

October 2006

THE COLLEGE OF PAEDIATRICIANS OF SOUTH AFRICA

R E G U L A T I O N S

**FOR ADMISSION TO THE EXAMINATION FOR THE
POST-SPECIALISATION**

SUB-SPECIALTY CERTIFICATE

IN

ENDOCRINOLOGY AND METABOLISM

Cert Endocrinology and Metabolism(SA)

1.0 OBJECTIVES

- 1.1 The candidate who is successful in the examinations must be able to fulfil the role of a specialist physician in the subspecialty of paediatric and adolescent endocrinology and metabolism
- 1.2 These examinations have a primary licensing function: persons awarded the Cert Endocrinology and Metabolism who, in addition, fulfil the other requirements of the Medical, Dental and Supplementary Health Services Act may register and practise as specialist physicians of paediatric and adolescent endocrinology in terms of the Act

2.0 ADMISSION TO THE EXAMINATION

(to be read in conjunction with the Instructions)

A candidate may be admitted to the examination having:

- 2.1 Completed the Specialist Paediatrician training and obtained the FC Paed(SA) or MMed (Paeds). Prior experience in Paediatric Endocrinology and Metabolism at a junior level is considered desirable, although not essential

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- 2.2 Completed at least two years fulltime training as a specialist in an accredited Paediatric Endocrinology and Metabolism Training Unit recognised by the Health Professions Council of South Africa (HPCSA)
- 2.3 Been employed in a sub-specialty trainee post. The trainee will have a named consultant trainer(s) (Education Supervisor[s]) and the ratio of trainer/trainee will be 1:1 or greater
- 2.4 Received a letter of recommendation from the head of the Paediatric Endocrinology and Metabolism Training Unit, in consultation with Senior Staff, and endorsement by the SEMDA Subcommittee of Academic heads
- 2.5 Completed supervised research of high quality which is considered an essential part of subspecialty training in Paediatric Endocrinology and Metabolism. Research should be conducted concurrently with the clinical training. Completion of a Research short report and/or first authorship of a peer-reviewed publication in the field of endocrinology/metabolism is mandatory

3.0 SYLLABUS

See Appendix A

4.0 FORMAT OF THE EXAMINATION

4.1 Written examination:

- 4.1.1 One written paper on the principles and practice of endocrinology, including anatomy, normal physiology, embryology, pathophysiology, biochemistry, pharmacology, molecular biology, clinical investigation, diagnosis and treatment. The paper may include the interpretation of laboratory data, dynamic tests, short case-histories and other material as problem-solving exercises

5.0 ASSESSMENT

5.1 This will include:

- 5.1.1 Annual assessment of competence by the Head of the Paediatric Endocrinology and Metabolism Training Unit
- 5.1.2 Assessment of a logbook kept by the candidate recording the details of all patients seen
- 5.1.3 The details of research undertaken and manuscripts accepted or submitted for publication in the field of endocrinology and metabolism
- 5.1.4 Exit examination under the auspices of the CMSA consisting of a written paper only

**6.0 PAEDIATRIC ENDOCRINOLOGY AND METABOLISM
SUBSPECIALTY TRAINING – ACADEMIC PROGRAMME**

A broad experience in general (internal) medicine is considered essential for the practice of paediatric endocrinology and metabolism

6.1 The management of out-patients:

6.1.1 Attendance at specialist clinics will be obligatory. To ensure that out-patient training is implemented effectively an optimal number of new (n=1-2) and old (n=6-8) patients will be seen at each clinic under supervision and review. Sufficient patients with common and rarer endocrine and metabolic disorders must be seen to provide adequate personal experience

6.1.2 A logbook must be kept to record all out-patients for whom the doctor has assumed responsibility

6.2 The management of in-patients:

6.2.1 The management of in-patients must also be supervised and reviewed

6.2.2 A logbook must be kept to record all in-patients for whom the doctor has assumed responsibility. (Patients with very rare conditions, seen and discussed, should be added separately)

6.3 Active participation at official ward rounds and organised academic activities such as journal club and research meetings and seminars will be mandatory

6.4 Contact with other departments relevant to endocrinology, such as Chemical Pathology, Histopathology, Radiology, Neurosurgery and Surgery (Endocrine) should be encouraged

6.5 A research protocol in the field of paediatric endocrinology and metabolism should be submitted within the first 6 months of appointment

6.6 Active participation at scientific meetings (local and international) will be encouraged

6.7 Rotation to other research centres (local and international) for a specific purpose and time period may be possible

7.0 CURRICULUM

It is expected that completion of the curriculum will result in demonstrable competence at consultant level in the following areas:

7.1 Knowledge of Paediatric Endocrine and Metabolic disorders:

7.1.1 This will require a thorough theoretical knowledge of the endocrine and metabolic diseases (Appendix A). It will include knowledge of the epidemiology, aetiology, pathogenesis, pathology, clinical features and management of these diseases

7.1.2 ***Clinical contact with the patient:***

This will require the trainee to be able to take a history and perform a clinical examination of a patient with an endocrine or metabolic disorder to include special details and methods outlined in the training record

7.1.3 ***Demonstrate experience of Endocrine and Metabolic disease through the paediatric and adolescent age spectrum:***

It is envisaged that this experience could be obtained over the two years by contact with appropriate patients and by attendance at paediatric and adolescent Endocrinology clinics or specific courses

7.1.4 ***Endocrinological and Metabolic emergencies:***

Gain experience with the endocrinological and metabolic emergencies (Appendix A, 1:0)

7.1.5 ***Selection of appropriate laboratory tests:***

This will require knowledge of the metabolic changes, and changes that accompany the endocrine or metabolic disease (Appendix B)

7.1.6 ***Knowledge of the place of imaging techniques and ultrasonography in the investigation of endocrine disease:***

This will require knowledge of the place of these investigations in the diagnosis, and in following the progression of disease (Appendix C)

7.1.7 ***Understand the pharmacology of drugs used in the endocrine and metabolic diseases:***

This will require knowledge of the drugs used in the management of endocrine disorders as well as knowledge of endocrine hormone replacement therapy

7.1.8 ***Appreciate the role of patient education and staff management in endocrine and metabolic diseases:***

This will require knowledge of the wide field of patient education required in the endocrine and metabolic disorders and the concept of the team approach to patient management

7.2 Special skills:

7.2.1 ***Performance and interpretation of dynamic endocrine tests:***

The trainee will be required to demonstrate competence in performing dynamic tests of endocrine function and be able to interpret the results of these tests (Appendix B)

7.2.2 ***Teaching experience:***

The trainee should be able to demonstrate the ability to teach medical and paramedical staff by experience and specific courses if necessary

7.2.3 ***Develop research experience:***

This will include training in the analysis of data and an understanding of the principles and practise of clinical research. The trainee must complete a successful research project and eventually should be able to promote and supervise research in paediatric endocrinology and metabolism

APPENDIX A

SYLLABUS

1.0 Emergencies:

- Hypoglycaemic coma
- Diabetes-related comas
- Thyrotoxic crisis and myxoedema coma
- Hyper- and hypocalcaemic crisis
- Addisonian crisis
- Hypopituitary crisis
- Hyper- and hyponatraemia
- Hyper- and hypokalaemia
- Management of the newborn infant with disorders of sexual differentiation

2.0 Diabetes Mellitus:

- Diagnosis
- Aetio-pathogenesis
- Epidemiology
- Clinical manifestations
- Complications
- Therapy
- Intercurrent states, eg surgery
- Rare genetic syndromes of insulin resistance

3.0 Hypoglycaemia:

- Investigation and management of hypoglycaemia in the neonate and young child
- Congenital hyperinsulinism
- Metabolic disorders
- Other syndromes

Other pancreatic endocrine pancreatic disorders (gastrinoma etc)

4.0 Lipid disorders:

- Inherited dyslipidaemias:
 - Hypertriglyceridaemia
 - Hypercholesterolaemia

5.0 Thyroid disorders:

- Graves' disease
- Graves' ophthalmopathy
- Thyroiditis
- Primary thyroid neoplasms
- Goitrous hypothyroidism
- Iodine deficiency disorders
- Thyroid hormone homeostasis in non thyroidal illness
- Congenital hypothyroidism
- Screening for congenital hypothyroidism

6.0 Pituitary disorders:

- Prolactinoma
- Craniopharyngioma

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- Cushing's disease
- Glycoprotein-secreting adenomas
- "Non-secretory" adenomas
- Hypopituitarism
- Panhypopituitarism
- Hypernatraemic syndromes
- Hypernatraemic syndromes (ADH, etc)

7.0 Adrenal disorders:

- Adrenal glucocorticoid and mineralocorticoid hyper- and hypofunction
- Congenital adrenal hyperplasias
- Pharmacological use of glucocorticoids
- Pheochromocytoma
- Premature adrenarche

8.0 Parathyroid disorders:

- Hyper- and hypoparathyroidism
- Syndromes (pseudohypoparathyroidism)

9.0 Metabolic Bone disease:

- Primary and secondary osteoporosis
- Rickets and osteomalacia
- Osteogenesis imperfecta
- Abnormalities of vitamin D metabolism

10.0 Endocrine Hypertension:

- Endocrine participation in essential hypertension
- Renin-angiotensin hypertension
- Mineralocorticoid-induced hypertension
- Endocrine/metabolic sequelae of therapy

11.0 Growth and Pubertal disorders:

- Short stature
- Growth failure
- Tall stature
- Delayed puberty
- Precocious puberty/pseudo puberty

12.0 Disorders of sexual differentiation:

- Virilisation and feminisation
- Intersex
- True hermaphroditism

13.0 Ovarian disorders:

- PCOS/hirsutism
- Hormone replacement therapy
- Induction of puberty

14.0 Testicular disorders:

- Hypogonadism

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- Androgen resistance
- Androgen replacement therapy
- Induction of puberty

15.0 Nutritional disorders:

Obesity
Anorexia nervosa

16.0 Endocrine disorders in systemic diseases:

17.0 Multi-endocrine disorders:

- MEN syndromes
- Polyglandular syndromes
- Disorders of vasodilator hormones
- “APUD” syndromes

18.0 Breast disorders:

- Galactorrhoea
- Gynaecomastia

19.0 Endocrine Oncology:

- Endocrine consequences of childhood malignancy:
 - primary disorders
 - secondary effects (surgery, irradiation, chemotherapy)
- Para-neoplastic endocrine and metabolic manifestations
- Thyroid cancer
- Cerebral tumours

20.0 Other:

- Epidemiology of common endocrine and metabolic conditions
- Age-related changes in endocrine function
- Endocrine/metabolic affects of drugs

APPENDIX B

ENDOCRINE/METABOLIC LABORATORY INVESTIGATION

1.0 General Principles:

- The radioimmuno-assay
- The radioreceptor-assay
- ELISA assays
- Molecular endocrinology:
 - DNA extraction,
 - PCR amplification,
 - SSCP scanning,
 - sequencing

2.0 Measurements of:

- Peptide hormones
- Steroid hormones
- Important substrates (glucose, lipids)
- Other (eg HbA1c)

3.0 Stimulatory Dynamic tests:

- Hypothalamic-pituitary
- Pituitary
- ACTH
- HCG
- Glucose tolerance
- Glucagon

4.0 Suppression Dynamic tests:

- Hypothalamic-pituitary
- T3/T4
- Dexamethasone

5.0 Other Dynamic tests:

- Water deprivation
- Prolonged fasting
- Posture / Captopril Priming
- “Glucose-clamp”

APPENDIX C

METABOLIC ANATOMICAL AND PATHOLOGICAL ASSESSMENT

- 1.0 Radiology, CT Scanning and MR Imaging of pituitary, thyroid, adrenal and gonadal tissues
- 2.0 Radioisotope assessment of thyroid, adrenal, APUD tissues, skeleton
- 3.0 Radiological assessment of biological age
- 4.0 Radiological assessment of bone density, bone densitometry
- 5.0 Radiological and ultrasonographic assessment of macrovascular disease
- 6.0 FNA of the thyroid gland
- 7.0 Selective transvenous sampling of hormones

APPENDIX D

1.0 RECOMMENDED READING:

1.1 Books:

It is recommended that trainees should read a modern but relatively short and manageable textbook of Endocrinology in the first 3-6 months of training (eg Greenspan and Baxter: Basic and Clinical Endocrinology; Lavin: Manual of Endocrinology and Metabolism – updated every 2-3 years).

Modern reference textbooks on Endocrinology, Metabolism and Diabetes should be readily available (eg de Groot: Endocrinology; Williams Textbook of Endocrinology).

For Paediatricians: eg Bertrand, Rappoport, Sizonenko – Paediatric Endocrinology

1.2 Journals:

A range of general medical and endocrinology and diabetes journals are essential reading. Suggested journals include:

- Journal of Clinical Endocrinology and Metabolism
- Endocrine Reviews
- Clinical Endocrinology
- Diabetes Care
- Diabetic Medicine
- Diabetologia
- Journal of Paediatric Endocrinology and Metabolism