Endocrinology, Diabetes, and Metabolism
Certification Examination Blueprint

Purpose of the exam

The exam is designed to evaluate the knowledge, diagnostic reasoning, and clinical judgment skills expected of the certified endocrinologist in the broad domain of the discipline. The ability to make appropriate diagnostic and management decisions that have important consequences for patients will be assessed. The exam may require recognition of common as well as rare clinical problems for which patients may consult a certified endocrinologist.

Exam content

Exam content is determined by a pre-established blueprint, or table of specifications. The blueprint is developed by ABIM and is reviewed annually and updated as needed for currency. Trainees, training program directors, and certified practitioners in the discipline are surveyed periodically to provide feedback and inform the blueprinting process.

The primary medical content categories of the blueprint are shown below, with the percentage assigned to each for a typical exam:

<table>
<thead>
<tr>
<th>Medical Content Category</th>
<th>% of Exam</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adrenal Disorders</td>
<td>10%</td>
</tr>
<tr>
<td>Pituitary Disorders</td>
<td>10%</td>
</tr>
<tr>
<td>Lipids, Obesity, and Nutrition</td>
<td>12%</td>
</tr>
<tr>
<td>Female Reproduction</td>
<td>7%</td>
</tr>
<tr>
<td>Male Reproduction</td>
<td>7%</td>
</tr>
<tr>
<td>Diabetes Mellitus and Hypoglycemia</td>
<td>24%</td>
</tr>
<tr>
<td>Calcium and Bone Disorders</td>
<td>15%</td>
</tr>
<tr>
<td>Thyroid Disorders</td>
<td>15%</td>
</tr>
</tbody>
</table>

100%

Exam questions in the content areas above may also address clinical topics in internal medicine, including some general pediatrics with an emphasis on adolescent medicine, that are important to the practice of endocrinology.
Exam format

The exam is composed of multiple-choice questions with a single best answer, predominantly describing patient scenarios. Questions ask about the work done (that is, tasks performed) by physicians in the course of practice:

- Making a diagnosis
- Ordering and interpreting results of tests
- Recommending treatment or other patient care
- Assessing risk, determining prognosis, and applying principles from epidemiologic studies
- Understanding the underlying pathophysiology of disease and basic science knowledge applicable to patient care

Clinical information presented may include various media illustrating relevant findings, such as diagnostic imaging studies, continuous glucose monitoring tracings, radiographic studies, or patient photographs. The certification exam may include the following adrenal imaging studies and procedures:

- Differentiate among imaging techniques for adrenal disease, including computed tomography, magnetic resonance imaging, meta-iodobenzylguanidine scintigraphy, indium-labeled pentetreotide scintigraphy, fludrooxyglucose positron emission tomography, and 68-Ga-DOTATATE positron emission tomography.
- Interpret imaging phenotype to predict the histologic type of adrenal disease—including: benign adenoma, pheochromocytoma, adrenocortical carcinoma, and adrenal metastases.
- Identify indications for computed tomography–guided adrenal fine-needle aspiration biopsy.
- Identify indications for adrenal venous sampling for aldosterone.
- Interpret results from adrenal venous sampling (with or without cosyntropin stimulation).

The following pituitary imaging studies and procedures may be included on the exam:

- Interpret typical imaging phenotypes on magnetic resonance imaging for primary pituitary tumors, pituitary cysts, pituitary hyperplasia, metastatic lesions to the pituitary, pituitary stalk lesions, and hypothalamic masses.
- Identify indications for inferior petrosal sinus sampling for corticotropin.
- Interpret results from inferior petrosal sinus sampling.

A tutorial including examples of ABIM exam question format can be found at http://www.abim.org/certification/exam-information/endocrinology-diabetes-metabolism/exam-tutorial.aspx.
The blueprint can be expanded for additional detail as shown below. Each of the medical content categories is listed there, and below each major category are the content subsections and specific topics that may appear in the exam. Please note: actual exam content may vary.

### Adrenal Disorders 10% of Exam

<table>
<thead>
<tr>
<th>Category</th>
<th>Percentage</th>
<th>Subtopics</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Glucocorticoids</strong></td>
<td>4%</td>
<td>Cushing’s syndrome&lt;br&gt;Management of glucocorticoid therapy&lt;br&gt;Adrenal insufficiency&lt;br&gt;Glucocorticoid resistance</td>
</tr>
<tr>
<td><strong>Mineralocorticoids</strong></td>
<td>2%</td>
<td>Hyperaldosteronism&lt;br&gt;Hypoaldosteronism</td>
</tr>
<tr>
<td><strong>Adrenal androgens</strong></td>
<td>&lt;2%</td>
<td>Congenital adrenal hyperplasia</td>
</tr>
<tr>
<td><strong>Adrenal incidentaloma</strong></td>
<td>&lt;2%</td>
<td></td>
</tr>
<tr>
<td><strong>Adrenal medulla</strong></td>
<td>&lt;2%</td>
<td>Pheochromocytoma and paraganglioma&lt;br&gt;Neurofibromatosis type 1&lt;br&gt;von Hippel-Lindau syndrome&lt;br&gt;Multiple endocrine neoplasia (MEN) types 2A and 2B&lt;br&gt;Familial paraganglioma syndromes&lt;br&gt;Familial paraganglioma-pheochromocytoma syndromes</td>
</tr>
<tr>
<td><strong>Adrenal cancer</strong></td>
<td>&lt;2%</td>
<td></td>
</tr>
</tbody>
</table>

### Pituitary Disorders 10% of Exam

<table>
<thead>
<tr>
<th>Category</th>
<th>Percentage</th>
<th>Subtopics</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Prolactin</strong></td>
<td>&lt;2%</td>
<td>Hyperprolactinemia&lt;br&gt;Normoprolactinemic galactorrhea</td>
</tr>
<tr>
<td><strong>Growth hormone</strong></td>
<td>2%</td>
<td>Acromegaly&lt;br&gt;Deficiency</td>
</tr>
<tr>
<td><strong>Thyroid-stimulating hormone (TSH)</strong></td>
<td>&lt;2%</td>
<td>Thyroid-stimulating hormone–secreting adenoma&lt;br&gt;Hyperplasia secondary to longstanding primary hypothyroidism&lt;br&gt;Thyroid-stimulating hormone deficiency</td>
</tr>
<tr>
<td><strong>Gonadotropins</strong></td>
<td>&lt;2%</td>
<td>Gonadotroph pituitary tumors&lt;br&gt;Hypogonadotropic hypogonadism</td>
</tr>
</tbody>
</table>
Nonsecreting pituitary tumors <2%
Adrenocorticotropic hormone (ACTH) <2%
  Cushing's disease
  ACTH deficiency
Hypopituitarism <2%
  Clinical presentation
  Causes
    Tumors
    Pituitary apoplexy
    Sheehan's syndrome
    Hemochromatosis
    Lymphocytic hypophysitis
    Sarcoidosis
    Traumatic brain injury
    Iatrogenic (radiation, surgery)
Treatment
  Adjustment of growth hormone according to insulin-like growth factor 1 levels
  Monitoring of thyroid with free thyroxine (T4)
  Clinical adjustment of glucocorticoids
Empty sella syndrome <2%
Antidiuretic hormone (ADH) <2%
  Diabetes insipidus
  Syndrome of inappropriate antidiuretic hormone secretion (SIADH)
Craniopharyngioma <2%
Pituitary incidentaloma <2%

Lipids, Obesity, and Nutrition 12% of Exam

Hypercholesterolemia <2%
  Primary disorders
    Familial hypercholesterolemia
    Familial defective apolipoprotein B-100
    Lipoprotein(a)
    Elevated high-density lipoprotein cholesterol
  Secondary disorders
Hypertriglyceridemia <2%
  Primary disorders
    Familial hypertriglyceridemia
    Apoprotein and lipase disorders
  Secondary disorders
    Chylomicronemia
Elevated triglycerides and low density lipoprotein cholesterol 2.5%
  Primary disorders
    Familial combined hyperlipidemia
    Familial dysbetalipoproteinemia (type III)
  Secondary disorders

Hypolipidemia <2%
  Primary disorders
  Secondary disorders

Treatment of lipid disorders 2.5%
  Diet
  Drugs
  Lifestyle
  Indications for treatment

Obesity and nutrition 3%
  Genetic disorders
  Secondary disorders
  Comorbidities
  Treatment of obesity
    Diet
    Drugs
    Lifestyle
    Surgery
    Indications for treatment

General nutrition <2%
  Energy requirements
  Vitamin deficiency
  Enteral nutrition

Counseling <2%

Female Reproduction 7% of Exam

Amenorrhea <2%
  Primary
    Androgen insensitivity syndrome
    Turner syndrome
    Congenital gonadotropin-releasing hormone (GnRH) deficiency
  Secondary
Hyperandrogenism <2%
- Polycystic ovary syndrome
- Non-polycystic ovary syndromes
  - Hyperthecosis
  - Ovarian tumors
  - Adrenal tumors
- Nonclassic congenital adrenal hyperplasia
- Pregnancy-associated
- Anabolic steroids

Premenstrual syndrome and premenstrual dysphoric disorder <2%

Endocrine causes of infertility <2%
- Anovulation
- Age-associated infertility (diminished ovarian reserve)

Hormonal contraception <2%
- Combined estrogen-progestin contraceptives
- Progestin-only contraception

Perimenopause and menopause <2%
- Perimenopause
- Menopause
- Estrogen–progestin therapy

Sexual differentiation <2%
- Gender dysphoria
- Female-to-male transgender management

Male Reproduction 7% of Exam

Hypogonadism 2%
- Testosterone in hypogonadism
- Sex hormone binding globulin (SHBG)-dependent changes in testosterone
- Primary hypogonadism
- Secondary hypogonadism
- Genetic disorders of androgen production and action
- Testosterone therapy
- Gonadotropins

Infertility <2%
- Causes
  - Cryptorchidism
  - Klinefelter syndrome
  - Cystic fibrosis and cystic fibrosis gene mutations
  - Drug-induced infertility
  - Obstructive azoospermia
Idiopathic oligozoospermia
Y-chromosome microdeletions

Treatment
Gonadotropins
Testicular sperm extraction
Intracytoplasmic sperm injection

Gynecomastia <2%

Causes
Drug-induced gynecomastia
Testicular tumors (Sertoli and Leydig cell tumors)
Extra-testicular tumors
Androgen deprivation therapy for prostate cancer
Hyperthyroidism
Pubertal gynecomastia
Idiopathic and other rare causes of gynecomastia

Treatment
Tamoxifen
Aromatase inhibitors
Mammooplasty and mastectomy

Erectile dysfunction <2%

Causes
Smoking
Diabetes mellitus
Hypertension
Hyperlipidemia
Peyronie's disease
Pelvic and prostate surgery
Obesity

Diagnostic tests
Treatment
Phosphodiesterase-5 and nonspecific phosphodiesterase inhibitors
Prostaglandin E1, intraurethral and intracavernosal
Alpha-adrenergic blockers
Penis pump (penile vacuum device)
Penile implant

Testosterone in aging men <2%

Abuse of androgens and anabolic steroids <2%

Sexual differentiation <2%
Gender dysphoria
Male-to-female transgender management

Ejaculatory dysfunctions <2%
Premature ejaculation
<table>
<thead>
<tr>
<th>Diabetes Mellitus and Hypoglycemia</th>
<th>24% of Exam</th>
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</thead>
</table>

**Prediabetes**
- Impaired fasting glucose
- Impaired glucose tolerance
- Screening
- Diabetes prevention

**Monitoring glycemic control**
- Hemoglobin A1C
- Fructosamine and 1,5-anhydroglucitol
- Conventional glucose monitoring
- Ketone testing
- Continuous glucose monitoring (CGM)

**Type 1 diabetes mellitus**
- Ketoacidosis
- Recent-onset type 1 diabetes
- Latent autoimmune diabetes of the adult (LADA)
- Hyperglycemia in type 1 diabetes
- Hypoglycemia due to insulin management
- Hypoglycemia unawareness
- Pathogenesis of type 1 diabetes

**Type 2 diabetes mellitus**
- Hyperosmolar nonketotic state
- Hyperglycemia in type 2 diabetes
- Hypoglycemia due to oral agents and insulin management
- Pathogenesis of type 2 diabetes

**Additional types of diabetes mellitus**
- Monogenic diabetes
- Ketosis-prone diabetes (KPD)
- New-onset diabetes after transplant (NODAT)
  - [post-transplant diabetes mellitus (PTDM)]
- Pancreatic diabetes
- Cystic fibrosis-related diabetes
- Drug-induced diabetes

**Recognition and management of associated conditions**
- Hypertension
- Dyslipidemia
- Obesity
- Sleep apnea
- Fatty liver
- Thyroid disease
Celiac disease
Polycystic ovary syndrome
Eating disorders

**Pregnancy**
- Gestational diabetes
- Pre-gestational diabetes

**Diabetes mellitus complications**
- Microvascular
  - Retinopathy
  - Nephropathy
  - Neuropathy
- Macular edema
- Mononeuropathies
- Macrovascular
  - Coronary artery disease
  - Heart failure
  - Peripheral vascular disease
- Diabetic foot
- Skin disorders
  - Lipohypertrophy
  - Lipoatrophy
  - Necrobiosis lipoidica
  - Acanthosis nigricans
- Neuropsychiatric

**Islet cell and pancreas transplantation**

**Hypoglycemia independent of diabetes mellitus**
- Insulinoma
- Non-insulinoma causes

**Inpatient diabetes mellitus management**
- Intensive care unit
- Non–intensive care unit

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**Calcium and Bone Disorders**

**Hypercalcemia**
- 3%
  - Parathyroid hormone-mediated
    - Primary hyperparathyroidism
    - Familial hypocalciuric hypercalcemia
    - Lithium-induced
Non-parathyroid hormone–mediated
   Hypercalcemia of malignancy
   Milk-alkali syndrome
   Sarcoidosis, tuberculosis, and other granulomatous diseases
   Vitamin D intoxication
   Post-rhabdomyolysis
   Adynamic bone disease
   Myeloma
   Acute adrenal insufficiency
   Vitamin A

**Hypocalcemia** 2.5%
   Hypoparathyroidism
   Parathyroid hormone (PTH) resistance
   Hypomagnesemia
   Hyperphosphatemia
   Celiac disease
   Hypocalcemia (general)

**Osteoporosis** 4%
   In female
   In male
   Post-transplantation and glucocorticoid-induced
   Renal, hepatic, and gastrointestinal disease–related

**Paget's disease of bone** <2%

**Hypovitaminosis D** <2%
   Dietary deficiency
   Limited sun exposure
   Malabsorption
   Liver failure
   Renal insufficiency
   Vitamin D–dependent rickets types I and II
   Vitamin D–resistant rickets
   Drug-induced
   Bone disease
   Nonskeletal disorders

**Osteomalacia and rickets** <2%
   Chronic hypophosphatemia
   Inhibitors of mineralization

**Renal osteodystrophy** <2%

**Nephrolithiasis** <2%

**Osteogenesis imperfecta and bone dysplasias** <2%

**Fibrous dysplasia and other dysplastic syndromes** <2%
Calciphylaxis <2%
Hypophosphatemia <2%

Renal losses
Gastrointestinal malabsorption
Internal redistribution

**Thyroid Disorders**

<table>
<thead>
<tr>
<th>Hyperthyroidism</th>
<th>15% of Exam</th>
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<tbody>
<tr>
<td>Graves’ disease</td>
<td>3.5%</td>
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<tr>
<td>Toxic adenoma and multinodular goiter</td>
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<tr>
<td>Inappropriate thyroid-stimulating hormone (TSH) syndromes</td>
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<tr>
<td>TSH-secreting tumor</td>
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<tr>
<td>Resistance to thyroid hormone and thyroid hormone action</td>
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<tr>
<td>Artifactual TSH “derangements”</td>
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<tr>
<td>Thyrotoxicosis with low radioactive iodine uptake</td>
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<tr>
<td>Thyroiditis</td>
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<tr>
<td>Factitious, accidental, and iatrogenic thyrotoxicosis</td>
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<tr>
<td>Iodine-induced</td>
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<tr>
<td>Struma ovarii</td>
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<tr>
<td>Complicated thyrotoxicosis</td>
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<tr>
<td>Subclinical hyperthyroidism</td>
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<table>
<thead>
<tr>
<th>Hypothyroidism</th>
<th>2.5%</th>
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<tbody>
<tr>
<td>Primary</td>
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<tr>
<td>Secondary</td>
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<tr>
<td>Subclinical hypothyroidism</td>
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<tr>
<td>Complicated hypothyroidism</td>
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<tr>
<td>TSH resistance</td>
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<tr>
<td>Therapy</td>
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<table>
<thead>
<tr>
<th>Nontoxic solitary nodules and multinodular goiter</th>
<th>3%</th>
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<tbody>
<tr>
<td>Fine-needle aspiration/cytology and genetic test interpretation</td>
<td></td>
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<tr>
<td>Roles of ultrasonography and radionuclide scanning</td>
<td></td>
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<tr>
<td>Treatment</td>
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<tr>
<td>Surgery</td>
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<td>Radioactive iodine</td>
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<tr>
<td>Minimally invasive and noninvasive treatments</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Thyroid cancer</th>
<th>3.5%</th>
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<tbody>
<tr>
<td>Well-differentiated epithelial thyroid cancers</td>
<td></td>
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<tr>
<td>Hürthle cell cancer</td>
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<tr>
<td>Anaplastic cancer</td>
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<tr>
<td>Lymphoma</td>
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</tbody>
</table>
Medullary cancer

**Thyroid test abnormalities without thyroid disease**
- Euthyroid hypothyroxinemia
- Euthyroid hyperthyroxinemia
- Effect of drugs on thyroid function tests
- Euthyroid sick syndrome
- Thyroid hormone antibodies
- Antibody interferences with TSH measurement

**Thyroid diseases in pregnancy**
- Hypothyroidism
- Hyperthyroidism
- Thyroid nodule and cancer

January 2020