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>
<tr>
<td></td>
<td>100%</td>
</tr>
</tbody>
</table>

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

### Pituitary Disorders 10% of Exam

<table>
<thead>
<tr>
<th>Category</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Prolactin</strong></td>
<td>&lt;2%</td>
</tr>
<tr>
<td>Hyperprolactinemia</td>
<td></td>
</tr>
<tr>
<td>Normoprolactinemic galactorrhea</td>
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<tr>
<td><strong>Growth hormone</strong></td>
<td>2%</td>
</tr>
<tr>
<td>Acromegaly</td>
<td></td>
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<tr>
<td>Deficiency</td>
<td></td>
</tr>
<tr>
<td><strong>Thyroid-stimulating hormone (TSH)</strong></td>
<td>&lt;2%</td>
</tr>
<tr>
<td>TSH-secreting adenoma</td>
<td></td>
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<tr>
<td>Hyperplasia secondary to longstanding primary hypothyroidism</td>
<td></td>
</tr>
<tr>
<td>TSH deficiency</td>
<td></td>
</tr>
<tr>
<td><strong>Gonadotropins</strong></td>
<td>&lt;2%</td>
</tr>
<tr>
<td>Gonadotroph pituitary tumors</td>
<td></td>
</tr>
<tr>
<td>Hypogonadotropic hypogonadism</td>
<td></td>
</tr>
</tbody>
</table>
Nonsecreting pituitary tumors <2%
Adrenocorticotropic hormone (ACTH) <2%
  Cushing disease
  ACTH deficiency
Hypopituitarism <2%
  Clinical presentation
  Causes
    Tumors
    Pituitary apoplexy
    Sheehan syndrome
    Hemochromatosis
    Lymphocytic hypophysitis
    Sarcoidosis
    Traumatic brain injury
    Iatrogenic (radiation, surgery)
Treatment
  Adjustment of growth hormone according to insulin-like growth factor-1 (IGF-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/lipase disorders
  Secondary disorders
    Chylomicronemia syndrome
Elevated triglycerides and low-density lipoprotein cholesterol 2.5%

Primary disorders
- Familial combined hyperlipidemia
- Familial dysbetalipoproteinemia (type III)
- Hypobetalipoproteinemia (Low LDL-c)

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
Polycystic ovary syndrome
Non-poly cystic ovary syndromes
  Hyperthecosis
  Ovarian tumors
  Adrenal tumors
  Nonclassic congenital adrenal hyperplasia
  Pregnancy-associated
  Anabolic steroids

Prenmenstrual syndrome and premenstrual dysphoric disorder  
Endocrine causes of infertility
Anovulation
  Age-associated infertility (diminished ovarian reserve)

Hormonal contraception
Combined estrogen–progestin contraceptives
Progestin-only contraception

Perimenopause and menopause
Perimenopause
Menopause
Estrogen–progestin therapy

Sexual differentiation
Gender dysphoria
Female-to-male transition management

Male Reproduction  
7% of Exam

Hypogonadism
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
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

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

Treatment
Tamoxifen
Aromatase inhibitors
Mammoplasty and mastectomy

Erectile dysfunction

Causes
Smoking
Diabetes mellitus
Hypertension
Hyperlipidemia
Peyronie 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

Abuse of androgens and anabolic steroids

Sexual differentiation

Gender dysphoria
Male-to-female transition management

Ejaculatory dysfunctions

Premature ejaculation
## Diabetes Mellitus and Hypoglycemia

### Prediabetes

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

### Monitoring glycemic control

- Hemoglobin A\(_1C\)
- 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

- 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**

<table>
<thead>
<tr>
<th>Microvascular</th>
<th>4.5%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Retinopathy</td>
<td></td>
</tr>
<tr>
<td>Nephropathy</td>
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<tr>
<td>Neuropathy</td>
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<tr>
<td>Macular edema</td>
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<tr>
<td>Mononeuropathies</td>
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<tr>
<td>Macrovascular</td>
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<tr>
<td>Coronary artery disease</td>
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<tr>
<td>Heart failure</td>
<td></td>
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<tr>
<td>Peripheral vascular disease</td>
<td></td>
</tr>
<tr>
<td>Diabetic foot</td>
<td></td>
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</tbody>
</table>

**Skin disorders**
- Lipohypertrophy
- Lipoatrophy
- Necrobiosis lipoidica
- Acanthosis nigricans

**Neuropsychiatric**

**Islet cell and pancreas transplantation**
- <2%

**Hypoglycemia independent of diabetes mellitus**
- Insulinoma 2%
- Noninsulinoma

**Inpatient diabetes mellitus management**
- <2%
- Intensive care unit
- Non–intensive care unit

**Calcium and Bone Disorders** 15% of Exam

**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 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

Rare bone diseases <2%
  
  Hypophosphatasia
  Fibrodysplasia ossificans progressiva
  Osteopetrosis

Thyroid Disorders 15% of Exam

Hyperthyroidism 3.5%
  
  Graves disease
  Toxic adenoma and multinodular goiter
  Inappropriate thyroid-stimulating hormone (TSH) syndromes
    TSH-secreting tumor
    Resistance to thyroid hormone and thyroid hormone action
    Artifactual TSH “derangements”
  Thyrotoxicosis with low radioactive iodine uptake
    Thyroiditis
    Factitious, accidental, and iatrogenic thyrotoxicosis
    Iodine-induced
    Struma ovarii
  Complicated thyrotoxicosis
  Subclinical hyperthyroidism

Hypothyroidism 2.5%
  
  Primary
  Secondary
  Subclinical hypothyroidism
  Complicated hypothyroidism
  TSH resistance
  Therapy

Nontoxic solitary nodules and multinodular goiter 3%
  
  Fine-needle aspiration/cytology and genetic test interpretation
  Roles of ultrasonography and radionuclide scanning
  Treatment
    Surgery
    Radioactive iodine
    Minimally invasive and noninvasive treatments
Thyroid cancer 3.5%  
- Well-differentiated epithelial cancers  
- Hürthle cell cancer  
- Anaplastic cancer  
- Lymphoma  
- Medullary cancer  

Thyroid test abnormalities without thyroid disease <2%  
- 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 <2%  
- Hypothyroidism  
- Hyperthyroidism  
- Thyroid nodule and cancer  

January 2021