INTRODUCTION

These standards apply to programs in adult Endocrinology and Metabolism and pediatric Endocrinology and Metabolism. A university wishing to have an accredited program in adult Endocrinology and Metabolism must also sponsor an accredited program in Internal Medicine. A university wishing to have an accredited program in pediatric Endocrinology and Metabolism must also sponsor an accredited program in Pediatrics.

The purpose of this document is to provide program directors and surveyors with an interpretation of the general standards of accreditation as they relate to the accreditation of programs in adult Endocrinology and Metabolism or pediatric Endocrinology and Metabolism. This document should be read in conjunction with the General Standards of Accreditation and the Objectives of Training and the Subspecialty Training Requirements in Endocrinology and Metabolism.

STANDARD B1: ADMINISTRATIVE STRUCTURE

There must be an appropriate administrative structure for each residency program.

Please refer to Standard B1 in the General Standards of Accreditation for the interpretation of this standard. The Program Director must have RCPSC certification in Endocrinology and Metabolism.

STANDARD B2: GOALS AND OBJECTIVES

There must be a clearly worded statement outlining the goals of the residency program and the educational objectives of the residents.

The general goals and objectives for adult Endocrinology and Metabolism and pediatric Endocrinology and Metabolism are outlined in the Objectives of Training and the Subspecialty Training Requirements in Endocrinology and Metabolism. Based upon these general objectives each program is expected to develop rotation specific objectives suitable for that particular program, as noted in Standard B2 of the General Standards of Accreditation.

STANDARD B3: STRUCTURE AND ORGANIZATION OF THE PROGRAM

There must be an organized program of rotations and other educational experiences, both mandatory and elective, designed to provide each resident with the opportunity to fulfil the educational requirements and achieve competence in the specialty or subspecialty.
The structure and organization of each accredited program in adult Endocrinology and Metabolism or pediatric Endocrinology and Metabolism must be consistent with the specialty training requirements as outlined in the *Objectives of Training* and the *Subspecialty Training Requirements in Endocrinology and Metabolism*.

In addition to offering the components noted in the subspecialty training requirements, all accredited programs in Adult Endocrinology and Metabolism and Pediatric Endocrinology and Metabolism should offer community-based learning experiences and/or out-reach clinics.

Residents must be provided with increasing individual professional responsibility, under appropriate supervision, according to their level of training, ability and experience in both the clinical and laboratory aspects of the specialty. The equivalent of at least one year must be spent in clinical work, during which time the resident has supervised responsibility for the care of patients with endocrine and metabolic diseases and experience in the interpretation of laboratory procedures required to manage these patients.

The residents in adult Endocrinology and Metabolism must have formal experience in pediatric Endocrinology and Metabolism for a minimum of a one month protected rotation for exposure to pediatric patients including infants for training in endocrine and metabolic disorders of this age group. Correspondingly, the residents in pediatric Endocrinology and Metabolism must have formal experience in adult Endocrinology and Metabolism for a minimum of a one month protected rotation for exposure to adults for training in endocrine and metabolic disorders in this age group.

**STANDARD B4: RESOURCES**

*There must be sufficient resources including teaching faculty, the number and variety of patients, physical and technical resources, as well as the supporting facilities and services necessary to provide the opportunity for all residents in the program to achieve the educational objectives and receive full training as defined by the Royal College specialty training requirements.*

In those cases where a university has sufficient resources to provide most of the training in adult Endocrinology and Metabolism or pediatric Endocrinology and Metabolism but lacks one or more essential elements, the program may still be accredited provided that formal arrangements have been made to send residents to another accredited residency program for periods of appropriate prescribed training.

Learning environments must include experiences that facilitate the acquisition of knowledge, skills, and attitudes relating to aspects of age, gender, culture, and ethnicity appropriate to Endocrinology & Metabolism.

1. **Teaching Faculty**

There must be a sufficient number of qualified teaching staff to supervise the residents and provide teaching in the basic and clinical sciences related to endocrine and metabolic disorders in both adults and children. The teaching staff should have an appropriate nucleus of full-time teachers.
2. Number and Variety of Patients

The number and variety of patients, both pediatric and adult, available for teaching must be adequate to provide experience in the following areas: general aspects of Endocrinology and Metabolism as manifested by excess or deficient hormone production by the glands of internal secretion (pituitary, thyroid, parathyroid, pancreas, adrenal, testis and ovary), disorders of the hypothalamic-pituitary axis, pathophysiology of neuroendocrine and paracrine secretion, and mechanisms of hormone action.

3. Clinical Services Specific to Adult Endocrinology and Metabolism and Pediatric Endocrinology and Metabolism

Clinical training must be based on adequate resources to insure full training for each resident in all areas of Endocrinology and Metabolism. The description of the program should specify how each of the components is to be provided.

a. In-Patient

Endocrinology and Metabolism services participating in the program must have either an adequate number of beds, or access to an adequate number of beds (both pediatric and adult) to investigate patients with endocrine or metabolic disorders. Clinical facilities must be organized for teaching the investigation and treatment of endocrine and metabolic diseases. These must be under the supervision of a qualified specialist. In order to provide consistent supervision there should be a group of specialists to staff this service.

The program must provide opportunities for specific aspects of knowledge with which a resident should become familiar including:

- Type 1 and Type 2 diabetes mellitus, including special training in ophthalmological assessment, the role of nutrition, exercise, and pharmacological management and complications, as well as training in the use of special instrumentation pertinent to the field;
- Alterations in the endocrine system in persons with systemic disease;
- Alterations in the endocrine system in pregnant women;
- Disorders of glucose metabolism including hypoglycemia and hyperglycemia;
- Disorders of lipid metabolism;
- Disorders of protein metabolism;
- Disorders of growth in children and adolescents (limited to pediatric endocrinology);
- Disorders of the adrenal cortex and the adrenal medulla;
- Disorders of the pituitary gland (anterior and posterior); and
- Endocrine hypertension;
• Obesity;
• Disorders of the thyroid gland and thyroid metabolism, including interpretation of radioisotope studies, ultrasound and thyroid biopsy;
• Metabolic bone disease and disorders of calcium metabolism including disorders of the parathyroid glands and the Vitamin D system;
• Disorders of reproduction including disordered sexual development, ambiguous genitalia and gender identity, abnormalities of puberty, menstrual disorders, infertility and hyperandrogenic states in females;
• Normal growth and development and its variations;
• Fluid, electrolyte and acid-base disorders disorders related to the endocrine system;
• Pathogenesis and management of endocrine hypertension;
• Autoimmunity as it pertains to Endocrinology and Metabolism;
• Aspects of nutrition as they apply to endocrine disorders;
• Genetics as it relates to endocrine disorders;
• Endocrine tumours and cancer;
• Screening for endocrine disorders and autoimmunity as it relates to the endocrine system.

b. Ambulatory

Both pediatric and adult in-patient and out-patient teaching services should be integrated as much as possible, in order to provide continuity of observation of patients both in and out of hospital. Organized clinics or other ambulatory care facilities must be available to provide opportunities for pre-admission investigation and post-discharge follow-up of patients with endocrine and metabolic disease with appropriate facilities dedicated to patient education (e.g. diabetes, hyperlipidemia). Specialty clinics in neuroendocrinology, diabetes, or other more specialized subgroups of patients, should be recognized as providing an important part of a residency program.

c. Consultation

The program must provide residents with the opportunity to obtain experience in the provision of an in-patient and out-patient consultation service to primary care physicians and other specialists (community organizations and government institutions). Residents should also have experience in providing advice to community organizations related to Endocrinology and Metabolism.
4. Supporting Services - Clinical, Diagnostic, Technical

The following special facilities and services must be available for the training of residents and closely coordinated with the overall program:

a. Core diagnostic facilities for steroid and peptide hormones;

b. Department of pathology with provision for the study of endocrine material obtained surgically or at post-mortem;

c. Active neurosurgical teaching service providing opportunities for collaborative investigation and management of patients with neuroendocrine dysfunction;

d. Department of Nuclear Medicine and/or radiology including specialized staff and facilities in the following areas: radioisotopic diagnosis, scanning, and ultrasonography;

e. Intensive care units organized for teaching and management in the collaborative care of severely ill patients with endocrine and metabolic disorders;

f. Clinical endocrinology and metabolism laboratory facilities to ensure that each resident gains adequate experience in the laboratory aspects of the specialty, especially with regard to quality control of assays and interpretation of results.

5. Research Facilities

Facilities for research rotations, clinical or laboratory, should meet the following requirements: (i) the director of the program should be a scientist with university rank; (ii) the research program and the role of the resident in this program should be clearly defined; and (iii) there should be adequate space, equipment, assistance, and where indicated animal facilities.

STANDARD B5: CLINICAL, ACADEMIC AND SCHOLARLY CONTENT OF THE PROGRAM

The clinical, academic and scholarly content of the program must be appropriate for university postgraduate education and adequately prepare residents to fulfill all of the CanMEDS Roles of the specialist. The quality of scholarship in the program will, in part, be demonstrated by a spirit of enquiry during clinical discussions, at the bedside, in clinics or in the community, and in seminars, rounds, and conferences. Scholarship implies an in-depth understanding of basic mechanisms of normal and abnormal states and the application of current knowledge to practice.

Please refer to Standard B5 in the General Standards of Accreditation, the Objectives of Training, the Subspeciality Training Requirements in Endocrinology and Metabolism and the CanMEDS Framework for the interpretation of this standard. Each program is expected to develop a curriculum for each of the CanMEDS roles, which reflects the uniqueness of the program and its particular environment. Specific additional requirements are listed below.
1. Medical Expert

In addition to the *General Standards of Accreditation*, the following requirements apply.

- The program must include organized teaching in the basic sciences related to the subspecialty, including the physiology, pathophysiology and pathology of the endocrine glands.

2. Communicator

The *General Standards of Accreditation* apply to this section.

3. Collaborator

In addition to the *General Standards of Accreditation*, the following requirements apply.

- Residents must be given opportunities to assist in longitudinal coordination of care.

4. Manager

In addition to the *General Standards of Accreditation*, the following requirements apply.

- The program must provide residents with experience in the laboratory aspects of the subspecialty, especially with regard to quality control of assays and interpretation of results.

- The program must provide residents with opportunities to manage a practice including finances and human resources: recognize the role of audits, budget reviews, quality improvement, risk management, incident reporting, and complaint management in various settings including metabolic day treatment centers, clinical investigation units, the laboratory and the ambulatory care setting.

5. Health Advocate

The *General Standards of Accreditation* apply to this section.

6. Scholar

The *General Standards of Accreditation* apply to this section.

7. Professional

The *General Standards of Accreditation* apply to this section.
STANDARD B6: EVALUATION OF RESIDENT PERFORMANCE

There must be mechanisms in place to ensure the systematic collection and interpretation of evaluation data on each resident enrolled in the program.

Please refer to Standard B6 in the General Standards of Accreditation for the interpretation of this standard.

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