Endocrinology, Diabetes, and Metabolism Blueprint

Certification Examination (CERT)

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:

Medical Content Category	% of Exam
Adrenal Disorders	10%
Pituitary Disorders	10%
Lipids, Obesity, and Nutrition	12%
Female Reproduction	7%
Male Reproduction	7%
Diabetes Mellitus and Hypoglycemia	24%
Calcium and Bone Disorders	15%
Thyroid Disorders	15%
	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.

ABIM is committed to working toward health equity and believes that board-certified physicians should have an understanding of health care disparities. Therefore, health equity content that is clinically important to each discipline will be included in assessments, and the use of gender, race, and ethnicity identifiers will be re-evaluated.

Exam format

The exam is composed of up to 240 single-best-answer multiple-choice questions, of which approximately 40 are new questions that do not count in the examinee's score. Most questions describe patient scenarios and 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.
- 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.

Learn more information on how exams are developed. 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
Glucocorticoids	4%
Cushing syndrome	
Management of glucocorticoid therapy	
Adrenal insufficiency	
Glucocorticoid resistance	
Mineralocorticoids	2%
Hyperaldosteronism	
Hypoaldosteronism	
Adrenal androgens	<2%
Congenital adrenal hyperplasia	
Adrenal incidentaloma	<2%
Adrenal medulla	<2%
Pheochromocytoma and paraganglioma	
Neurofibromatosis type 1	
von Hippel-Lindau syndrome	
Multiple endocrine neoplasia (MEN) types 2A and 2B	
Familial paraganglioma syndromes	
Familial paraganglioma-pheochomocytoma syndromes	
Adrenal cancer	<2%

Pituitary Disorders	**10%** of Exam

Prolactin	<2%
Hyperprolactinemia	
Normoprolactinemic galactorrhea	
Growth hormone	2%
Acromegaly	
Deficiency	
Thyroid-stimulating hormone (TSH)	<2%
TSH-secreting adenoma	
Hyperplasia secondary to longstanding primary hypothyroidism	
TSH deficiency	
Gonadotropins	<2%
Gonadotroph pituitary tumors	
Hypogonadotropic hypogonadism	
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)	
Diagnosis	
Treatment	
Adjustment of growth hormone according to insulin-like growth	
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	
Monogenic hypertriglyceridemia	
Polygenic disorders	
Secondary disorders	
Chylomicronemia syndrome	
Elevated triglycerides and low-density lipoprotein cholesterol	2.5%
Primary disorders	
Familial combined hyperlipidemia	
Familial dysbetalipoproteinemia (type III)	
Secondary disorders	
Hypolipidemia	<2%
Primary disorders	
Hypobetalipoproteinemia (Low LDL-c)	
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 and endoscopic treatments
    - Indications for treatment
- **General nutrition** <2%
  - Energy requirements
  - Vitamin deficiency
  - Enteral nutrition
- **Counseling** <2%
  - Strategies for counseling

Female Reproduction — **7%** of Exam

- **Amenorrhea** <2%
  - Primary
    - Androgen insensitivity syndrome
    - Turner syndrome
    - Congenital gonadotropin-releasing hormone (HnRH) deficiency
  - Secondary
- **Hyperandrogenism** <2%
  - Polycystic ovary syndrome
  - Non-polycystic ovary syndromes
    - Hyperthecosis
    - Ovarian 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 transition 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)
  - 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 <2%

Abuse of androgens and anabolic steroids

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%

Sexual differentiation <2%

Gender dysphoria

Male-to-female transition management

Ejaculatory dysfunctions <2%

Premature ejaculation

Diabetes Mellitus and Hypoglycemia — **24%** of Exam

Prediabetes 2%

Impaired fasting glucose

Impaired glucose tolerance

Screening

Diabetes prevention

Monitoring glycemic control 2%

Hemoglobin A_{1C}

Fructosamine and 1,5-anhydroglucitol

Conventional glucose monitoring	
Ketone testing	
Continuous glucose monitoring (CGM)	
Type 1 diabetes mellitus	3.5%
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	4.5%
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	<2%
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	<2%
Hypertension	
Dyslipidemia	
Obesity	
Sleep apnea	
Fatty liver	
Thyroid disease	
Celiac disease	
Skin disorders	
Lipohypertrophy	
Lipoatrophy	
Necrobiosis lipoidica	
Acanthosis nigricans	
Polycystic ovary syndrome	
Eating disorders	

Pregnancy	<2%
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	
Neuropsychiatric	
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	
Pancreas transplantation	<2%
Hypoglycemia independent of diabetes mellitus	2%
Insulinoma	
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	
Hypocalcemia	2.5%
Hypoparathyroidism	
Parathyroid hormone (PTH) resistance	
Hypomagnesemia	
Hyperphosphatemia	
Celiac disease	
Hypocalcemia (general)	
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	
Osteoporosis	4%
In female	
In male	
Post-transplantation and glucocorticoid-induced	
Renal, hepatic, and gastrointestinal disease–related	
Paget disease of bone	<2%
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
- Fine-needle aspiration/cytology and genetic test interpretation
- Roles of ultrasonography and radionuclide scanning

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

Nontoxic solitary nodules and multinodular goiter 3%
- 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 2024