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, fludrodeoxyglucose 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.
- 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.

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.

<table>
<thead>
<tr>
<th>Adrenal Disorders</th>
<th>10% of Exam</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>
</tr>
<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>
</tr>
<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>

<table>
<thead>
<tr>
<th>Pituitary Disorders</th>
<th>10% of Exam</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>
<td></td>
</tr>
<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>
</tr>
<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-polycystic ovary syndromes
  - Hyperthecosis
  - Ovarian tumors
  - Adrenal tumors
  - Nonclassic congenital adrenal hyperplasia
  - Pregnancy-associated
  - Anabolic steroids

**Premenstrual 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

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### 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 <2%

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
Mammooplasty and mastectomy

Erectile dysfunction <2%

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 <2%

Abuse of androgens and anabolic steroids <2%

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

Ejaculatory dysfunctions <2%
Premature ejaculation
<table>
<thead>
<tr>
<th>Conditions</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prediabetes</td>
<td>2%</td>
</tr>
<tr>
<td>Impaired fasting glucose</td>
<td></td>
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<tr>
<td>Impaired glucose tolerance</td>
<td></td>
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<tr>
<td>Screening</td>
<td></td>
</tr>
<tr>
<td>Diabetes prevention</td>
<td></td>
</tr>
<tr>
<td>Monitoring glycemic control</td>
<td>2%</td>
</tr>
<tr>
<td>Hemoglobin A1C</td>
<td></td>
</tr>
<tr>
<td>Fructosamine and 1,5-anhydroglucitol</td>
<td></td>
</tr>
<tr>
<td>Conventional glucose monitoring</td>
<td></td>
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<tr>
<td>Ketone testing</td>
<td></td>
</tr>
<tr>
<td>Continuous glucose monitoring (CGM)</td>
<td></td>
</tr>
<tr>
<td>Type 1 diabetes mellitus</td>
<td>3.5%</td>
</tr>
<tr>
<td>Ketoacidosis</td>
<td></td>
</tr>
<tr>
<td>Recent-onset type 1 diabetes</td>
<td></td>
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<tr>
<td>Latent autoimmune diabetes of the adult (LADA)</td>
<td></td>
</tr>
<tr>
<td>Hyperglycemia in type 1 diabetes</td>
<td></td>
</tr>
<tr>
<td>Hypoglycemia due to insulin management</td>
<td></td>
</tr>
<tr>
<td>Hypoglycemia unawareness</td>
<td></td>
</tr>
<tr>
<td>Pathogenesis of type 1 diabetes</td>
<td></td>
</tr>
<tr>
<td>Type 2 diabetes mellitus</td>
<td>4.5%</td>
</tr>
<tr>
<td>Hyperosmolar nonketotic state</td>
<td></td>
</tr>
<tr>
<td>Hyperglycemia in type 2 diabetes</td>
<td></td>
</tr>
<tr>
<td>Hypoglycemia due to oral agents and insulin management</td>
<td></td>
</tr>
<tr>
<td>Pathogenesis of type 2 diabetes</td>
<td></td>
</tr>
<tr>
<td>Additional types of diabetes</td>
<td>&lt;2%</td>
</tr>
<tr>
<td>Monogenic diabetes</td>
<td></td>
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<tr>
<td>Ketosis-prone diabetes (KPD)</td>
<td></td>
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<tr>
<td>New-onset diabetes after transplant (NODAT)</td>
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<tr>
<td>[post-transplant diabetes mellitus (PTDM)]</td>
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<tr>
<td>Pancreatic diabetes</td>
<td></td>
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<tr>
<td>Cystic fibrosis–related diabetes</td>
<td></td>
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<tr>
<td>Drug-induced diabetes</td>
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<tr>
<td>Recognition and management of associated conditions</td>
<td>&lt;2%</td>
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<tr>
<td>Hypertension</td>
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<tr>
<td>Dyslipidemia</td>
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<tr>
<td>Obesity</td>
<td></td>
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<tr>
<td>Sleep apnea</td>
<td></td>
</tr>
<tr>
<td>Fatty liver</td>
<td></td>
</tr>
</tbody>
</table>
Thyroid disease
Celiac disease
Polycystic ovary syndrome
Eating disorders

**Pregnancy**  
Gestational diabetes
Pre-gestational diabetes

**Diabetes mellitus complications**  
4.5%

- 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  
<2%

Hypoglycemia independent of diabetes mellitus  
2%

- Insulinoma
- Noninsulinoma

Inpatient diabetes mellitus management  
<2%

- Intensive care unit
- Non-intensive care unit

<table>
<thead>
<tr>
<th>Calcium and Bone Disorders</th>
<th>15% of Exam</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hypercalcemia</strong></td>
<td>3%</td>
</tr>
</tbody>
</table>
| 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
Hypoparathyroidism
Parathyroid hormone (PTH) resistance
Hypomagnesemia
Hyperphosphatemia
Celiac disease
Hypocalcemia (general)

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

Paget disease of bone
Hypovitaminosis D
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
Chronic hypophosphatemia
Inhibitors of mineralization

Renal osteodystrophy
Nephrolithiasis
Osteogenesis imperfecta and bone dysplasias
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**

<table>
<thead>
<tr>
<th>Disorder</th>
<th>15% of Exam</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hyperthyroidism</td>
<td>3.5%</td>
</tr>
<tr>
<td>Graves disease</td>
<td></td>
</tr>
<tr>
<td>Toxic adenoma and multinodular goiter</td>
<td></td>
</tr>
<tr>
<td>Inappropriate thyroid-stimulating hormone (TSH) syndromes</td>
<td></td>
</tr>
</tbody>
</table>
<pre><code>| TSH-secreting tumor |
| Resistance to thyroid hormone and thyroid hormone action |
| Artifactual TSH “derangements” |
</code></pre>
<p>| 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 |</p>
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