

Condensed

**ICHMT Committee Meeting**

**"2<sup>nd</sup> Generation Endocrinology & Diabetes Mellitus Curriculum – 27.09.2006  
SpR curriculum without Assessment Methods and Generic Component**

# **IRISH COMMITTEE ON HIGHER MEDICAL TRAINING**

---

Curriculum of Training  
In  
ENDOCRINOLOGY &  
DIABETES MELLITUS

**SEPTEMBER, 2006**

© Royal College of Physicians of Ireland.

1<sup>st</sup> Edition – <Month, Year>

**Document Prepared By:**

Dr. Seamus Sreenan, National Specialty Director in Endocrinology, ICHMT, RCPI.

Dr. Stanley Roberts, Chairman of ICHMT, RCPI.

Ms. Jacque Brett, Education Projects Manager, RCPI.

# Table of Contents

	<b>PAGE</b>
Section 1: General Overview of Training in Endocrinology & Diabetes Mellitus	1
• Introduction	2
• Aims	2
• Entry Requirements	3
• Duration & Organisation of Training	3
• Flexible Training	4
• Training Programme	4
• Teaching, Research & Audit	4
• Training Record	4
• Assessment Process	5
• Facilities	5
• Annual Review – the PeTRA Process	6
• Content of the Curriculum	6
Section 2: Specialty Section for Endocrinology & Diabetes Mellitus	8
• Aims	9
• Duration & Organisation of Training	9
• Contents	9
• Domains	9
1. Hormones: the Pathophysiology of the Endocrine System	11
2. Diabetes Mellitus	15
3. Other Metabolic Disorders	24
4. The Endocrine Glands and their Diseases	30
5. The Diffuse Endocrine System	39
6. Miscellaneous Endocrine Disorders	41
7. Required Experiences in Endocrinology and Diabetes	44

# Section 1:

## General Overview of Training

in

# Endocrinology & Diabetes

# Mellitus

### Index:

	<b>PAGE</b>
• <b>Introduction</b>	<b>2</b>
• <b>Aims</b>	<b>2</b>
• <b>Entry Requirements</b>	<b>3</b>
• <b>Duration &amp; Organisation of Training</b>	<b>3</b>
• <b>Flexible Training</b>	<b>4</b>
• <b>Training Programme</b>	<b>4</b>
• <b>Teaching &amp; Research &amp; Audit</b>	<b>4</b>
• <b>Training Record</b>	<b>4</b>
• <b>Assessment Process</b>	<b>5</b>
• <b>Facilities</b>	<b>5</b>
• <b>Annual Review – the PeTRA Process</b>	<b>6</b>
• <b>Content of the Curriculum</b>	<b>6</b>

## Introduction:

- 1.1 Endocrinology and Diabetes Mellitus is a predominantly clinical specialty dealing with diseases of the endocrine glands as they affect people of all ages. Besides the pathophysiological processes involved and the physical impact of each condition, psycho-social effects must also be understood. The potential benefits and risks of specific treatments must be learned and experience gained in the multi-disciplinary approach to management of patients with diabetes mellitus. The physician may later wish to subspecialise in Endocrinology or Diabetes Mellitus develop to a greater extent, so it is important that an interest in such topics can be facilitated during training.
- 1.2 Besides these specialty specific elements, trainees in Endocrinology and Diabetes Mellitus must also acquire certain core competencies which are essential for good medical practice. These comprise the generic components of the curriculum.

## Aims:

- 2.1 Upon satisfactory completion of specialist training in Endocrinology & Diabetes Mellitus, 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.
- 2.2 **Competencies**, at a level consistent with practice in the specialty of Endocrinology & Diabetes Mellitus, 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 informational 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 Endocrinology & Diabetes Mellitus.
  - 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.
- 2.3 **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:

- 3.1 Applicants for Higher Medical Training (HMT) in Endocrinology & Diabetes must have completed a **minimum** of two years General Professional Training (GPT) in approved posts and obtained the MRCP(I) or (UK).
- 3.2 For MRCP(I) or (UK) holders, GPT\* should consist of a minimum of 24 months involved with direct patient care. A period of six months training in the speciality is desirable.
- \*GPT 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.
  - 18 months of the two years must be spent in posts providing experience in the admission and early follow-up of acute emergencies.
  - At least 6 of these 18 months must be spent on a service or services in which the emergencies are "unselected".  
(*"unselective take" describes the admission of acute medical patients whose problems encompass the broad generality of medicine i.e. not restricted to a single or small group of specialties. If any major component of acute medicine e.g. cerebro-vascular accidents, myocardial infarctions is excluded from the take, this experience must be gained from other posts.*)
- 3.3 Those who do not hold an MRCP or equivalent qualification must provide evidence of appropriate knowledge, training and experience similar to the above, particularly with regard to dealing with acute (medical) conditions.

## Duration & Organisation of Training:

- 4.1 The duration of HMT in Endocrinology & Diabetes Mellitus is 4 years, one year of which **may** be gained from a period of full-time research. Those who wish to obtain dual certification in Endocrinology & Diabetes Mellitus and in General (Internal) Medicine will require at least a fifth year of training.
- 4.2
- Attendance at a minimum of 100 diabetes and 100 general endocrinology clinics is an **essential** requirement for training in Endocrinology & Diabetes Mellitus.
  - Attendance at sub-specialty outpatients (*e.g. diabetes/ophthalmology, obstetrical diabetes, young adolescent diabetes, reproductive endocrinology, paediatric endocrinology, diabetes nephrology*) is **mandatory**, 10 in each case.
  - Experience of thyroid fine needle aspiration is desirable and all trainees should endeavour to perform 6 procedures under supervision.
- 4.3 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 Endocrinology & Diabetes Mellitus 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.
- 4.4 If an intended career path would require a trainee to develop further an interest in a sub-specialty within Endocrinology & Diabetes Mellitus (*e.g. pituitary endocrinology, thyroidology etc.*), this should be accommodated as far as possible within the training period, re-adjusting timetables and postings accordingly.
- 4.5 "Generic" knowledge, skills and attitudes support competencies which are common to good medical practice in all the Medical and related specialties. It is intended that all Specialist Registrars should re-affirm those competencies during Higher Medical Training. No time-scale of acquisition is offered, but failure to make progress towards meeting many of these important objectives **at an early stage** would cause concern about a SpR's suitability and ability to become independently capable as a specialist.

## Flexible Training:

- 5.1 Trainees who are unable to work full-time are entitled to opt for flexible training programmes. EC Directive 93/16/EEC requires that:
  - o *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;*
  - o *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.*
- 5.2 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 hours commitments*) required of their full-time colleagues in the same programme and at an equivalent stage.
- 5.3 For details of appointment and funding arrangements for flexible trainees, please see the current issue of the ICHMT Training Handbook.

## Training Programme:

- 6.1 The training programme offered will provide opportunities to fulfil all the requirements of the curriculum of training for Endocrinology & Diabetes Mellitus. Programmes will include 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 Endocrinology & Diabetes Mellitus or, in the case of G(I)M, the Regional Specialty Advisor. Programmes will be as flexible as possible consistent with curricular requirements, for example to allow the trainee to develop a sub-specialty interest.
- 6.2 The experience gained through rotation around different departments is recognised as an essential part of HMT. No trainee should remain in the same unit for longer than 2 years of clinical training.
- 6.3 Where an essential element of the curriculum is missing from a programme, access to it will be arranged, by day release for example, or if necessary by secondment.

## Teaching, Research & Audit:

- 7.1 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.
- 7.2 A period of supervised research relevant to Endocrinology & Diabetes Mellitus 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.
- 7.3 Trainees are required to engage in audit during training and to provide evidence of having completed the process.
- 7.4 "Generic" knowledge, skills and attitudes support competencies which are common to good medical practice in all the medical and related specialties. It is intended that all Specialist Registrars should confirm these competencies during Higher Medical (*Specialist*) Training.

## Training Record:

- 8.1 Up-to-date training records and a portfolio of achievements will be maintained by the trainee throughout HMT. 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 Endocrinology & Diabetes Mellitus Curriculum. It will remain the property of the trainee and must be produced at the annual assessment review.

- 8.2 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 Education Office and Dean of Higher Medical Training, and to respond promptly to all correspondence relating to training. "Failure to co-operate" will be regarded as, in effect, withdrawal from the ICHMT's supervision of training (see *the ICHMT Training Handbook*).
- 8.3 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:

- 9.1 The methods used to assess progress through training are outlined in Section 2: "*Teaching, Learning & Assessment Methods*" (Page 8). 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 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 Discussion (*CBD*) and 360 degree methods adapted for the purpose. These methods of assessment have been made available by the ICHMT 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.
- 9.2 **Annual Review of Training – PeTRA Process.**  
An annual review of progress through training will be undertaken on behalf of the ICHMT. At Annual Review the training record will be examined. 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 ICHMT's 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 a 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.

## Facilities:

- 10.1 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.
- 10.2 All training locations approved for HMT have been inspected by the ICHMT. 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 Endocrinology & Diabetes Mellitus to be acquired
- 10.3 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.
- 10.4 Trainees in Endocrinology & Diabetes Mellitus 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. Study time equivalent to 26 days per annum should be allocated for this formal educational programme. The schedule of appropriate educational activities will be set down by the Training Committee for Endocrinology & Diabetes Mellitus and the minimum acceptable attendance stated. Trainees should be notified in advance of dates so that they can arrange for their release. For each post, at inspection, the availability of an additional limited amount of study leave for any legitimate educational purpose has been confirmed. Applications, supported if necessary by a statement from the consultant trainer, will be processed by the relevant employer.



## Annual Review – the PeTRAP process:

- 11.1 Each year trainees undergo a formal review by a panel including the Dean, the National Specialty Director, and a 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.
- 11.2 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>**
- 11.3 During the penultimate year, an assessment (*the PYA*) reviews the evidence provided in the training records and from the portfolio on the results of the assessment methods employed (*see above*) augmented where necessary by direct enquiry. 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**).

## Content of the Curriculum:

### 12.1 **Specialty Section:**

The contents of the specialty section of the Curriculum for Endocrinology & Diabetes Mellitus have been set out under a number of headings (**Domains 1 to 7**) with short statements on the objectives to be secured under each. The **contexts** in which the competencies are to be gained are listed and numbered (*1.1 to 1.3 etc*).

Whilst trainees will not need to be expert in all these areas, they must be able to plan urgent investigation, initiate emergency therapy and, if necessary, triage cases for appropriate specialist care.

### Domains & Contexts:

	<b>PAGE</b>
<b>1. Hormones: the Pathophysiology of the Endocrine System</b>	<b>11</b>
1.1 The endocrine glands, their hormones, effects and mechanism of actions, pathology in disease	12
1.2 Clinical and laboratory assessment of endocrine function	13
1.3 Imaging techniques in endocrinology	14
<b>2. Diabetes Mellitus</b>	<b>15</b>
2.1 Diagnosis and general management of diabetes	16
2.2 Social and practical aspects	17
2.3 Diabetic emergencies	18
2.4 Intercurrent events complicating management	19
2.5 Microvascular complications of diabetes mellitus	21
2.6 Macrovascular complications	22
<b>3. Other Metabolic Disorders</b>	<b>24</b>
3.1 Disorders of appetite and weight	25
3.2 Hyperlipidaemia	26
3.3 Hypoglycaemia	27
3.4 Hypo- and hypernatraemia	28
3.5 Disorders of carbohydrate metabolism, haemochromatosis, the porphyrias	29
<b>4. The Endocrine Glands and their Diseases</b>	<b>30</b>
4.1 Hypothalamic and pituitary diseases	31
4.2 The thyroid gland	32
4.3 The adrenal glands	33

## Domains & Contexts: continued

4.4	The endocrinology of reproduction	34
4.5	Growth and development	35
4.6	Calcium metabolism and bone, the parathyroid glands.	36
<b>5.</b>	<b>The Diffuse Endocrine System</b>	<b>39</b>
5.1	The diffuse endocrine system	40
<b>6.</b>	<b>Miscellaneous Endocrine Disorders</b>	<b>41</b>
6.1	Endocrinology and malignancy	42
6.2	Hormonal changes with ageing and in systemic disease	43
<b>7.</b>	<b>Required Experiences in Endocrinology and Diabetes</b>	<b>44</b>
7.1	Required experience in diabetes mellitus	45
7.2	Required experience in endocrinology	46

## Section 2:

# Specialty Section for Endocrinology & Diabetes Mellitus

### Index:

	<b>PAGE</b>
• <b>Aims</b>	<b>8</b>
• <b>Duration &amp; Organisation of Training</b>	<b>9</b>
• <b>Content</b>	<b>9</b>
• <b>Domains</b>	<b>9</b>
1. Hormones: the Pathophysiology of the Endocrine System	11
2. Diabetes Mellitus	15
3. Other Metabolic Disorders	24
4. The Endocrine Glands and their Diseases	30
5. The Diffuse Endocrine System	39
6. Miscellaneous Endocrine Disorders	41
7. Required Experience in Endocrinology & Diabetes	44

## Aims:

- 1.1 The specialist training programme in Endocrinology & Diabetes Mellitus provides the trainee with the opportunities and means to acquire the knowledge, skills and attitudes necessary to undertake comprehensive medical practice in that speciality, unsupervised and independently and/or within a team.

## Duration & Organisation of Training

- 2.1 The duration of HMT in Endocrinology & Diabetes Mellitus is 4 years, one year of which may be gained from a period of full-time research. Those who wish to obtain dual certification in Endocrinology & Diabetes Mellitus and *e.g. in General (Internal) Medicine* will require at least a fifth year of training.
- 2.2 No particular order or sequence of training will be imposed and the programmes offered are intended to be flexible *i.e. capable of being adjusted to meet the trainees' needs*. However, certain minimum experience (*e.g. attendances at Diabetes and General Endocrinology clinics and at Subspecialty Outpatient Clinics*) is required.
- 2.3 If the intended career path requires the trainee to develop a deeper interest in a subspecialty (*e.g. Pituitary Endocrinology, Thyroidology etc*), this will be accommodated as far as possible.

## Content:

- 3.1 The contents of the specialty section of the Curriculum for Endocrinology & Diabetes Mellitus have been set out under the headings (**Domains 1 to 7**) with short statements on the objectives to be secured under each. The **contexts** in which the competencies are to be gained are listed and numbered (*1.1 to 1.3 up to 7.2*)

### Domains & Contexts

	<b>PAGE</b>
<b>1. Hormones: the Pathophysiology of the Endocrine System</b>	<b>11</b>
1.1 The endocrine glands, their hormones, effects and mechanism of actions, pathology in disease	12
1.2 Clinical and laboratory assessment of endocrine function	13
1.3 Imaging techniques in endocrinology	14
<b>2. Diabetes Mellitus</b>	<b>15</b>
2.1 Diagnosis and general management of diabetes	16
2.2 Social and practical aspects	17
2.3 Diabetic emergencies	18
2.4 Intercurrent events complicating management	19
2.5 Microvascular complications of diabetes mellitus	21
2.6 Macrovascular complications	23
<b>3. Other Metabolic Disorders</b>	<b>24</b>
3.1 Disorders of appetite and weight	25
3.2 Hyperlipidaemia	26
3.3 Spontaneous Hypoglycaemia	27
3.4 Hypo- and hypernatraemia	28
3.5 Disorders of carbohydrate metabolism, haemochromatosis, the porphyrias	29
<b>4. The Endocrine Glands and their Diseases</b>	<b>30</b>
4.1 Hypothalamic and pituitary diseases	31
4.2 The thyroid gland	32
4.3 The adrenal glands	33
4.4 The endocrinology of reproduction	34
4.5 Growth and development	35
4.6 Calcium metabolism and bone, the parathyroid glands	36

	<b>PAGE</b>
<b>5. The Diffuse Endocrine System</b>	<b>39</b>
5.1 The diffuse endocrine system	40
<b>6. Miscellaneous Endocrine Disorders</b>	<b>41</b>
6.1 Endocrinology and malignancy	42
6.2 Hormonal changes with ageing and in systemic disease	43
<b>7. Required Experience in Endocrinology &amp; Diabetes</b>	<b>44</b>
7.1 Required experience in diabetes mellitus	45
7.2 Required experience in endocrinology	46

## Domain 1: Hormones: the Pathophysiology of the Endocrine System

### Objective:

*To understand and be able to explain the normal and abnormal production of hormones, their regulation and effects and the means of assessing the structures and functions of the endocrine system. To be capable of applying this information correctly and efficiently in the diagnosis and management of endocrine disease.*

### Context:

- 1.1 The endocrine glands, their hormones, effects and mechanism of actions, pathology in disease
- 1.2 Clinical and laboratory assessment of endocrine function
- 1.3 Imaging techniques in endocrinology

Domain 1: Hormones: the Pathophysiology of the Endocrine System

1.1 The endocrine glands, their hormones, effects and mechanism of actions, pathology in disease

**Objective:**

To understand and be able to explain the production and actions of hormones and the pathogenesis of diseases of the endocrine system.

	<b>Subject Matter:</b> Anatomy, physiology and pathology	<b>Teaching/Learning Methods Suggested:</b> <i>Ref: Page 9</i>	<b>Assessment:</b> <i>Ref: Page 10</i>	<b>Evidence of Competence:</b> <i>Ref: Page 12</i>
<b>K:</b>	<ul style="list-style-type: none"> <li>• The development, anatomy, histology, functions and inter-relationships of the endocrine glands and tissues.</li> <li>• Synthesis, secretion, transport, regulation of hormones and the mechanisms by which they produce their effects in health and disease.</li> <li>• Pathogenesis of endocrine diseases: infection, inflammation, auto-immunity, benign and malignant, functioning and non-functioning tumours, hyperplasia, atrophy.</li> </ul>			
<b>S:</b>	<ul style="list-style-type: none"> <li>• To be able to apply this knowledge to the diagnosis and effective management of endocrine disease.</li> </ul>			
<b>A:</b>	<ul style="list-style-type: none"> <li>• Fully utilises opportunities and resources for self-directed learning, eager to learn, inquisitive, industrious.</li> </ul>			

Domain 1: Hormones: the Pathophysiology of the Endocrine System

1.2 Clinical and laboratory assessment of endocrine function

**Objective:**  
 To have the knowledge and skills to make a clinical assessment of endocrine function. To select, arrange, explain and interpret investigations and tests appropriate to the patient's needs.

	<b>Subject Matter:</b> Assessment of endocrine function	<b>Teaching/Learning Methods Suggested:</b> Ref: Page 9	<b>Assessment:</b> Ref: Page 10	<b>Evidence of Competence:</b> Ref: Page 12
<b>K:</b>	<ul style="list-style-type: none"> <li>To know and to able to recognise the symptoms, signs, biochemical and other manifestations of abnormal endocrine function.</li> <li>To understand and directly observe the principles of and techniques employed in hormonal assays and the laboratory assessment of endocrine function.</li> <li>To have knowledge of the tests available, the "normal" ranges, variability and possible artefacts relevant to interpretation.</li> </ul>			
<b>S:</b>	<ul style="list-style-type: none"> <li>To be capable of explaining and advising on the selection of tests appropriate to the patient's needs; the collection, timing and storage of specimens, on stimulation and suppression techniques. To be able to interpret the results correctly.</li> <li>To properly obtain fully informed consent.</li> <li>To recognise the potential for misinterpretation of results due to collection, methodological errors, extraneous substances.</li> <li>To be able to elicit from patients relevant symptoms and physical signs and interpret correctly positive and negative clinical findings in order to reach a working diagnosis and/or arrange appropriate investigations.</li> </ul>			
<b>A:</b>	<ul style="list-style-type: none"> <li>To appreciate the patients' and their relatives' fears and uncertainties and be prepared to discuss and deal with these sensitively, encouraging their contributions to the decision-making process and respecting the right of the individual to consider, accept or to refuse medical advice.</li> </ul>			



## Domain 1: Hormones: the Pathophysiology of the Endocrine System

### 1.3 Imaging techniques in endocrinology

**Objective:**

*To have the knowledge and skills necessary to select, explain, arrange and interpret the imaging technique(s) most appropriate to each patient's needs.*

	Subject Matter: Imaging in endocrine disease	Teaching/Learning Methods Suggested: <i>Ref: Page 9</i>	Assessment: <i>Ref: Page 10</i>	Evidence of Competence: <i>Ref: Page 12</i>
<b>K:</b>	<ul style="list-style-type: none"> <li>Know the potential contribution and the limitations of radiological techniques to the diagnosis and assessment of endocrine diseases from radiography, CT, MRI, nuclear medicine scanning and ultrasonography.</li> <li>To know and understand the principles of the imaging techniques available for demonstrating endocrine tissues and their function.</li> </ul>			
<b>S:</b>	<ul style="list-style-type: none"> <li>To make appropriate referrals, complete documentation accurately to assist in the interpretation of CT and MRI scans of the pituitary region, adrenals, orbits etc; ultrasonography of the thyroid, ovaries; and radioisotope scanning of the thyroid, adrenal glands.</li> <li>To participate in joint endocrine/radiology meetings and be able to interpret MRI scans of the pituitary region and thyroid an adrenal imaging.</li> </ul>			
<b>A:</b>	<ul style="list-style-type: none"> <li>Recognises the importance of explaining the purpose and the results of investigations using appropriate language.</li> </ul>			

## Domain 2: Diabetes Mellitus

### **Objective:**

*To acquire the knowledge and skills necessary to correctly diagnose and manage patients with diabetes mellitus and its complications.*

### **Context:**

- 2.1 Diagnosis and general management of diabetes
- 2.2 Social and practical aspects
- 2.3 Diabetic emergencies
- 2.4 Intercurrent events complicating management
- 2.5 Microvascular complications of diabetes mellitus
- 2.6 Macrovascular complications

Domain 2: Diabetes Mellitus

2.1 Diagnosis and general management of diabetes

**Objective:**

To be competent to diagnose and manage Type 1 (insulin dependent) and Type 2 (adult-onset) diabetes.

	Subject Matter: Classification and diagnosis	Teaching/Learning Methods Suggested: Ref: Page 9	Assessment: Ref: Page 10	Evidence of Competence: Ref: Page 12
<b>K:</b>	<ul style="list-style-type: none"> <li>The classification, different types and sub-types of diabetes, their aetiology, genetics; the natural history and pathology of those diseases and their complications.</li> <li>Glucose homeostasis, the principles, design and interpretation of glucose tolerance testing.</li> <li>To understand the differences in presentation of diabetes in different ethnic groupings.</li> </ul>			
<b>S:</b>	<ul style="list-style-type: none"> <li>To be able to perform a full clinical examination on a person suspected as having diabetes, discover and accurately report on any evidence of the disease and its complications: interpret and explain the findings.</li> <li>To be able to perform and interpret correctly the results of tests for glucose tolerance.</li> </ul>			
<b>A:</b>	<ul style="list-style-type: none"> <li>To be aware and sensitive to the impact a diagnosis of diabetes will have on the patient and their family</li> </ul>			

	Subject Matter: General management, treatment	Teaching/Learning Methods Suggested: Ref: Page 9	Assessment: Ref: Page 10	Evidence of Competence: Ref: Page 12
<b>K:</b>	<ul style="list-style-type: none"> <li>Principles, objectives of management of both Type 1 and Type 2 diabetes.</li> <li>Medical nutrition therapy. Exercise. Actions, use of anti-diabetic agents, other drugs. Insulins, their delivery, dose adjustment; monitoring glycaemic control.</li> </ul>			
<b>S:</b>	<ul style="list-style-type: none"> <li>Devising individualised treatment plans, advising on choice of treatments, drugs and insulin adjustments based on monitoring glucose etc.</li> <li>Screening for and detecting early signs of complications; avoiding, recognising, correcting hypoglycaemia.</li> <li>Involvement in structured education programmes for the delivery of diabetes care to patients with type 1 and type 2 diabetes.</li> </ul>			
<b>A:</b>	<ul style="list-style-type: none"> <li>Appreciates contributions from other specialists and health professionals (<i>including specialist nurses</i>) to general management of diabetes.</li> <li>Aware of potential contributions from patient support groups, family members.</li> </ul>			

Domain 2: Diabetes Mellitus

2.2 Social and practical aspects

**Objective:**  
 To have knowledge and skills to be able to advise and arrange to support patients and their relatives in dealing with the social and practical issues faced by diabetic patients.

	Subject Matter: Social and practical aspects	Teaching/Learning Methods Suggested: <i>Ref: Page 9</i>	Assessment: <i>Ref: Page 10</i>	Evidence of Competence: <i>Ref: Page 12</i>
<b>K:</b>	<ul style="list-style-type: none"> <li>Home blood and urine testing (<i>through attendance at Diabetes Day Centre</i>): insulin administration devices.</li> <li>Support services available, including foot care, visual impairment.</li> <li>Implications for employment, driving.</li> </ul>			
<b>S:</b>	<ul style="list-style-type: none"> <li>Patient education regarding above, advising about hypo/hyperglycaemia, diet, exercise and weight control; smoking; care of the feet; family planning.</li> </ul>			
<b>A:</b>	<ul style="list-style-type: none"> <li>Prepared to listen; recognises patient's concerns; encourages patient to participate in and share responsibility for management.</li> </ul>			

Domain 2: Diabetes Mellitus

2.3 Diabetic emergencies

**Objective:**  
 To be able to diagnose correctly, manage effectively and efficiently and prevent future recurrences of severe hypoglycaemia, hyperglycaemic emergencies and related metabolic decompensations.

	Subject Matter: Hypoglycaemia, hyperglycaemia	Teaching/Learning Methods Suggested: Ref: Page 9	Assessment: Ref: Page 10	Evidence of Competence: Ref: Page 12
<b>K:</b>	<ul style="list-style-type: none"> <li>Precipitating factors, evolution, clinical features, metabolic consequences of hyperglycaemia; keto-acidosis and other metabolic decompensations.</li> <li>Causes of hypoglycaemia, presentation, hypoglycaemic unawareness, sequelae.</li> </ul>			
<b>S:</b>	<ul style="list-style-type: none"> <li>To distinguish, effectively manage severe hypoglycaemia, hyperglycaemia and associated metabolic disturbances presenting as emergencies and to advise on the means of preventing recurrences.</li> <li>Identifying hypoglycaemic unawareness, "risk-taking" behaviour, "brittle" diabetic.</li> </ul>			
<b>A:</b>	<ul style="list-style-type: none"> <li>Attentive to patient's needs, listens, is prepared to adjust, re-adjust, individualise treatment plan.</li> </ul>			

Domain 2: Diabetes Mellitus

2.4 Intercurrent events complicating management

**Objective:**  
To be competent to advise on the appropriate management and continuing care of the diabetic patient in the presence of intercurrent infection, other disease; in the young, old and during pregnancy.

	<b>Subject Matter:</b> The management of diabetes in the presence of various intercurrent events	<b>Teaching/Learning Methods Suggested:</b> Ref: Page 9	<b>Assessment:</b> Ref: Page 10	<b>Evidence of Competence:</b> Ref: Page 12
<b>K:</b>	<ul style="list-style-type: none"> <li>Awareness of the appropriate adjustments to the management of the diabetic patient in the presence of infection, other diseases and in relation to an operative procedure.</li> </ul>			
<b>S:</b>	<ul style="list-style-type: none"> <li>Able to maintain control of the diabetic state pre- and post- operatively and during intercurrent illness.</li> <li>Ability to maintain control of diabetes in patients who are unable to eat, are on enteral or parenteral feeding as well as in the post myocardial infarction period and in the intensive care setting.</li> </ul>			
<b>A:</b>	<ul style="list-style-type: none"> <li>Appreciation of the importance of good glycaemic control during intercurrent illness and ability to communicate this to patient and health care professionals. Ability to alleviate patient's concerns re deterioration of glycaemic control at times of stress/intercurrent illness.</li> </ul>			

	<b>Subject Matter:</b> Conception and pregnancy	<b>Teaching/Learning Methods Suggested:</b> Ref: Page 9	<b>Assessment:</b> Ref: Page 10	<b>Evidence of Competence:</b> Ref: Page 12
<b>K:</b>	<ul style="list-style-type: none"> <li>Know the potential of diabetes to affect conception and pregnancy and of the risks of pregnancy for a diabetic patient.</li> <li>Recognise the particular importance of good glycaemic and blood pressure control during pregnancy.</li> </ul>			
<b>S:</b>	<ul style="list-style-type: none"> <li>Able to manage and advise on the care of the patient with diabetes prior to conception and throughout pregnancy.</li> <li>Supervise/deliver ante-natal care (<i>at joint diabetes/obstetric clinic</i>); manage glycaemia during labour.</li> <li>Diagnose and manage gestational diabetes.</li> <li>Appropriate follow-up of patients with gestational diabetes mellitus.</li> </ul>			
<b>A:</b>	<ul style="list-style-type: none"> <li>Be sensitive to the patient's needs during pregnancy and be aware of the impact of a diagnosis of gestational diabetes mellitus on the patient.</li> </ul>			

Domain 2: Diabetes Mellitus

2.4 Intercurrent events complicating management

Continued...

	<b>Subject Matter:</b> Diabetes and the young and old	<b>Teaching/Learning Methods Suggested:</b> <i>Ref: Page 9</i>	<b>Assessment:</b> <i>Ref: Page 10</i>	<b>Evidence of Competence:</b> <i>Ref: Page 12</i>
<b>K:</b>	<ul style="list-style-type: none"> <li>• Understand how diabetes affects children, adolescents and of the physiological, psychological and social problems experienced.</li> <li>• Special care needs of young people with diabetes and for transition to a service for adults.</li> <li>• Impairments and handicaps in older people complicating management and self-care. Agencies providing support.</li> <li>• Involvement in adolescent diabetes camps is desirable.</li> </ul>			
<b>S:</b>	<ul style="list-style-type: none"> <li>• Recognise and identify as risk – taking the behaviour of young people with diabetes, recognise their special need for understanding and support.</li> <li>• Encourage enlist patient’s, relative’s involvement in management.</li> <li>• Assisting in meeting the additional social and medical needs of elderly people with diabetes, in the community and in residential care. Obtaining access to agencies in available for assistance.</li> </ul>			
<b>A:</b>	<ul style="list-style-type: none"> <li>• Non-judgemental response to the difficulties/needs of young and old.</li> <li>• Understanding of the impact of psychosocial factors on adolescents with diabetes and the control of their disease.</li> </ul>			

## Domain 2: Diabetes Mellitus

### 2.5 Microvascular complications of diabetes (*including diabetic foot*)

**Objective:**  
 To have the knowledge and skills necessary to understand the pathogenesis of the micro vascular complications of diabetes mellitus, the principles and practice of screening for and management of ophthalmic, renal, neuropathic and other effects.

	Subject Matter: Eye disease in diabetes	Teaching/Learning Methods Suggested: Ref: Page 9	Assessment: Ref: Page 10	Evidence of Competence: Ref: Page 12
<b>K:</b>	<ul style="list-style-type: none"> <li>How diabetes may affect the eyes, cataracts, retinopathy (mild, moderate and severe non-proliferative retinopathy and proliferative retinopathy), ophthalmoplegia.</li> <li>Understand and be able to explain strategies for prevention, treatment of diabetic eye disease.</li> <li>Range of services provided for visually handicapped (<i>partially sighted</i>); implications for driving and employment.</li> </ul>			
<b>S:</b>	<ul style="list-style-type: none"> <li>Use ophthalmoscope to diagnose and assess cataract, retinopathy. Perform visual acuity test, correctly interpret result. Interpret retinal photographs.</li> <li>Inform and advise on treatment options, make appropriate referrals for ophthalmic opinion.</li> </ul>			
<b>A:</b>	<ul style="list-style-type: none"> <li>Understand the difficulties for patients and their families in adjusting to visual handicap. Offer appropriate support particularly re insulin administration and blood glucose monitoring</li> </ul>			

	Subject Matter: Renal disease in diabetes	Teaching/Learning Methods Suggested: Ref: Page 9	Assessment: Ref: Page 10	Evidence of Competence: Ref: Page 12
<b>K:</b>	<ul style="list-style-type: none"> <li>Pathology/pathogenesis of renal disease in diabetes, effects, natural history and prognosis. Significance of micro-albuminuria, hypertension, overt nephropathy, increased risk of infection, renal papillary necrosis. Principles of management to preserve renal function.</li> </ul>			
<b>S:</b>	<ul style="list-style-type: none"> <li>Diagnosing micro-albuminuria, diabetic nephropathy, optimal management of BP, glycaemia, renin-angiotensin system to preserve kidney function. Informing and advising patients on the implications of renal involvement, on treatment options available, the use, benefits and effects of therapeutic interventions.</li> <li>Refer appropriately for nephrology opinion, dialysis, transplant.</li> <li>Management of diabetes in dialysis patients and pre and post-transplant.</li> </ul>			
<b>A:</b>	<ul style="list-style-type: none"> <li>Understand potential impact of immunosuppressants on diabetes control.</li> </ul>			



Domain 2: Diabetes Mellitus

2.5 Microvascular complications of diabetes (*including diabetic foot*)

Continued...

	Subject Matter: Neuropathy	Teaching/Learning Methods Suggested: <i>Ref: Page 9</i>	Assessment: <i>Ref: Page 10</i>	Evidence of Competence: <i>Ref: Page 12</i>
<b>K:</b>	<ul style="list-style-type: none"> <li>Know and understand the effects of peripheral sensory, proximal motor and autonomic neuropathies, mononeuritis including cranial nerve palsies occurring in diabetes.</li> </ul>			
<b>S:</b>	<ul style="list-style-type: none"> <li>Able to recognise, correctly diagnose, assess and manage appropriately the varied clinical neurological manifestations, including sensory impairments, dyesthesiae, loss of muscle power, postural hypotension, impotence, erectile dysfunction, diarrhoea.</li> </ul>			
<b>A:</b>	<ul style="list-style-type: none"> <li>To understand the impact of neuropathy including foot complications and fear of foot complications on patients suffering from diabetes and their families. To be able to discuss the benefits of good glycaemic control on reducing the risk of neuropathy.</li> </ul>			

	Subject Matter: Foot problems	Teaching/Learning Methods Suggested: <i>Ref: Page 9</i>	Assessment: <i>Ref: Page 10</i>	Evidence of Competence: <i>Ref: Page 12</i>
<b>K:</b>	<ul style="list-style-type: none"> <li>Multifactorial basis of foot problems in diabetes, - neuropathic, micro and macro vascular, infectious and mechanical contributions. Principles and means of management, prevention; necessary precautions.</li> <li>Understanding the benefit of a multidisciplinary approach to the prevention and management of foot complications in patients with diabetes mellitus.</li> </ul>			
<b>S:</b>	<ul style="list-style-type: none"> <li>Advise on prevention, care of established foot problems in a multidisciplinary setting (<i>attendance at foot care clinics</i>).</li> <li>Appropriate referral for specialist e.g. surgical opinion, rehabilitation following amputation.</li> </ul>			
<b>A:</b>	<ul style="list-style-type: none"> <li>Understanding the fears patients have regarding the potential risk of amputation.</li> </ul>			

Domain 2: Diabetes Mellitus

2.6 Macrovascular complications of diabetes mellitus

**Objective:**  
 To have the knowledge and skills necessary to understand the pathogenesis of macrovascular disease as it occurs in diabetes and to be able to provide appropriate advice on its prevention and management.

	Subject Matter: Clinical macro vascular disease	Teaching/Learning Methods Suggested: <i>Ref: Page 9</i>	Assessment: <i>Ref: Page 10</i>	Evidence of Competence: <i>Ref: Page 12</i>
<b>K:</b>	<ul style="list-style-type: none"> <li>Contributions from arteriosclerotic disease, hyperlipidaemia, coagulative abnormalities, hypertension to premature, severe arterial disease in diabetes. Particular risk from smoking.</li> </ul>			
<b>S:</b>	<ul style="list-style-type: none"> <li>Able to recognise and assess effects of pathology in coronary, cerebral (<i>neck</i>), aortic, renal, pelvic, leg etc. vessels and advise on investigations appropriate to patient's needs.</li> <li>Arrange effective interventions (<i>anticoagulation, angioplasty, surgery</i>).</li> <li>Recognise and manage other vascular risk factors including hyperlipidaemia and hypertension (see 3.2).</li> <li>Refer appropriately. Advise/assist patient to stop smoking.</li> </ul>			
<b>A:</b>	<ul style="list-style-type: none"> <li>Be aware of issues regarding compliance with medication and be able to explain clearly to the patients the rationale and importance of compliance</li> </ul>			

Domain 3: Other Metabolic Disorders

**Objective:**  
*To have the knowledge and skills necessary and be competent to advise on the appropriate management of disorders of nutrition and metabolism including disorders of appetite and weight.*

- Context:**
- 3.1 Disorders of appetite and weight
  - 3.2 Dyslipidaemia
  - 3.3 Hypoglycaemia
  - 3.4 Hypo and hyper -natraemia
  - 3.5 Disorders of carbohydrate metabolism, haemochromatosis, the porphyrias

Domain 3: Other Metabolic Disorders

3.1 Disorders of appetite and weight

**Objective:**  
 To understand and be able to explain the physiology of appetite regulation, energy requirements and balance; the causes, pathophysiology, psychology of obesity, and of eating disorders and their endocrine effects.

	Subject Matter: Obesity	Teaching/Learning Methods Suggested: Ref: Page 9	Assessment: Ref: Page 10	Evidence of Competence: Ref: Page 12
<b>K:</b>	<ul style="list-style-type: none"> <li>Obesity as a health problem, causes, risk to health, treatment options, principles of management including role of bariatric surgery. The metabolic syndrome.</li> </ul>			
<b>S:</b>	<ul style="list-style-type: none"> <li>Measuring obesity, estimating energy intake/expenditure, appropriate dietary prescription.</li> <li>Appropriate referral to other health professionals, slimming agencies.</li> </ul>			
<b>A:</b>	<ul style="list-style-type: none"> <li>Non judgemental, supportive approach, prepared to share responsibility with patient to achieve agreed, attainable goals.</li> </ul>			

	Subject Matter: Eating disorders	Teaching/Learning Methods Suggested: Ref: Page 9	Assessment: Ref: Page 10	Evidence of Competence: Ref: Page 12
<b>K:</b>	<ul style="list-style-type: none"> <li>Patho-physiology, psychopathology of anorexia nervosa, bulimia. Clinical features, mental state, physical, biochemical, endocrine and metabolic complications.</li> </ul>			
<b>S:</b>	<ul style="list-style-type: none"> <li>Recognition, investigation and appropriate management of these conditions and complications.</li> </ul>			
<b>A:</b>	<ul style="list-style-type: none"> <li>Non-judgemental, supportive approach, prepared to share responsibility with patient to achieve agreed, attainable goals.</li> </ul>			

Domain 3: Other Metabolic Disorders

3.2 Dyslipidaemia

**Objective:**

To acquire the knowledge and skills necessary to differentiate and manage primary and secondary dyslipidaemic states.

	Subject Matter: Hyperlipidaemia	Teaching/Learning Methods Suggested: <i>Ref: Page 9</i>	Assessment: <i>Ref: Page 10</i>	Evidence of Competence: <i>Ref: Page 12</i>
<b>K:</b>	<ul style="list-style-type: none"> <li>Plasma lipids and lipid transport, lipoproteins, "normal" ranges; dyslipidaemic states (<i>primary and secondary</i>) and risks associated. Genetic and environmental influences.</li> <li>Treatment of lipid disorders; lifestyle measures, drugs and their effects.</li> </ul>			
<b>S:</b>	<ul style="list-style-type: none"> <li>Screening for dyslipidaemia, interpretation of results; assessing cardiovascular risk.</li> <li>Correctly diagnosing and managing patients with primary and secondary lipid disorders (<i>attendance at specialised lipid clinics optional</i>).</li> </ul>			
<b>A:</b>	<ul style="list-style-type: none"> <li>Uses evidence-based medicine to develop/justify strategies for prevention.</li> </ul>			

Domain 3: Other Metabolic Disorders

3.3 Spontaneous Hypoglycaemia

**Objective:**

To diagnose the cause and correctly manage hypoglycaemia in order to prevent recurrences.

	Subject Matter: Hypoglycaemia	Teaching/Learning Methods Suggested: <i>Ref: Page 9</i>	Assessment: <i>Ref: Page 10</i>	Evidence of Competence: <i>Ref: Page 12</i>
<b>K:</b>	<ul style="list-style-type: none"> <li>Physiology of glucose control. Symptoms, signs and consequences of hypoglycaemia. Causes e.g. insulinoma, other endocrine, hepatic, factitious.</li> </ul>			
<b>S:</b>	<ul style="list-style-type: none"> <li>Recognise, correctly diagnose pathological hypoglycaemia, investigate appropriately and interpret results to identify cause of fasting and reactive types.</li> </ul>			
<b>A:</b>	<ul style="list-style-type: none"> <li>To understand the impact of hypoglycaemia on patients' quality of life and alleviate patients' concerns regarding symptoms and potential complications. To recognise potential settings in which factitious hypoglycaemia may be a possibility and ability to handle these situations sensitively.</li> </ul>			

Domain 3: Other Metabolic Disorders

3.4 Hyper- and hyponatraemia

**Objective:**  
 To understand and be able to explain water and sodium homeostasis and to be competent to recognise and advise in the management of hyponatraemic and hypernatraemic states.

	Subject Matter: Hyper and hypo -natraemia	Teaching/Learning Methods Suggested: <i>Ref: Page 9</i>	Assessment: <i>Ref: Page 10</i>	Evidence of Competence: <i>Ref: Page 12</i>
<b>K:</b>	<ul style="list-style-type: none"> <li>Water and sodium homeostasis, renal regulation of sodium homeostasis and their abnormalities.</li> <li>Classification and causes of hypo and hypernatraemia, polyuria and polydipsia.</li> <li>Inappropriate ADH secretion syndrome.</li> </ul>			
<b>S:</b>	<ul style="list-style-type: none"> <li>Recognise circumstances potentially leading to hypo/hyper natraemia, able to detect clinical features, interpret correctly plasma/urinary chemistry.</li> <li>Diagnose cause, institute appropriate treatment for acute and chronic hypo- and hypernatraemia.</li> </ul>			
<b>A:</b>	<ul style="list-style-type: none"> <li>Appreciate the complex nature of treating severe degrees of hyper and hypo natraemia. Close liaison with other health care professionals involved in managing patients with disorders of sodium balance to help prevent recurrences.</li> </ul>			

Domain 3: Other Metabolic Disorders

3.5 Disorders of carbohydrate metabolism, haemochromatosis, and porphyria

**Objective:**  
 To understand the inborn and acquired errors of metabolism which underlie diseases seen in humans and the principles upon which the effective management of the manifestations of these diseases is based.

	Subject Matter: Disorders of carbohydrate metabolism	Teaching/Learning Methods Suggested: Ref: Page 9	Assessment: Ref: Page 10	Evidence of Competence: Ref: Page 12
<b>K:</b>	<ul style="list-style-type: none"> <li>Carbohydrate digestion, absorption and storage and the effects of inborn and acquired abnormalities. Biochemical aspects, enzymology, glycogen storage diseases.</li> </ul>			
<b>S:</b>	<ul style="list-style-type: none"> <li>Able to recognise clinical presentations, investigate appropriately, arrange management.</li> </ul>			
<b>A:</b>	<ul style="list-style-type: none"> <li>To understand the genetic basis of inborn errors of metabolism and develop an ability to sensitively interact with patients and families with these conditions. Appreciation of the need for involvement of medical genetics specialists.</li> </ul>			

	Subject Matter: The porphyrias	Teaching/Learning Methods Suggested: Ref: Page 9	Assessment: Ref: Page 10	Evidence of Competence: Ref: Page 12
<b>K:</b>	<ul style="list-style-type: none"> <li>Biochemical basis and varieties of porphyria: their acute and non-acute presentations, investigations necessary to determine diagnosis. Inheritance patterns.</li> </ul>			
<b>S:</b>	<ul style="list-style-type: none"> <li>Recognise GI and neuropsychiatric features of acute intermittent porphyria, aggravating factors. Able to identify cutaneous manifestations.</li> <li>Manage acute presentation, advise on prophylaxis.</li> </ul>			
<b>A:</b>	<ul style="list-style-type: none"> <li>To understand and communicate the genetic basis of the porphyrias to patients and families. To refer to medical genetics specialists for assessment. To advise patients and families regarding prevention of acute episodes.</li> </ul>			

	Subject Matter: Haemochromatosis	Teaching/Learning Methods Suggested: Ref: Page 9	Assessment: Ref: Page 10	Evidence of Competence: Ref: Page 12
<b>K:</b>	<ul style="list-style-type: none"> <li>Iron absorption, storage and transport; measurement of Fe status. Idiopathic haemochromatosis clinical presentation.</li> </ul>			
<b>S:</b>	<ul style="list-style-type: none"> <li>Screening and means of early diagnosis; able to recognise range of clinical manifestations including endocrine. Differentiate other causes of iron overload.</li> </ul>			
<b>A:</b>	<ul style="list-style-type: none"> <li>Understand the importance of and rationale for family screening for haemochromatosis. Ability to communicate with patients and families to alleviate concerns regarding the impact of a (possible) diagnosis of haemochromatosis.</li> </ul>			



## Domain 4: The Endocrine Glands and Their Diseases

### Objective:

*To be able to identify the clinical presentations of diseases of the endocrine glands and to be able to investigate appropriately, correctly diagnose and manage patients suspected as suffering from such diseases.*

### Context:

- 4.1 Hypothalamic and pituitary diseases
- 4.2 The thyroid gland
- 4.3 The adrenal glands
- 4.4 The endocrinology of reproduction
- 4.5 Growth and development
- 4.6 Calcium metabolism and bone, the parathyroid glands

Domain 4: The Endocrine Glands and Their Diseases

4.1 Hypothalamic and pituitary diseases

**Objective:**  
 To have the knowledge and skills necessary to be able to diagnose deficiencies or excessive production of pituitary hormones and to recognise the local and systemic effects of the lesions responsible for anterior and posterior pituitary and hypothalamic disorders: to identify and manage the pathology responsible and the endocrine disease caused.

	Subject Matter: Hypothalamic syndromes	Teaching/Learning Methods Suggested: Ref: Page 9	Assessment: Ref: Page 10	Evidence of Competence: Ref: Page 12
<b>K:</b>	<ul style="list-style-type: none"> <li>The regulatory and integrative functions of the hypothalamus, its hormones and releasing factors.</li> <li>Congenital and acquired hypothalamic diseases and injuries.</li> </ul>			
<b>S:</b>	<ul style="list-style-type: none"> <li>Recognising distortions of appetite, sleep, thirst etc as potential features of hypothalamic syndromes.</li> <li>Correctly diagnosing and managing the pathology responsible and endocrine/metabolic effects.</li> </ul>			
<b>A:</b>	<ul style="list-style-type: none"> <li>Understanding and managing the psychological impact of hypothalamic disease on patients.</li> </ul>			

	Subject Matter: Pituitary diseases	Teaching/Learning Methods Suggested: Ref: Page 9	Assessment: Ref: Page 10	Evidence of Competence: Ref: Page 12
<b>K:</b>	<ul style="list-style-type: none"> <li>Pituitary structure and functions, hormones and their actions, hormone deficiencies. Strategies for the assessment of anterior and posterior pituitary function, assessment of visual fields.</li> <li>Hyperplasia and increased activity, non-functioning and functioning pituitary tumours; prolactinomas, acromegaly, gigantism, Cushing's Disease, Craniopharyngioma, mass effects.</li> <li>Treatment options, including irradiation, surgery, medical treatment.</li> <li>Genetic and acquired hypopituitarism, causes, effects, replacement of adrenal, thyroid, gonadal axes. Growth hormone deficiency.</li> </ul>			
<b>S:</b>	<ul style="list-style-type: none"> <li>Be able to select, arrange and interpret basal and dynamic tests of pituitary function, imaging and other investigations appropriate to patients' needs.</li> <li>Competence to diagnose and manage diabetes insipidus, to diagnose and provide the initial and long-term medical management of anterior and other posterior pituitary diseases. Able to recognise and manage appropriately patients with SIADH, thirst dysregulation and other disorders of fluid balance.</li> <li>Make appropriate referrals for pituitary surgery, radiotherapy: supervise perioperative management of patients.</li> </ul>			
<b>A:</b>	<ul style="list-style-type: none"> <li>Advise patients on appropriate doses of replacement hormones including stress doses of steroids.</li> </ul>			

Domain 4: The Endocrine Glands and Their Diseases

4.2 The thyroid gland

**Objective:**  
 To have the knowledge and skills necessary to be able to diagnose deficiencies or excessive production of thyroid hormones and to recognise the local and systemic effects of the lesions responsible: to identify and manage the pathology responsible and the endocrine disease caused.

	Subject Matter: Thyroid disease	Teaching/Learning Methods Suggested: <i>Ref: Page 9</i>	Assessment: <i>Ref: Page 10</i>	Evidence of Competence: <i>Ref: Page 12</i>
<b>K:</b>	<ul style="list-style-type: none"> <li>• To understand thyroid disease in terms of the physiology and biochemistry of thyroid hormones, iodine metabolism, auto-immunity and the pathogenesis of malignant disease.</li> <li>• Tests of thyroid function, their interpretation, and value, assay interference: imaging and the use of radio-isotopes in the investigation of thyroid disease.</li> <li>• Causes of hyper and hypothyroidism.</li> <li>• Causes and types of goitre.</li> </ul>			
<b>S:</b>	<ul style="list-style-type: none"> <li>• Competent to diagnose, assess and appropriately manage hyperthyroidism and its systemic effects; use appropriately anti-thyroid and other drugs; refer for radioactive iodine and surgery as necessary.</li> <li>• Able to provide emergency treatment (<i>for thyroid "Storm" and Myxedema Coma</i>).</li> <li>• Recognition, assessment, medical management and appropriate referral of patients with significant ocular involvement (<i>Grave's eye disease</i>).</li> <li>• Able to assess and advise on the management of non-toxic goitre, multi-nodular goitre and solitary thyroid nodules. Perform and refer for fine-needle biopsy as appropriate. Diagnose thyroid carcinoma, recognise the place for TSH suppression, radioactive iodine and/or surgery; refer appropriately.</li> <li>• Able to differentiate primary and secondary causes of hypothyroidism including inherited enzyme defects, peripheral resistance to thyroid hormones and to manage appropriately hypothyroidism in the newborn, in childhood and older people, treat severe cases including myxoedema coma.</li> <li>• Supervision of perioperative care of patients undergoing thyroid surgery (<i>especially hyperthyroid patients</i>).</li> <li>• Managing thyroid disorders during and after pregnancy.</li> <li>• Recognise and treat acute, subacute and chronic thyroiditis.</li> <li>• Differentiate non-thyroidal illness simulating thyroid disease.</li> </ul>			
<b>A:</b>	<ul style="list-style-type: none"> <li>• To understand and recognise potential psychological/psychiatric manifestations of thyroid diseases e.g. <i>anxiety in hyperthyroidism, and their impact on patients and their perceptions of their conditions.</i></li> </ul>			

Domain 4: The Endocrine Glands and Their Diseases

4.3 The adrenal glands

**Objective:**  
 To have the knowledge and skills necessary to be able to recognise the manifestations of excessive production or deficiencies of the hormones produced by the adrenal glands: to understand and identify the pathogenesis and to be competent to differentiate and manage appropriately the endocrine syndromes resulting.

	Subject Matter: Adrenocortical diseases	Teaching/Learning Methods Suggested: Ref: Page 9	Assessment: Ref: Page 10	Evidence of Competence: Ref: Page 12
<b>K:</b>	<ul style="list-style-type: none"> <li>The biochemistry, production, regulation and actions of the hormones produced by the adrenal cortex. Abnormal production and effects e.g. in <i>Cushing's syndrome</i>, congenital adrenal hyperplasia (CAH), <i>hyperaldosteronism</i> and <i>Addison's disease</i>. Imaging techniques available to assist management.</li> <li>Aetiology of varieties of Cushing's, tests and investigations of value in diagnosis and differential diagnosis, differentiation from pseudo-Cushing's.</li> <li>Adrenal androgen excess. Androgen secreting tumours. Genetic, biochemical and enzymic abnormalities of CAH; clinical features in babies, children and adults.</li> <li>Causes of primary hyperaldosteronism, appropriate treatment. Other causes of hyperaldosteronism.</li> <li>Pathogenesis, laboratory investigation and diagnosis of primary hypoadrenalism (<i>Addison's disease</i>) other causes of adrenal insufficiency.</li> </ul>			
<b>S:</b>	<ul style="list-style-type: none"> <li>Screening, the appropriate selection and performance of basal and dynamic tests of adrenal function and the pituitary-adrenal axis, correct interpretation of results and biochemical findings. Appropriate use of imaging.</li> <li>Diagnosis and management of patients with Cushing's syndrome, CAH, hyperaldosteronism.</li> <li>Investigation and management of suspected primary and secondary adrenal failure, perioperative care, treatment of acute adrenal insufficiency.</li> </ul>			
<b>A:</b>	<ul style="list-style-type: none"> <li>Understanding the impact of adrenal diseases on patient's quality of life. Education of patients regarding the nature of adrenal disease, the impact on their health and the complex nature of the investigation and treatment of adrenal conditions.</li> </ul>			

	Subject Matter: Pheochromocytoma, paraganglioma	Teaching/Learning Methods Suggested: Ref: Page 9	Assessment: Ref: Page 10	Evidence of Competence: Ref: Page 12
<b>K:</b>	<ul style="list-style-type: none"> <li>Neuroectodermal origin of tumours. Familial cases and associated diseases, principles of investigation, suppression tests, localisation.</li> </ul>			
<b>S:</b>	<ul style="list-style-type: none"> <li>Competent to investigate fully and carefully, and correctly interpret results in a suspected case.</li> <li>Refer appropriately for surgery, perioperative care with emphasis on preoperative blood pressure control.</li> </ul>			
<b>A:</b>	<ul style="list-style-type: none"> <li>Be able to discuss risks associated with surgery with patients, families, surgeons and anaesthetic staff.</li> </ul>			

Domain 4: The Endocrine Glands and Their Diseases

4.4 The endocrinology of reproduction

**Objective:**  
 To understand the physiology and endocrinology of reproduction: to have the knowledge and skills necessary to investigate, identify and advise on the management of gonadal and other endocrine disorders affecting the reproductive system in females and in males.

	Subject Matter: Development and differentiation of sexual characteristics	Teaching/Learning Methods Suggested: Ref: Page 9	Assessment: Ref: Page 10	Evidence of Competence: Ref: Page 12
<b>K:</b>	<ul style="list-style-type: none"> <li>Understand the process of sexual differentiation and development, the genetic and hormonal influences relevant; abnormalities encountered, intersex states. Normal, delayed and precocious puberty.</li> <li>Gonadotrophins, sex hormones from testicular and ovarian, adrenal and other tissues, actions and interactions.</li> </ul>			
<b>S:</b>	<ul style="list-style-type: none"> <li>Perform complete physical examination relevant to reproductive system, perform and interpret functional tests of the hypothalamic – pituitary – gonadal axis, obtain samples for and interpret results of cytogenetic analyses, arrange for imaging and/or biopsy as appropriate for patient’s need. Investigate and manage common chromosomal disorders such as Turner’s and Klinefelter’s (<i>attend a minimum of 10 Paediatric endocrinology clinics</i>).</li> </ul>			
<b>A:</b>	<ul style="list-style-type: none"> <li>Adopt a non-discriminatory, non-judgemental attitude to all patients, recognising and respecting their rights as individuals equally so in the case of children, people with physical, mental, learning disabilities.</li> </ul>			

Domain 4: The Endocrine Glands and Their Diseases

4.4 The endocrinology of reproduction

Continued....

	<b>Subject Matter:</b> Primary and secondary gonadal dysfunction in females and males	<b>Teaching/Learning Methods Suggested:</b> <i>Ref: Page 9</i>	<b>Assessment:</b> <i>Ref: Page 10</i>	<b>Evidence of Competence:</b> <i>Ref: Page 12</i>
<b>K:</b>	<ul style="list-style-type: none"> <li>Causes of menstrual irregularly, amenorrhoea, ovarian dysfunction, primary and secondary ovarian failure, infertility: hirsutism and the causes of virilism in females.</li> <li>Know of and understand the polycystic ovary syndrome, its metabolic and reproductive aspects, clinical features of ovarian tumours.</li> <li>Causes of hypogonadism in males, androgen deficiencies both congenital and acquired; characteristic hormonal profiles. Cryptorchidism, cause of male infertility, erectile dysfunction, gynaecomastia. Types, effects, presentation of testicular tumours.</li> </ul>			
<b>S:</b>	<ul style="list-style-type: none"> <li>Able to assess, investigate and manage appropriately women with a menstrual disturbance.</li> <li>Assess, investigate appropriately women presenting with hirsutism, virilization, polycystic ovarian syndrome.</li> <li>Able to investigate fully, identify the cause and manage appropriately male and female patients presenting as a result of primary or secondary gonadal failure.</li> <li>Providing the first line assessment of the infertile couple, advising on management and referring appropriately.</li> <li>Competent to assess, investigate and advise on the management of erectile dysfunction, gynaecomastia.</li> </ul>			
<b>A:</b>	<ul style="list-style-type: none"> <li>Deals appropriately with patient's concerns, sensitivities in a professional manner, explains using appropriate language, checks understanding.</li> </ul>			

Domain 4: The Endocrine Glands and Their Diseases

4.5 Growth and development

**Objective:**  
 To have the knowledge and skills necessary to assess growth and development and to be competent to diagnose correctly and manage disorders of growth and maturation.

	Subject Matter: Development and growth	Teaching/Learning Methods Suggested: <i>Ref: Page 9</i>	Assessment: <i>Ref: Page 10</i>	Evidence of Competence: <i>Ref: Page 12</i>
<b>K:</b>	<ul style="list-style-type: none"> <li>Sexual determination and differentiation (see 4.4), endocrine influences on growth and development through childhood and puberty.</li> <li>Differential diagnosis of short stature and growth retardation, delayed puberty and premature sexual maturation.</li> </ul>			
<b>S:</b>	<ul style="list-style-type: none"> <li>Measurement of height and weight, use of growth charts, radiology, endocrinology in the assessment of growth, age, maturity.</li> <li>Able to differentiate genetic, endocrine, metabolic causes, diagnose and manage disorders of growth and maturation responsible for abnormally short or tall stature.</li> <li>Appropriate use of growth hormone, growth-promoting agents in children.</li> </ul>			
<b>A:</b>	<ul style="list-style-type: none"> <li>Understanding the psychological impact of disorders of growth and development on children and their families. Education and reassuring patients with disorders of growth and development and their families as appropriate.</li> </ul>			

Domain 4: The Endocrine Glands and Their Diseases

4.6 Calcium metabolism and bone, the parathyroid glands

**Objective:**  
 To understand calcium homeostasis and bone metabolism and have the knowledge and skills to diagnose and manage hyper and hypocalcaemic states, parathyroid disorders and metabolic bone disease.

	Subject Matter: Parathyroid hormone (PTH), calcitonin and vitamin D	Teaching/Learning Methods Suggested: Ref: Page 9	Assessment: Ref: Page 10	Evidence of Competence: Ref: Page 12
<b>K:</b>	<ul style="list-style-type: none"> <li>The origin, production regulation and actions on the gut, kidney and bones of PTH and calcitonin.</li> <li>Understand calcium and phosphate homeostatic mechanisms, the biological effects and metabolism of the D vitamins: the biology of bone formation, mineralization and resorption.</li> <li>Hyperplasia, adenomas and carcinoma of the parathyroids, medullary carcinoma of thyroid and associations with M.E.N.</li> </ul>			
<b>S:</b>	<ul style="list-style-type: none"> <li>Able to appropriately investigate and interpret findings in disorders of calcium and bone metabolism, including those due to disorders of the parathyroids, Vitamin D deficiency and renal disease.</li> <li>To correctly diagnose the causes of hyper/hypocalcaemia and provide the appropriate management including for acute emergency presentations.</li> </ul>			
<b>A:</b>	<ul style="list-style-type: none"> <li>Understanding of the genetic basis of rare genetic disorders such as MEN and ability to educate patients regarding risk of transmission/referral of patients to appropriate specialists.</li> </ul>			

	Subject Matter: Disordered parathyroid function	Teaching/Learning Methods Suggested: Ref: Page 9	Assessment: Ref: Page 10	Evidence of Competence: Ref: Page 12
<b>K:</b>	<ul style="list-style-type: none"> <li>To be aware of the symptomatic and asymptomatic presentation of hyperparathyroidism.</li> <li>The causes of primary and secondary hyperparathyroidism and of hypoparathyroidism, also their biochemical profiles and radiological features.</li> </ul>			
<b>S:</b>	<ul style="list-style-type: none"> <li>Able to diagnose and differentiate primary and secondary causes of hyperparathyroidism and provide management appropriate to patients' needs. To assist and advise in the localisation of the pathology, select and refer for surgery. Able to supervise/provide immediate and long-term postoperative care.</li> <li>Able to differentiate and manage hypoparathyroidism and pseudohypoparathyroidism.</li> </ul>			
<b>A:</b>	<ul style="list-style-type: none"> <li>Understanding of the importance of careful patient selection for surgical interventions of hyperparathyroidism and communication of information to patients to assist them in decision-making. To understand and communicate the importance of compliance in management of hypoparathyroidism and pseudo-hypoparathyroidism.</li> </ul>			



Domain 4: The Endocrine Glands and Their Diseases

4.6 Calcium metabolism and bone, the parathyroid glands

Continued....

	Subject Matter: Vitamin D and metabolic disease of bone	Teaching/Learning Methods Suggested: <i>Ref: Page 9</i>	Assessment: <i>Ref: Page 10</i>	Evidence of Competence: <i>Ref: Page 12</i>
<b>K:</b>	<ul style="list-style-type: none"> <li>Hypervitaminosis D, vitamin D deficiency states and resistance: causes and clinical presentations, rickets and osteomalacia.</li> <li>Radiology of metabolic diseases of bone, measuring bone density, turnover, mineralisation.</li> </ul>			
<b>S:</b>	<ul style="list-style-type: none"> <li>Able to recognise, correctly diagnose cause and manage, vitamin D deficient states, rickets/osteomalacia.</li> <li>Appropriate screening for osteoporosis, diagnosis, causes, risks: advise on prophylaxis, assess and manage established osteoporosis.</li> </ul>			
<b>A:</b>	<ul style="list-style-type: none"> <li>Ability to identify and advise patients at risk of vitamin D deficiency.</li> </ul>			

Domain 5: The Diffuse Endocrine System

**Objective:**

*To have the knowledge and skills necessary to recognise the effects and identify the cause and origin of excessive production of the hormones of the diffuse endocrine system (neuroendocrine tumours).*

**Context:**

5.1 Neuroendocrine tumours and their effects

Domain 5: The Diffuse Endocrine System

5.1 Neuro-endocrine tumours and their effects

**Objective:**  
 To have the knowledge and skills necessary to recognise the effects and identify the cause and origin of excessive production of the hormones of the diffuse endocrine system (neuro endocrine tumours).

	Subject Matter: Neuro-endocrine tumours and their effects	Teaching/Learning Methods Suggested: Ref: Page 9	Assessment: Ref: Page 10	Evidence of Competence: Ref: Page 12
<b>K:</b>	<ul style="list-style-type: none"> <li>• Concept of a diffuse neuro-endocrine system, pancreatic, gastro-intestinal and neural location of tissue, physiology of hormones.</li> <li>• The clinical and biochemical effects of the tumours and the hormones they produce e.g. <i>gastrinomas, insulinomas, glucagonomas, vipomas, somatostatinomas.</i></li> <li>• Type I and Type II multiple endocrine neoplasia (<i>M.E.N.</i>).</li> <li>• Origins, chemistry and chemical effects of carcinoid tumours and the carcinoid syndrome.</li> </ul>			
<b>S:</b>	<ul style="list-style-type: none"> <li>• Recognition of the distinguishing metabolic and clinical consequences of the products of individual neuro-endocrine tumours. Collection of appropriate material for estimation of relevant peptides (<i>by radio-immunoassay</i>).</li> <li>• Use of appropriate supportive and anti-tumour drugs. Assist in the localisation of tumour sites, co-operative management with surgeon.</li> <li>• Correctly recognises the likelihood of <i>M.E.N.</i>, value of genetic testing and programmed long-term management.</li> </ul>			
<b>A:</b>	<ul style="list-style-type: none"> <li>• Sensitivity regarding the need for screening for <i>MEN</i> and associated inherited conditions</li> </ul>			

**Domain 6: Miscellaneous Endocrine Disorders**

**Objective:**

*To understand and contribute to the diagnosis and appropriate management of the endocrinological aspects of systemic disease, malignancy and the aging process.*

**Context:**

- 6.1 Endocrinology of malignancy
- 6.2 Hormonal changes with ageing and in systemic disease

**Domain 6: Miscellaneous Endocrine Disorders**

**6.1 Endocrinology and malignancy**

**Objective:**  
 To have the knowledge and skills to assess and provide appropriate management in relation to the effects of hormones on tumour growth, the endocrine effects of malignant tumours and their treatment.

	<b>Subject Matter:</b> Endocrinology and malignant disease	<b>Teaching/Learning Methods Suggested:</b> Ref: Page 9	<b>Assessment:</b> Ref: Page 10	<b>Evidence of Competence:</b> Ref: Page 12
<b>K:</b>	<ul style="list-style-type: none"> <li>Endocrine responsive tumours e.g. of breast, reproductive system, prostate, thyroid.</li> <li>The potential for production of hormones at ectopic sites by certain cancers and their metastases.</li> <li>The endocrine effects of anti-tumour drugs and irradiation.</li> </ul>			
<b>S:</b>	<ul style="list-style-type: none"> <li>Recognise and advise on diagnosis and management of endocrinological problems arising in patients with and/or undergoing treatment for malignant disease.</li> <li>Effects of metastases to endocrine glands.</li> </ul>			
<b>A:</b>	<ul style="list-style-type: none"> <li>To contribute to the multidisciplinary team involved in the management of patients with endocrine tumours/ endocrine responsive tumours.</li> </ul>			

Domain 6: Miscellaneous Endocrine Disorders

6.2 Hormonal changes with ageing and in systemic disease

**Objective:**  
To be familiar with endocrine and metabolic changes that accompany the ageing process and occur in systemic diseases and to be able to provide appropriate management.

	<b>Subject Matter:</b> Hormonal changes that occur with increasing age	<b>Teaching/Learning Methods Suggested:</b> Ref: Page 9	<b>Assessment:</b> Ref: Page 10	<b>Evidence of Competence:</b> Ref: Page 12
<b>K:</b>	<ul style="list-style-type: none"> <li>Physiology, changes in growth hormone, gonadotrophins, testicular and ovarian hormones at puberty, during the menopause and with advancing age.</li> <li>Hyperglycaemia, hyperlipidaemia, osteoporosis, risk of hypothermia in older people.</li> </ul>			
<b>S:</b>	<ul style="list-style-type: none"> <li>Recognise and offer intervention appropriate to the patient's need when endocrine or metabolic disorders give rise to health problems in older people.</li> </ul>			
<b>A:</b>	<ul style="list-style-type: none"> <li>Appreciate that chronological age does not necessarily equate with physical/metabolic failure.</li> </ul>			

	<b>Subject Matter:</b> Endocrine disorders occurring in systemic diseases	<b>Teaching/Learning Methods Suggested:</b> Ref: Page 9	<b>Assessment:</b> Ref: Page 10	<b>Evidence of Competence:</b> Ref: Page 12
<b>K:</b>	<ul style="list-style-type: none"> <li>Know and understand the endocrine and metabolic disturbances that occur as a consequence of liver disease (<i>in cirrhosis, haemochromatosis</i>) chronic renal failure (<i>renin/angiotensin, calcium homeostasis, haematologic</i>). Androgen abuse.</li> <li>Autoimmune endocrinopathy syndromes.</li> </ul>			
<b>S:</b>	<ul style="list-style-type: none"> <li>Able to recognise and assist in the management of the endocrine and metabolic consequences of systemic illness.</li> </ul>			
<b>A:</b>	<ul style="list-style-type: none"> <li>Responds promptly to inter-departmental request: accepts the role of an advisor to consultant in-charge</li> </ul>			

## Domain 7: Required Experience in Diabetes Mellitus and in Endocrinology

In addition to the competencies described in Domains 1 to 6 and the acquisition of the particular knowledge, skills and appropriate attitudes in the contexts listed on the previous pages of this curriculum, trainees are required to demonstrate their clinical and laboratory experiences by confirming attendances at general and specialist diabetic and endocrinology clinics, appropriate responsibilities for the care of in-patients (*including emergencies*), and some experience of working in a recognised endocrinology laboratory. The records of attendance and details of the experience gained, countersigned as necessary by the supervising consultant, should be filed in a portfolio of achievements.

### Objectives:

*To embed theoretical knowledge of endocrinology and diabetes and practical skills in day to day clinical practice, through contact with patients and appropriately supervised management of their illnesses in an out-patient setting, on the wards and in the endocrine laboratory.*

### Context:

- 7.1 Required experiences in diabetes mellitus
- 7.2 Required experience in endocrinology

**Domain 7: Required Experience in Diabetes Mellitus and in Endocrinology**

**7.1 Required experiences in diabetes mellitus**

**Objective:**  
*Attendance at general and specialist diabetic clinics, responsibility for in-patients including diabetic emergencies, participation in multidisciplinary diabetic care.*

Required Experience:	Recommended Minimum:	Assessment: <i>Ref: Page 10</i>	Evidence of Competence: <i>Ref: Page 12</i>
• General adult diabetic out-patient clinics, new and review patients	<b>100</b>		
• Paediatric, adolescent and young adult diabetic clinics	<b>10</b>		
• Provision of supervised in-patient diabetic care, including management of diabetic emergencies and in-house consultation services			
• Specialist diabetes/ophthalmology clinics	<b>10</b>		
• Specialist nephrology clinics	<b>10</b>		
• Multidisciplinary diabetes care, foot clinics	<b>Number not specified</b>		
• Joint obstetric clinics	<b>10</b>		
• Nurse/dietitian/patient education and day care	<b>Number not specified</b>		



**Domain 7: Required Experience in Diabetes Mellitus and in Endocrinology**

**7.2 Required experiences in diabetes mellitus**

**Objective:**  
*Attendance at general endocrine and specialist endocrinology and metabolic clinics, appropriately supervised responsibility for in-patients including emergencies and peri-operative care, ensure participation in multidisciplinary care and experience of working in an endocrine laboratory.*

Required Experience:	Recommended Minimum:	Assessment: <i>Ref: Page 10</i>	Evidence of Competence: <i>Ref: Page 12</i>
• General adult endocrinology OP clinics, new and review patients	<b>100</b>		
• Paediatric endocrinology, including growth clinics	<b>10</b>		
• Joint reproductive medicine ( <i>obstetrics and gynaecology</i> )/endocrinology clinics including infertility	<b>10</b>		
• Metabolic bone clinics	<b>Optional</b>		
• Lipid clinics	<b>Optional</b>		
• Provision of supervised in-patient care for endocrine diseases including management of emergencies and in-house consultation services	<b>N/A</b>		
• Multidisciplinary contact with specialist surgical ( <i>thyroid, pituitary/neurosurgical, gynaecological</i> ) paediatric, radiological and laboratory colleagues including joint working	<b>N/A</b>		

**Irish Committee on Higher Medical Training**  
at the

Royal College of Physicians of Ireland,  
Frederick House 19 South Frederick Street Dublin 2

Phone: (01) 8639 700

Fax: (01) 6724 707

E-Mail: [hmt@rcpi.ie](mailto:hmt@rcpi.ie)

Website: [www.rcpi.ie](http://www.rcpi.ie)