboratory, radiology and other specialist services in correctly making a diagnosis and the value of multidisciplinary team working in delivering effective treatment.

### SKILLS

- Diagnose and management of common neuromuscular conditions
- Management of acute neuromuscular paralysis.
- To be able to interpret the results of nerve conduction studies and EMG and apply these to clinical decision-making.
- To be clinically competent in the assessment and management of patients with acute and chronic neuromuscular paralysis both in the general ward and intensive care setting.

### ASSESSMENT & LEARNING METHODS

- Study Day
- Muscle pathology day (North/South)
- RITE exam

**Assessment at SpR Year 1 - 4**

## Disorders Affecting The Cranial Nerves

**Objective:** To equip the trainee with the knowledge necessary to diagnose disorders of the cranial nerves and their central connections, to carry out appropriate investigations, and to formulate management plans for these disorders.

### KNOWLEDGE

- Cranial neuropathies
- The anatomy of the skull base, particularly the orbit, cavernous sinus, pituitary fossa, foramen magnum and jugular foramen.
- Pathological processes involving the cranial nerves and their central connections.
- Methods of clinical assessment of cranial nerve function.
- The use and limitation of investigative techniques in the cranial nerves, including CSF analysis, imaging, EMG, video fluoroscopy, VER, ERG and audiometry.
- Appreciates the value of careful physical examination of the whole patient as well as the nervous system and of enlisting other specialist services in arriving at a correct diagnosis.
- Refers appropriately for specialist investigations and neurosurgical assistance.

### SKILLS

- Management of cranial nerve disorders including multiple disciplinary approaches to cerebellopontine angle and pituitary disorders.

### ASSESSMENT & LEARNING METHODS

- DOPS: Eye Movements
- DOPS: Facial nerve palsy
- Journal clubs
- RITE exam

**Assessment at SpR Year 1 - 4**

# Neurotoxicology

**Objective:** To understand, diagnose and detect the acute and chronic effects of toxins on the nervous system and be able and prepared to respond to the needs of sufferers and their carers.

## KNOWLEDGE

- Acute and chronic effects of substances with toxic effects on the nervous system
- Biochemistry and neuropathy of exposure to:
  - Alcohol and other recreational drugs (cocaine, amphetamine, opiates)
  - Heavy metals, pesticides and
  - Therapeutic agents (e.g. chemotherapeutic agents, lithium)
- Clinical features of:
  - Alcohol induced neurological syndromes (delirium tremens, withdrawal seizures, Wernicke-Korsakoff etc)
  - Cocaine, opiate, amphetamine neurotoxicity
  - Pb, Hg, Mn, CO, NO and organophosphate poisoning
- Neurotoxicity from therapeutic agents (e.g. vincristine, lithium)
- Understand the value and timing of blood and urine sampling in toxicology and the likely value of imaging and neurophysiology in specific conditions.
- Know the tests required for assessment of organ damage.
- Knowledge of the effects of neurotoxins on other organ systems.
- Psychiatric morbidity associated with substance abuse.
- Management of common intoxications, particularly ethanol, including local plans/practice for alcohol and sedative drug withdrawal. Location of poison centres.
- Epidemiology of alcoholism and other drug abuse, including both medical and social consequences and their cost (*direct and indirect*). Prognosis, medically and socially of long-term addicts. Co-morbidity amongst carers and family.
- Names of relevant organisations for alcohol, drug, substance abuse and how to access them.

### Acute and chronic effects of substances with toxic effects on the nervous system

- Knowledge of the importance of an understanding of biochemistry and toxicology in the interpretation of the syndromes and effects produced by various neurotoxins including therapeutic agents.
- Knowledge of patient and family support organisations

## SKILLS

Diagnose and detect acute and chronic effects of common toxins on the nervous system

## ASSESSMENT & LEARNING METHODS

- Study Day
- RITE exam

Assessment at SpR Year 1 - 4

# Headache

**Objective:** The trainee will be able to diagnose and treat common causes of headache and distinguished benign causes from sinister ones.

## KNOWLEDGE

- Assessment and management of patients complaining of headache
- Common causes of headaches, persistent or recurrent. Clinical features distinguishing different causes and types including psychological.
- Investigatory techniques *e.g. appropriate urgent use of blood tests, lumbar puncture, brain scanning.*
- Advise and arrange treatment which is appropriate to patient's needs.
- Take a history from headache sufferer, recognising important diagnostic features and identifying a psychological contribution.
- Examination of the nervous system, particularly identification of papilloedema, temporal arteritis. Investigate appropriately.
- Values the importance of treating symptoms and dealing with the patient's (*and their relatives*) concerns.

## SKILLS

- Differentiate common causes and more serious underlying problems of headaches.
- Recognise papilloedema

## ASSESSMENT & LEARNING METHODS

- DOPS: Assessment of papilloedema
- DOPS: Bedside assessment of visual fields
- RITE Exam
- Case based discussion

**Assessment at SpR Year 1 - 4**

## Pain

**Objective:** To be able to reach an accurate (safe) working diagnosis in a patient with pain and advise on or arrange for appropriate management.

### KNOWLEDGE

- Understanding and managing pain
- Theories of pain generation and knowledge of pain patterns in neurological disease.
- Knowledge of systemic disease which can present with neurological pain (e.g. *brachialgia from plexus infiltration*).
- Pharmacology of various agents used in pain relief.
- Psychosocial effects of chronic pain.

### SKILLS

- To be able to manage pain using appropriate pharmacological and non-pharmacological methods.
- Recognise and utilise the additional range of expertise in other disciplines to manage pain.
- Appreciates the need to understand the mechanisms involved in the generation and perception of pain and the treatment modalities available for its modification.
- Sensitive to the psychological and social effects of chronic pain on patients and their families.

### ASSESSMENT & LEARNING METHODS

- Study Day
- RITE exam

**Assessment at SpR Year 1 - 4**

# The Autonomic Nervous System (ANS)

**Objective:** To be familiar with the anatomy, pathophysiology, assessment and management of clinical disorders affecting the ANS primarily or occurring as part of another disease.

## KNOWLEDGE

- Understanding, assessing and managing disorders of the ANS
- Essential anatomy physiology and neurophysiology of the ANS and of the clinical disorders primarily affecting the ANS or occurring as part of other conditions.
- Examination techniques including autonomic function tests and special clinical methods.
- To be able to seek, recognise and investigate evidence of ANS disorders.
- To be able to manage postural hypotension and other manifestations of disease of ANS.
- Appreciates how knowledge and an understanding of the autonomic nervous system can guide therapeutic and management strategies employed.
- Aware of the potential contributions that can be made by other specialist departments and services.

## SKILLS

- Assessment and management of clinical disorders affecting the ANS

## ASSESSMENT & LEARNING METHODS

- Case Based discussion
- Study Day
- RITE exam

**Assessment at SpR Year 1 - 4**

# Uroneurology

**Objective:** To provide the trainees with the skills and knowledge to assess and manage appropriately patients with uroneurological symptoms.

## KNOWLEDGE

- Assessment and management of disorders of micturition and sexual function caused by neurological disease
- An understanding of the normal control of micturition and sexual function.
- The differential diagnosis of causes of disorders of micturition, erectile dysfunction, hyposexuality and hypersexuality.
- Treatment strategies for disorders of micturition and sexual function.
- An understanding of the contribution offered by Urologists in this field.
- Able to identify the salient features in history and the appropriate and relevant physical signs present to enable a diagnosis and differential diagnosis of the cause of complaint to be made.
- The ability to formulate a strategy for investigation of patients with uroneurological problems.
- To consider and advise on early and long-term management of patients with long-term bladder, bowel and sexual dysfunction as a result of neurological disease.
- Appreciates and is prepared to deal with the sensitivities and concerns of patients suffering from disorders of micturition or sexual function.
- Appreciates how knowledge and an understanding of the normal control of micturition and of sexual function can guide the therapeutic approach to the problems experienced by patients.
- Appreciates the value of multidisciplinary team working in providing support for the patients. Uses the full range of professional skills and resources available for the patient's support.

## SKILLS

- Assess and manage patients with uroneurological symptoms

## ASSESSMENT & LEARNING METHODS

- Case based discussion
- Study Day
- RITE exam

**Assessment at SpR Year 1 - 4**

# Sleep Disorders

**Objective:** To acquire knowledge, skills and attitudes to evaluate and treat patients with common sleep disorders.

## KNOWLEDGE

- The diagnosis, effects of sleep disorders and their management
- Differential diagnosis of sleep disorders. Narcolepsy, daytime hypersomnolence, parasomnia, obstructive sleep apnoea.
- Effects of neurological conditions on sleep.
- Indications, scope and limitations of the sleep laboratory. Effects of sleep on the EEG.
- Principles of physical treatment. Principles of pharmacological treatment.
- Driving regulations. Consequences and complications of sleep disorders.
- Understands the role of investigations in evaluation of patients with possible sleep disorders.

## SKILLS

- Utilises appropriately the pharmacological, physical and psychological therapies available.
- Able to convey important information to patients; shows empathy and appropriate attitude to patients and relatives.
- Appreciates the potential effects of sleep disorders on patients and their families.
- Recognises the potential contribution of specialist departments to the investigation and management of patients with disorders of sleeping.
- Shows awareness of the potential disturbance created by sleep disorders on sufferers and their families.

## ASSESSMENT & LEARNING METHODS

- Case based discussions
- Study Day
- Sleep disorder day in Mater (optional)
- RITE Exam

**Assessment at SpR Year 1 - 4**

# Endocrinology

**Objective:** *The trainee will be able to diagnose common endocrinological conditions and recognise their effects on the nervous system.*

## KNOWLEDGE

- Endocrine disease and the nervous system
- Signs, symptoms and biochemistry of common endocrinological conditions, for example under and over active pituitary, thyroid and adrenal glands, and malfunction of the hypothalamus.
- Anatomy and imaging of hypothalamus and pituitary.
- Treatment options available.
- Familiar with the principles of relevant endocrinological tests and their application.
- Appreciates the need to liaise with laboratory and specialist endocrinological services in making a diagnosis and planning treatment. Refers appropriately.

## SKILLS

- Diagnose and manage common endocrinological conditions

## ASSESSMENT & LEARNING METHODS

- Case Based Discussion
- RITE Exam

**Assessment at SpR Year 1 - 4**

# Oncology

**Objective:** To enable the doctor to diagnose and appropriately manage patients with tumours of the nervous system or neurological complications of cancer or treatment. The level of competence will be that to be expected of a consultant neurologist with access to adequate diagnostic investigations and with adequate neurosurgical, oncological and nursing support available.

## KNOWLEDGE

- Managing the effects of malignant disease and its treatment
- The clinical features of the common tumours of the nervous system including malignant meningitis, neuropathological classification of brain tumours.
- The clinical features and immunology of the main Paraneoplastic syndromes and their effects on the nervous system.
- Benefits and risks of various therapies including surgery and radiotherapy. Neurological complications of chemotherapy and radiotherapy.
- Ethical and legal aspects of terminal care.
- History and neurological examination skills: selection of appropriate investigation techniques.
- Recognition of metastatic and non-metastatic (*paraneoplastic*) malignant disease on the nervous system.
- Enlists support services and outside agencies/organisations for patients and carers.
- Breaking bad news; communication skills and attitudes needed for management of the terminally ill.
- While appreciating that a cure is not generally attainable in this group of diseases, shows appropriate recognition that newer treatment programmes and approaches have the potential to achieve a better treatment outcome.
- Appreciates and is willing to explain the potential benefits as well as the risks of treatment.
- Balances risk with benefit in arriving at a decision regarding treatment.
- Recognises the need to involve other specialists including palliative care in the management of patients.

## SKILLS

- Diagnose and manage patients with tumours of the nervous system

## ASSESSMENT & LEARNING METHODS

- Case based discussion
- Monthly neuro oncology meetings
- Study Day
- Ethics
- RITE Exam

**Assessment at SpR Year 1 – 4**

## Neurosurgery (Optional)

**Objective:** To provide the trainees with factual knowledge of the capability and limitations of neurosurgery in common neurological conditions.

### KNOWLEDGE

- Place of neurosurgery, appropriate referral
- Clinical features, natural history, investigation, treatment and prognosis of:
  - Head injury
  - Brain tumour
  - Spinal cord compression
  - Intracranial and spinal abscess
  - Epilepsy
- Pain syndromes: Extradural, subdural and intracerebral haematoma
- Intracranial aneurysm, carotid artery stenosis
- Nerve root compression
- Congenital abnormalities of skull and spine
- Parkinson's disease
- Recognises own limitations regarding management and is prepared to refer in a timely and appropriate way.
- Ensures that accurate and complete clinical information is provided for referral/handover.
- Appreciates the rights of patients (and their relatives) to be fully informed of the risks and benefits of any treatment or investigations proposed and of the possible outcomes.
- Obtains informed consent and accepts the patient's right to accept or refuse advice/referral.

### SKILLS

- To assess the need for and urgency of neurosurgical referral.
- To be able to give patients a realistic expectation of results of neurosurgical treatment.

### ASSESSMENT & LEARNING METHODS

- Study Day
- RITE Exam

**Please Note:** One or two neurosurgical procedures should be observed by the trainee (e.g. when based in Cork University Hospital or Beaumont Hospital).

**Assessment at SpR Year 1 - 4**

## Intensive Care

**Objective:** *To enable the doctor to manage neurological disorders in the neurological or general intensive care unit. The level of competence will be that to be expected of a consultant neurologist with access to adequate diagnostic investigations and with adequate anaesthetic, neurosurgical and nursing support available.*

### KNOWLEDGE

- Neurological involvement in ICU
- The clinical features and causes of coma.
- Neurological complications of major surgery.
- Understands the principles of cardiovascular and respiratory support.
- Indications for and methods of artificial nutrition of patients in the ITU.
- Legal and ethical issues in brainstem death, coma and PVS, including organ donation. Definition and diagnosis of brainstem death.
- Appropriate management of status epilepticus.
- Recognise the causes, clinical features and management of severe neuromuscular paralysis.
- Ability to work well with anaesthetic or intensivist colleagues for optimal patient care.
- Demonstrates attitudes and exhibits communication skills needed for the management of ICU patients and their relatives.
- Shows willingness and the capacity to work within the multidisciplinary team, providing specialist neurological opinion and expertise as required.
- Understands the legal and ethical issues involved. Appreciates the rights of patients (and their relatives) to be fully informed of the results of investigations, tests and of treatment intentions.

### SKILLS

- Manage neurological disorders in the neurological or general intensive care

### ASSESSMENT & LEARNING METHODS

- Case based discussions
- Ethics
- Attend in-house ICU training
- RITE exam

**Assessment at SpR Year 1 - 4**

## Rehabilitation

**Objective:** To provide the trainee with the knowledge and skills to assess function and prognosis, advise on setting realistic goals and assist in the planning of programmes for the rehabilitation of patients with various neurological problems.

### KNOWLEDGE

**Rehabilitation following stroke, head injury and e.g. in patients with multiple sclerosis, spinal cord lesions, peripheral neuropathies etc.**

- To have knowledge of the principles, and the methods and skills available to assist in the rehabilitation of patients with various neurological disorders.
- To understand the potential benefits and limitation of neurorehabilitation.
- To be familiar with relevant financial/social support legislation and availability of and access to care in the community: know of relevant patients' support groups.
- Explain the purpose, potential value and limitations of neurorehabilitation.
- Able to perform and utilise information from a functional assessment.
- Contribute to and lead an MDT meeting being aware of the different role, skills, approach and agenda of members of a rehabilitation team. Set realistic goals and timeframes.
- Put the patient's problems into their proper social perspective.
- Prepared to use the full range of professional skills and resources available to support the patient during their illness and its rehabilitation. Has the capacity to provide leadership while working within the multidisciplinary team.

**Please Note:** A period of sub-specialty training in rehabilitation could be considered as part of neurology training – if it can be arranged, with the trainer's and NSD's approval

### SKILLS

- Planning rehabilitation of patients #
- Multidisciplinary team meetings

### ASSESSMENT & LEARNING METHODS

**Assessment at SpR Year 1 - 4**

## Neurological Diseases in Special Groups

**Objective:** To have a working knowledge of the clinical presentations, assessment and management of neurological diseases presenting in special identifiable groups of patients.

## Neurological Diseases in Children (Optional)

**Objective:** A working knowledge of the common clinical presentations of neurological diseases in children: normal versus abnormal child development: methods of assessment/investigation

### KNOWLEDGE

- Paediatric neurology
- Developmental disorders.
- Metabolic conditions.
- Cerebral palsy.
- Learning disability and autism.
- Epilepsy.
- Migraine and stroke in childhood.
- Muscular dystrophy and other neuromuscular conditions.
- Effects of anticonvulsant drugs in utero.
- Complications of intrauterine infection, childhood infections and immunisation.
- Key stages of development and range of normality.
- MRI and EEG appearances in childhood.
- Specialised community and hospital services for children. Health service and social service agencies. Role of educational psychologist (*statements of special needs*); special needs educational services.
- The limitations of adult neurology in childhood.

**Please Note:** Access to training in these competencies are very limited unless one undertakes subspecialty training in paediatrics – if would be useful for trainees to have a 3 month rotation through a Paediatric Neurology department as part of their training programme.

### SKILLS

- Ability to distinguish normal and abnormal child development.
- Interpretation of results of neurological investigations in children.
- Endeavours to communicate effectively with children and with their parents and other agencies involved in child care.
- Shows willingness and a capacity to work within the multidisciplinary team which includes paediatric specialists and paediatric specialist services.
- Recognises the impact of developmental, genetic and other paediatric neurological conditions not only on the child but on the whole family.
- Endeavours to deal sensitively with the concerns, anxieties and fears of parents and the limited understanding of disease and its implications by children suffering.

### ASSESSMENT & LEARNING METHODS

- Case based discussion
- RITE exam

## Reproduction and Pregnancy In Neurology

**Objective:** *The trainee will obtain the knowledge and skills necessary to be able to manage neurological problems in women of reproductive age and neurological conditions in pregnancy.*

### KNOWLEDGE

- Neurological problems in pregnancy and women of reproductive age
- Effects of menarche, menstrual cycle and menopause on common neurological disorders.
- Methods of contraception, failure rate and interaction with drugs (*especially antiepileptic drugs*).
- Teratogenic risks of commonly prescribed drugs (*especially AEDs*).
- Genetic risk factors of neurological diseases, prenatal diagnosis of neurological conditions.
- Psychosexual dysfunction in neurological illness (*especially epilepsy*).
- Basic embryology; effect of pregnancy on existing neurological disorders; neurological disorders as complications of pregnancy; eclampsia; neonatal complications in offspring of affected women; communication with obstetricians.

### SKILLS

- Recognise and advise on the effects of pregnancy, menstruation, contraception and psycho-sexual dysfunction in relation to neurological disease.
- Advise on the teratogenic risks of prescribed drugs, the risks of genetically-linked disease.
- Shows willingness and the capacity to provide leadership and to work within the multidisciplinary team.
- Recognises the need to provide patients with neurological disease with information regarding the risks of pregnancy, genetic risk and the potential risk of prescribed drugs.
- Recognises the rights of patients to accept or to refuse advice.

### ASSESSMENT & LEARNING METHODS

- Case based discussion
- RITE exam

# Neurological Diseases in the Elderly

**Objective:** *The trainee must be able to manage neurological disorders as they occur in the elderly.*

## KNOWLEDGE

### Neurology in older patients

- Normal clinical and radiological findings in the elderly.
- Special features of the presentation and course of the common neurological diseases encountered in older people.
- Effects on the nervous system of drugs commonly used in the elderly.
- Early recognition of dementia, causes and investigation: treatments available.
- Hospital and community based services for older people.

## SKILLS

- Ability to differentiate abnormal neurology from normal clinical and radiological features seen in older people.
- Able to recognise atypical presentations, investigate appropriately and manage safely dementia and other neurological disorders when they present in the elderly.
- Effective, timely communication with patients, their relatives and carers: recognises legal and ethical guidelines in dealing with non-competent or partially competent patients; recognises patient's right to decide, responds to patients needs.
- Appreciates the value of working within the multidisciplinary team including specialists in medicine of the elderly and other health professionals in optimising the care of the elderly patient, providing leadership where necessary.

## ASSESSMENT & LEARNING METHODS

- Study day
- RITE Exam

## Tropically Acquired Neurological Disease

**Objective:** *The trainee will acquire the knowledge and skills to diagnose and manage common tropical neurological disorders.*

### KNOWLEDGE

**Neurological aspects of the common tropical diseases e.g. malaria, AIDS/TB, leprosy, cysticercosis, encephalitis etc.**

- Infectious agents, parasites responsible; transmission, vectors, geographical distribution. Prophylactic measures available.
- Chemotherapy, efficacy and risks of therapeutic agents used; drug resistance.
- Presentations, neurological features, investigation, diagnosis; complications, prognosis.

### SKILLS

- Able to recognise common tropically acquired disease when the present and to advise on the management of their effects on the nervous system.
- Utilises appropriate investigations to confirm clinical diagnosis, capable of advising on management of neurological features.
- Appreciates the importance of a detailed knowledge of the tropical disease, the infectious agent concerned and its transmission in determining the therapeutic strategies required.
- Shows appropriate use of the laboratory and refers for expert assistance as required.
- Prepared to deal with the public health concerns and issues surrounding the case/cases.

### ASSESSMENT & LEARNING METHODS

- Study day
- RITE Exam

## Minimum Requirements for Training

Curriculum Requirement	Required/Desirable	Minimum Requirement	Reporting Period	Form Name
<b>Section 1 - Training Plan</b>				
<b>Personal Goals Plan</b> (Copy of agreed Training Plan for your current training year signed by both Trainee & Trainer)	Required	1	Training Post	Form 052
<b>Weekly Timetable</b> (Sample Weekly Timetable for Post/Clinical Attachment)	Required	1	Training Post	Form 045
<b>On Call Rota</b>	Required	1	Training Post	Form 064
<b>Section 2 - Training Activities</b>				
<b>Outpatient Clinics</b>				
General Neurology Outpatients (minimum of 2 outpatient clinics per week)	Required	80	Year of Training	Form 001
Specialised Neurology Clinics (up to 5 or more subspecialties)	Required	1	Year of Training	Form 001
<b>Ward Rounds/Consultations</b>				
Consultant led (minimum 1 per week)	Required	40	Year of Training	Form 002
SpR led (1 per week)	Required	40	Year of Training	Form 002
Consultations	Required	1	Year of Training	Form 002
<b>Emergencies/Complicated Cases</b>				
(Diagnosis of nature of problem and its presentation, emergency case for investigation)	Desirable	1	Year of Training	Form 003
<b>Procedures/Practical Skills/Surgical Skills</b>				
Neuroimaging	Required	1	Training Programme	Form 004
Neuropathology	Required	1	Training Programme	Form 004
Neurophysiology	Required	1	Training Programme	Form 004
<b>Additional/Special Experience Gained</b>				
Neuro-Rehabilitation Intensive Care	Required	1	Training Programme	Form 005
Pain Management	Required	1	Training Programme	Form 005
Uro Neurology	Required	1	Training Programme	Form 005
Neuro-psychiatry/psychology	Required	1	Training Programme	Form 005

Curriculum Requirement	Required/Desirable	Minimum Requirement	Reporting Period	Form Name
Paediatric Neurology	Required	1	Training Programme	Form 005
Head Injury	Required	1	Training Programme	Form 005
Neuro-ophthalmology/otology	Required	1	Training Programme	Form 005
Genetics	Required	1	Training Programme	Form 005
Spinal Injury	Required	1	Training Programme	Form 005
<b>Relatively Unusual Cases</b>	Desirable	1	Training Programme	Form 019
<b>Chronic Cases/Long term care</b>	Desirable	1	Training Programme	Form 066
<b>ICU/CCU</b>	Desirable	1	Year of Training	Form 090
<b>Management Experience</b>	Desirable	1	Training Programme	Form 110
<b>Section 3 - Educational Activities</b>				
<b>Mandatory Courses</b>				
Mastering Communications (Year 1)	Required	1	Training Programme	Form 006
Audit	Required	1	Training Programme	Form 006
Leadership Skills (Year 3+)	Required	1	Training Programme	Form 006
Ethics I: Professionalism	Required	1	Training Programme	Form 006
Ethics II: Ethics & Law	Required	1	Training Programme	Form 006
Ethics III: Research	Required	1	Training Programme	Form 006
Ethics IV: End of Life	Required	1	Training Programme	Form 006
ACLS	Required	1	Training Programme	Form 006
<b>Non – Mandatory Courses</b>	Desirable	1	Training Programme	Form 007
<b>Study days</b> <b>See the following examples:</b> Neuropathology; Neuroradiology; Pharmacology; Immunology; Genetics; Neurophthalmology; Neurotology; Psychology & Neuropsychiatry; Aids and other infections of the nervous systems; Disordered consciousness; Neurosurgical (Head Injury); Epilepsy and altered consciousness; Movement disorders; Motor neurone disease; Disorders of nerves; Disorders of muscles; Neurotoxicology; Uroneurology; Sleep disorders; Neurosurgery; Neurological diseases in the elderly; Disorders of the Spine; Pain; Autonomic Nervous System; Neuro-Oncology; Tropically acquired neurological disease; Brain tumour & muscle pathology day	Required	8	Year of Training	Form 008
<b>Neurology Grand Rounds attended during training</b>	Required	20	Year of Training	Form 095
<b>In-house activities</b>				

<b>Curriculum Requirement</b>	<b>Required/Desirable</b>	<b>Minimum Requirement</b>	<b>Reporting Period</b>	<b>Form Name</b>
Hospital Grand rounds (Minimum attend 1 per month)	Required	10	Year of Training	Form 011
Journal clubs (Minimum attend 1 per month)	Required	10	Year of Training	Form 011
Radiology conference	Required	1	Year of Training	Form 011
Pathology conference	Required	1	Year of Training	Form 011
MDT meetings (Minimum attend 1 per month)	Required	10	Year of Training	Form 011
Seminar	Required	1	Year of Training	Form 011
Lecture	Required	1	Year of Training	Form 011
<b>Examinations</b>				
RITE Exam	Required	1	Year of Training	Form 012
<b>Formal Teaching Activity</b> (1 formal teaching session per month)				
Lecture	Required	4	Year of Training	Form 013
Tutorial	Required	4	Year of Training	Form 013
Bedside teaching	Required	4	Year of Training	Form 013
<b>Research</b>	Desirable	1	Training Programme	Form 014
<b>Audit activities</b> (1 audit per year either to start or complete)	Required	1	Year of Training	Form 015
<b>Publications</b>	Desirable	1	Year of Training	Form 016
<b>Presentations</b> (1 oral or poster presentation per year outside of Beaumont grand rounds)	Required	1	Year of Training	Form 017
<b>National/International meetings</b> (minimum 3 per year)	Required	3	Year of Training	Form 010
<b>Additional Qualifications</b>	Desirable	1	Training Programme	Form 065
<b>Section 4 - Assessments</b>				
<b>DOPS</b>				
EEG	Required	1	Training Programme	Form 021
EMG	Required	1	Training Programme	Form 021
NCS	Required	1	Training Programme	Form 021
Lumbar Puncture	Required	1	Training Programme	Form 021
Brainstem death testing (formal)	Required	1	Training Programme	Form 021
Bedside cognitive assessment	Required	1	Training Programme	Form 021
Full formal eye movement assessment	Required	1	Training Programme	Form 021
Assessment of papilloedema	Required	1	Training Programme	Form 021

Curriculum Requirement	Required/Desirable	Minimum Requirement	Reporting Period	Form Name
Botox injection	Required	1	Training Programme	Form 021
Bedside assessment of visual fields	Required	1	Training Programme	Form 021
<b>CBD</b> <b>See the following examples:</b> Clinical Neurophysiology; Neuroradiology; Immunology; Genetics; Infections of the nervous system; Cerebrovascular disease; Dementia; Spinal cord injury; Epilepsy; Movement disorders; Motor neurone disease; Headache; The Autonomic nervous system; Uroneurology; Sleep Disorders; Neuro Oncology; Intensive care; Neuro paediatrics; Reproduction and Pregnancy in Neurology	Required	2	Year of Training	Form 020
<b>Mini-CEX</b> (At least two Mini-CEX assessments)	Required	2	Year of Training	Form 023