ENDOCRINOLOGY, DIABETES AND METABOLISM Blueprint

For traditional, 10-year Maintenance of Certification (MOC) exam and Longitudinal Knowledge Assessment (LKA™)

ABIM invites diplomates to help develop the Endocrinology, Diabetes, and Metabolism MOC exam blueprint

Based on feedback from physicians that MOC assessments should better reflect what they see in practice, in 2016 the American Board of Internal Medicine (ABIM) invited all certified endocrinologists to provide ratings of the relative frequency and importance of blueprint topics in practice.

This review process, which resulted in a new MOC exam blueprint, will be used on a periodic basis to inform and update all MOC assessments created by ABIM. No matter what form ABIM's assessments ultimately take, they will need to be informed by front-line clinicians sharing their perspective on what is important to know.

A sample of over 300 endocrinologists, similar to the total invited population of endocrinologists in age, gender, geographic region, and time spent in direct patient care, provided the blueprint topic ratings. ABIM used this feedback to update the blueprint for MOC assessments (beginning with the Fall 2016 administration of the traditional, 10-year MOC exam).

To inform how assessment content should be distributed across the major blueprint content categories, ABIM considered the average respondent ratings of topic frequency and importance in each of the content categories. A second source of information was the relative frequency of patient conditions in the content categories, as seen by certified endocrinologists and documented by national health care data (described further under *Content distribution* below).

To determine prioritization of specific assessment content within each major medical content category, ABIM used the respondent ratings of topic frequency and importance to set thresholds for these parameters in the exam assembly process (described further under *Detailed content outline* below).

Purpose of the Endocrinology, Diabetes, and Metabolism MOC Assessments

MOC assessments are designed to evaluate whether a certified endocrinologist has maintained competence and currency in the knowledge and judgment required for practice. The MOC assessments emphasize diagnosis and management of prevalent conditions, particularly in areas where practice has changed in recent years. As a result of the blueprint review by ABIM diplomates, MOC assessments place less emphasis on rare conditions and focus more on situations in which physician intervention can have important consequences for patients. For conditions that are usually managed by other specialists, the focus will be on recognition rather than on management.

Assessment format

The traditional, 10-year MOC exam contains up to 220 single-best-answer multiple-choice questions, of which approximately 50 are new questions that do not count in the examinee's score. Examinees taking the traditional, ten-year MOC exam will have access to an external resource (i.e., UpToDate®) for the entire exam.

The LKA for MOC is a five-year cycle in which physicians answer questions on an ongoing basis and receive feedback on how they're performing along the way. More information on how exams are developed can be found abim.org/about/exam-information/exam-development.aspx.

Most questions describe patient scenarios and ask about the work done (that is, tasks performed) by physicians in the course of practice:

- **Diagnosis:** making a diagnosis or identifying an underlying condition
- **Testing:** ordering tests for diagnosis, staging, or follow-up
- **Treatment/Care Decisions**: recommending treatment or other patient care
- **Risk Assessment/Prognosis/Epidemiology:** assessing risk, determining prognosis, and applying principles from epidemiologic studies
- **Pathophysiology/Basic Science:** understanding the pathophysiology of disease and basic science knowledge applicable to patient care

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.

Clinical scenarios presented take place in outpatient or inpatient settings as appropriate to a typical Endocrinology, Diabetes, and Metabolism practice. Clinical information presented may include diagnostic imaging studies, continuous glucose monitoring tracings, radiographic studies, or patient photographs.

Tutorials for the traditional, ten-year MOC exam and for LKA, including examples of ABIM exam question format, can be found at abim.org/maintenance-of-certification/exam-information/endocrinology-diabetes-metabolism/exam-tutorial.aspx.

Content distribution

Listed below are the major medical content categories that define the domain for the Endocrinology, Diabetes, and Metabolism traditional, 10-year MOC exam and LKA. The relative distribution of content is expressed as a percentage of the total assessment. To determine the content distribution, ABIM considered the average respondent ratings of topic frequency and importance. To cross-validate these self-reported ratings, ABIM also considered the relative frequency of conditions seen in Medicare patients by a cohort of certified endocrinologists. Informed by these data, the Endocrinology, Diabetes, and Metabolism Board Approval Committee and Board determined the content category targets shown below.

CONTENT CATEGORY	TARGET %
Adrenal Disorders	8%
Pituitary Disorders	8%
Lipids, Obesity, and Nutrition	13%
Female Reproduction	5%
Male Reproduction	5%
Diabetes Mellitus and Hypoglycemia	31%
Calcium and Bone Disorders	12%
Thyroid Disorders	18%
Total	**100%**

The Endocrinology, Diabetes, and Metabolism traditional 10-year MOC exam may cover other dimensions of medicine as applicable to the medical content categories, such as adolescent medicine.

How the blueprint ratings are used to assemble the MOC assessment

Blueprint reviewers provided ratings of relative frequency in practice for each of the detailed content topics in the blueprint and provided ratings of the relative importance of the topics for each of the tasks described in *Assessment format* above. In rating importance, reviewers were asked to consider factors such as the following:

- High risk of a significant adverse outcome
- Cost of care and stewardship of resources
- Common errors in diagnosis or management
- Effect on population health
- Effect on quality of life
- When failure to intervene by the physician deprives a patient of significant benefit

Frequency and importance were rated on a three-point scale corresponding to low, medium, or high. The median importance ratings are reflected in the *Detailed content outline* below. The Endocrinology, Diabetes, and Metabolism Board Approval Committee and Board, in partnership with the physician community, have set the following parameters for selecting MOC assessment questions according to the blueprint review ratings:

- At least 75% of questions will address high-importance content (indicated in green)
- No more than 25% of questions will address medium-importance content (indicated in yellow)
- No exam questions will address low-importance content (indicated in red)

Independent of the importance and task ratings, no more than 25% of questions will address low-frequency content (indicated by “LF” following the topic description).

The content selection priorities below are applicable beginning with the Fall 2016 traditional, 10-year MOC exam and are subject to change in response to future blueprint review.

Note: *The same topic may appear in more than one medical content category.*

Detailed content outline for the Endocrinology, Diabetes, and Metabolism traditional, 10-year MOC exam and LKA

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ADRENAL DISORDERS *(8% of exam)*	**Diagnosis**	**Testing**	**Treatment/ Care Decisions**	**Risk Assessment/ Prognosis/ Epidemiology**	**Pathophysiology/ Basic Science**
GLUCOCORTICOIDS *(3.5% of exam)*					
Cushing syndrome	✓	✓	✓	⁄	⁄
Management of glucocorticoid therapy	*Not Applicable*		✓	✓	⁄
Adrenal insufficiency	✓	✓	✓	✓	⁄
Glucocorticoid resistance LF	⁄	⁄	⁄	✗	⁄
MINERALOCORTICOIDS *(2% of exam)*					
Hyperaldosteronism	✓	✓	✓	⁄	⁄
Hypoaldosteronism LF	⁄	⁄	⁄	⁄	⁄
ADRENAL ANDROGENS *(<2% of exam)*					
Congenital adrenal hyperplasia LF	⁄	⁄	✓	⁄	⁄
ADRENAL INCIDENTALOMA *(<2% of exam)*					
Adrenal incidentaloma	✓	✓	✓	✓	⁄
ADRENAL MEDULLA *(<2% of exam)*					
Pheochromocytoma and paraganglioma LF	✓	✓	✓	✓	⁄
Neurofibromatosis type 1 LF	⁄	⁄	⁄	✗	✗
von Hippel Lindau syndrome LF	⁄	⁄	⁄	✗	✗
Multiple endocrine neoplasia (MEN) types 2A and 2B LF	✓	✓	✓	⁄	⁄
Familial paraganglioma syndromes LF	⁄	⁄	⁄	✗	✗
Familial paraganglioma-pheochomocytoma syndromes LF	⁄	⁄	⁄	✗	✗

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ADRENAL DISORDERS *continued…* *(8% of exam)*	**Diagnosis**	**Testing**	**Treatment/ Care Decisions**	**Risk Assessment/ Prognosis/ Epidemiology**	**Pathophysiology/ Basic Science**
ADRENAL CANCER *(<2% of exam)*					
Adrenal cancer LF	✓	✓	✓	✓	✓
PITUITARY DISORDERS *(8% of exam)*	**Diagnosis**	**Testing**	**Treatment/ Care Decisions**	**Risk Assessment/ Prognosis/ Epidemiology**	**Pathophysiology/ Basic Science**
PROLACTIN *(<2% of exam)*					
Hyperprolactinemia	✓	✓	✓	✓	✓
Normoprolactinemic galactorrhea	✓	✓	✓	✓	✓
GROWTH HORMONE *(<2% of exam)*					
Acromegaly LF	✓	✓	✓	✓	✓
Deficiency LF	✓	✓	✓	✓	✓
THYROID-STIMULATING HORMONE (TSH) *(<2% of exam)*					
TSH-secreting LF	✓	✓	✓	✓	✓
Hyperplasia secondary to longstanding primary hypothyroidism LF	✓	✓	✓	✓	✓
TSH deficiency LF	✓	✓	✓	✓	✓
GONADOTROPINS *(<2% of exam)*					
Gonadotroph pituitary tumors LF	✓	✓	✓	✓	✓
Hypogonadotropic hypogonadism	✓	✓	✓	✓	✓
NONSECRETING PITUITARY TUMORS *(<2% of exam)*					
Nonsecreting pituitary tumors	✓	✓	✓	✓	✓
ADRENOCORTICOTROPIC HORMONE (ACTH) *(<2% of exam)*					
Cushing disease LF	✓	✓	✓	✓	✓
ACTH deficiency LF	✓	✓	✓	✓	✓
HYPOPITUITARISM *(<2% of exam)*					
Clinical presentation	✓	✓	✓	✓	✓

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PITUITARY DISORDERS *continued…* *(8% of exam)*	**Diagnosis**	**Testing**	**Treatment/ Care Decisions**	**Risk Assessment/ Prognosis/ Epidemiology**	**Pathophysiology/ Basic Science**
HYPOPITUITARISM *continued… (<2% of exam)*					
Causes					
Tumors	✓	✓	✓	⊘	⊘
Pituitary apoplexy LF	✓	✓	✓	⊘	⊘
Sheehan syndrome LF	✓	✓	✓	⊘	⊘
Hemochromatosis LF	⊘	⊘	⊘	⊘	⊘
Lymphocytic hypophysitis LF	⊘	⊘	⊘	⊘	⊘
Sarcoidosis LF	⊘	⊘	⊘	⊘	⊘
Traumatic brain injury LF	⊘	⊘	⊘	⊘	⊘
Iatrogenic (radiation, surgery)	✓	✓	✓	⊘	⊘
Diagnosis	✓	✓	✓	⊘	✗
Treatment					
Adjustment of growth hormone according to insulin-like growth factor-1 (IGF-1) levels LF	*Not Applicable*		⊘	⊘	⊘
Monitoring of thyroid with free thyroxine (T4)	*Not Applicable*		✓	✓	✓
Clinical adjustment of glucocorticoids	*Not Applicable*		✓	✓	✓
EMPTY SELLA SYNDROME *(<2% of exam)*					
Empty sella syndrome	✓	✓	✓	⊘	⊘
ANTIDIURETIC HORMONE (ADH) *(<2% of exam)*					
Diabetes insipidus LF	✓	✓	✓	✓	⊘
Syndrome of inappropriate antidiuretic hormone secretion (SIADH)	✓	✓	✓	⊘	⊘
CRANIOPHARYNGIOMA *(<2% of exam)*					
Craniopharyngioma LF	⊘	⊘	⊘	⊘	⊘
PITUITARY INCIDENTALOMA *(<2% of exam)*					
Pituitary incidentaloma	✓	✓	✓	✓	⊘

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LIPIDS, OBESITY, AND NUTRITION *(13% of exam)*	**Diagnosis**	**Testing**	**Treatment/ Care Decisions**	**Risk Assessment/ Prognosis/ Epidemiology**	**Pathophysiology/ Basic Science**
HYPERCHOLESTEROLEMIA *(<2% of exam)*					
Primary disorders					
Familial hypercholesterolemia	✓	✓	✓	⊘	⊘
Familial defective apolipoprotein B-100 **LF**	⊘	⊘	⊘	⊘	✗
Lipoprotein (a) **LF**	⊘	⊘	⊘	✗	✗
Elevated high-density lipoprotein cholesterol **LF**	⊘	⊘	⊘	⊘	✗
Secondary disorders	⊘	⊘	⊘	⊘	⊘
HYPERTRIGLYCERIDEMIA *(2% of exam)*					
Primary disorders					
Monogenic hypertriglyceridemia	⊘	⊘	⊘	⊘	⊘
Polygenic disorders **LF**	⊘	⊘	⊘	✗	✗
Secondary disorders	⊘	⊘	⊘	⊘	⊘
Chylomicronemia syndrome **LF**	⊘	⊘	⊘	⊘	⊘
ELEVATED TRIGLYCERIDES AND LOW-DENSITY LIPOPROTEIN CHOLESTEROL *(3% of exam)*					
Primary disorders					
Familial combined hyperlipidemia	⊘	⊘	⊘	⊘	⊘
Familial dysbetalipoproteinemia (type III) **LF**	⊘	⊘	⊘	⊘	✗
Secondary disorders	⊘	⊘	⊘	⊘	⊘
HYPOLIPIDEMIA *(<2% of exam)*					
Primary disorders **LF**	✗	✗	✗	✗	✗
Hypobetalipoproteinemia (Low LDL-c) **LF**	⊘*	✗*	✗*	✗*	✗*
Secondary disorders **LF**	✗	✗	✗	✗	✗

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LIPIDS, OBESITY, AND NUTRITION *continued…* *(13% of exam)*	**Diagnosis**	**Testing**	**Treatment/ Care Decisions**	**Risk Assessment/ Prognosis/ Epidemiology**	**Pathophysiology/ Basic Science**
TREATMENT OF LIPID DISORDERS *(5% of exam)*					
Diet	*Not Applicable*		✓	✓	⊘
Drugs	*Not Applicable*		✓	✓	✓
Lifestyle	*Not Applicable*		✓	✓	⊘
Indications for treatment	✓	✓	✓	✓	⊘
OBESITY AND NUTRITION *(2.5% of exam)*					
Genetic disorders	✓	✓	✓	⊘	⊘
Secondary disorders	⊘	⊘	✓	⊘	⊘
Comorbidities	✓	✓	✓	✓	⊘
Treatment of obesity					
Diet	*Not Applicable*		✓	✓	⊘
Drugs	*Not Applicable*		✓	✓	⊘
Lifestyle	*Not Applicable*		✓	✓	✓
Surgery and endoscopic treatments	⊘	⊘	⊘	⊘	⊘
Indications for treatment	✓	✓	✓	✓	⊘
GENERAL NUTRITION *(<2% of exam)*					
Energy requirements	⊘	⊘	⊘	⊘	⊘
Vitamin deficiency	⊘	⊘	⊘	⊘	⊘
Enteral nutrition	⊘	⊘	⊘	⊘	⊘
COUNSELING *(<2% of exam)*					
Strategies for counseling	⊘	⊘	⊘	⊘	⊘

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FEMALE REPRODUCTION *(5% of exam)*	**Diagnosis**	**Testing**	**Treatment/ Care Decisions**	**Risk Assessment/ Prognosis/ Epidemiology**	**Pathophysiology/ Basic Science**
AMENORRHEA *(<2% of exam)*					
Primary					
Androgen insensitivity syndrome LF	⊘	⊘	⊘	✗	✗
Turner syndrome LF	⊘	⊘	⊘	⊘	⊘
Congenital gonadotropin-releasing hormone (GnRH) deficiency LF	✗	✗	✗	✗	✗
Secondary	✓	✓	✓	⊘	⊘
HYPERANDROGENISM *(<2% of exam)*					
Polycystic ovary syndrome	✓	✓	✓	✓	⊘
Non-polycystic ovary syndrome					
Hyperthecosis LF	⊘	⊘	⊘	✗	✗
Ovarian tumors LF	⊘	⊘	⊘	✗	✗
Adrenal tumors	✓	✓	✓	⊘	⊘
Nonclassic congenital adrenal hyperplasia LF	⊘	⊘	⊘	⊘	⊘
Pregnancy-associated LF	⊘	⊘	⊘	✗	✗
Anabolic steroids LF	⊘	⊘	⊘	✗	✗
PREMENSTRUAL SYNDROME AND PREMENSTRUAL DYSPHORIC DISORDER *(<2% of exam)*					
Premenstrual syndrome and premenstrual dysphoric disorder LF	⊘	⊘	⊘	✗	✗
ENDOCRINE CAUSES OF INFERTILITY *(<2% of exam)*					
Anovulation	⊘	⊘	⊘	✗	✗
Age-associated infertility (diminished ovarian reserve) LF	⊘	⊘	✗	✗	✗
HORMONAL CONTRACEPTION *(<2% of exam)*					
Combined estrogen-progestin contraception	*Not Applicable*		⊘	⊘	✗
Progestin-only contraception LF	*Not Applicable*		⊘	⊘	✗

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FEMALE REPRODUCTION *continued…* *(5% of exam)*	**Diagnosis**	**Testing**	**Treatment/ Care Decisions**	**Risk Assessment/ Prognosis/ Epidemiology**	**Pathophysiology/ Basic Science**
PERIMENOPAUSE AND MENOPAUSE *(<2% of exam)*					
Perimenopause	✓	✓	✓	✓	✓
Menopause	✓	✓	✓	✓	✓
Estrogen-progestin therapy	*Not Applicable*		✓	✓	✓
SEXUAL DIFFERENTIATION *(<2% of exam)*					
Gender dysphoria **LF**	✓	✓	✓	✓	✗
Female-to-male transition management **LF**	*Not Applicable*	✓	✓	✓	✗
MALE REPRODUCTION *(5% of exam)*	**Diagnosis**	**Testing**	**Treatment/ Care Decisions**	**Risk Assessment/ Prognosis/ Epidemiology**	**Pathophysiology/ Basic Science**
HYPOGONADISM *(3% of exam)*					
Testosterone in hypogonadism	✓	✓	✓	✓	✓
Sex hormone binding globulin (SHBG)-dependent changes in testosterone	✓	✓	✓	✓	✓
Primary hypogonadism	✓	✓	✓	✓	✓
Secondary hypogonadism	✓	✓	✓	✓	✓
Genetic disorders of androgen production and action **LF**	✓	✓	✓	✗	✗
Testosterone therapy	*Not Applicable*		✓	✓	✓
Gonadotropins	*Not Applicable*		✓	✓	✓
INFERTILITY *(<2% of exam)*					
Causes					
Cryptorchidism **LF**	✓	✗	✗	✗	✗
Klinefelter syndrome **LF**	✓	✓	✓	✓	✓
Cystic fibrosis and cystic fibrosis gene mutations **LF**	✓	✗	✗	✗	✗
Drug-induced infertility **LF**	✓	✓	✓	✓	✓
Obstructive azoospermia **LF**	✗	✗	✗	✗	✗

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MALE REPRODUCTION *continued…* *(5% of exam)*		**Diagnosis**	**Testing**	**Treatment/ Care Decisions**	**Risk Assessment/ Prognosis/ Epidemiology**	**Pathophysiology/ Basic Science**
INFERTILITY *continued… (<2% of exam)*						
Causes *continued…*						
Idiopathic oligozoospermia	LF	✗	✗	✗	✗	✗
Y-chromosome microdeletions	LF	✗	✗	✗	✗	✗
Treatment						
Gonadotropins	LF	*Not Applicable*		⁄	⁄	⁄
Testicular sperm extraction	LF	*Not Applicable*		✗	✗	✗
Intracytoplasmic sperm injection	LF	*Not Applicable*		✗	✗	✗
GYNECOMASTIA *(<2% of exam)*						
Causes						
Drug-induced gynecomastia		✓	⁄	⁄	⁄	⁄
Testicular tumors (Sertoli and Leydig cell tumors)	LF	⁄	⁄	⁄	✗	✗
Extratesticular tumors	LF	⁄	✗	✗	✗	✗
Androgen deprivation therapy for prostate cancer	LF	⁄	⁄	⁄	⁄	✗
Hyperthyroidism	LF	✓	✓	✓	⁄	⁄
Pubertal gynecomastia	LF	⁄	⁄	⁄	⁄	⁄
Idiopathic and other rare causes of gynecomastia		⁄	⁄	⁄	⁄	⁄
Treatment						
Tamoxifen	LF	*Not Applicable*		⁄	⁄	✗
Aromatase inhibitors	LF	*Not Applicable*		⁄	⁄	✗
Mammoplasty and mastectomy	LF	*Not Applicable*		✗	✗	✗

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MALE REPRODUCTION *continued…* *(5% of exam)*	**Diagnosis**	**Testing**	**Treatment/ Care Decisions**	**Risk Assessment/ Prognosis/ Epidemiology**	**Pathophysiology/ Basic Science**
ERECTILE DYSFUNCTION *(<2% of exam)*					
Causes					
Smoking	✓	/	/	/	/
Diabetes mellitus	✓	✓	✓	✓	✓
Hypertension	✓	✓	✓	✓	/
Hyperlipidemia	✓	✓	✓	/	/
Peyronie disease **LF**	✗	✗	✗	✗	✗
Pelvic and prostate surgery **LF**	✗	✗	✗	✗	✗
Obesity	✓	✓	✓	/	/
Diagnostic tests					
Diagnostic tests **LF**	*Not Applicable*	✗	*Not Applicable*		
Treatment					
Phosphodiesterase-5 and non-specific phosphodiesterase inhibitors	*Not Applicable*		✓	/	/
Prostaglandin E1, intraurethral and intracavernosal **LF**	*Not Applicable*		/	✗	✗
Alpha-adrenergic blockers **LF**	*Not Applicable*		/	✗	✗
Penis pump (penile vacuum device) **LF**	*Not Applicable*		✗	✗	✗
Penile implant **LF**	*Not Applicable*		✗	✗	✗
TESTOSTERONE IN AGING MEN *(<2% of exam)*					
Testosterone in aging men	✓	✓	✓	✓	/
ABUSE OF ANDROGENS AND ANABOLIC STEROIDS *(<2% of exam)*					
Abuse of androgens and anabolic steroids	✓	✓	/	/	/

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MALE REPRODUCTION *continued…* *(5% of exam)*	**Diagnosis**	**Testing**	**Treatment/ Care Decisions**	**Risk Assessment/ Prognosis/ Epidemiology**	**Pathophysiology/ Basic Science**
SEXUAL DIFFERENTIATION *(<2% of exam)*					
Gender dysphoria **LF**	✓	✓	✓	✓	✗
Male-to-female transition management **LF**	*Not Applicable*	✓	✓	✓	✗
EJACULATORY DYSFUNCTIONS *(<2% of exam)*					
Premature ejaculation **LF**	✗	✗	✗	✗	✗

DIABETES MELLITUS AND HYPOGLYCEMIA *(31% of exam)*	**Diagnosis**	**Testing**	**Treatment/ Care Decisions**	**Risk Assessment/ Prognosis/ Epidemiology**	**Pathophysiology/ Basic Science**
PREDIABETES *(2% of exam)*					
Impaired fasting glucose	✓	✓	✓	✓	✓
Impaired glucose tolerance	✓	✓	✓	✓	✓
Screening	✓	✓	*Not Applicable*	✓	✓
Diabetes prevention	✓	✓	✓	✓	✓
MONITORING GLYCEMIC CONTROL *(2% of exam)*					
Hemoglobin A1c	✓	✓	✓	✓	✓
Fructosamine and 1,5-anhydroglucitol **LF**	✓	✓	✓	✓	✓
Conventional glucose monitoring	✓	✓	✓	✓	✓
Ketone testing	✓	✓	✓	✓	✓
Continuous glucose monitoring (CGM)	✓	✓	✓	✓	✓
TYPE 1 DIABETES MELLITUS *(4% of exam)*					
Ketoacidosis	✓	✓	✓	✓	✓
Recent-onset type 1 diabetes	✓	✓	✓	✓	✓
Latent autoimmune diabetes of the adult (LADA)	✓	✓	✓	✓	✓
Hyperglycemia in type 1 diabetes	✓	✓	✓	✓	✓

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DIABETES MELLITUS AND HYPOGLYCEMIA *continued…* *(31% of exam)*	**Diagnosis**	**Testing**	**Treatment/ Care Decisions**	**Risk Assessment/ Prognosis/ Epidemiology**	**Pathophysiology/ Basic Science**
TYPE 1 DIABETES MELLITUS *continued… (4% of exam)*					
Hypoglycemia due to insulin management	✓	✓	✓	✓	✓
Hypoglycemia unawareness	✓	✓	✓	✓	/
Pathogenesis of type 1 diabetes	✓	✓	✓	✓	/
TYPE 2 DIABETES MELLITUS *(5% of exam)*					
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% of exam)*					
Monogenic diabetes **LF**	/	/	/	/	/
Ketosis-prone diabetes (KPD) **LF**	/	/	/	/	/
New-onset diabetes after transplant (NODAT) [posttransplant diabetes mellitus – PTDM] **LF**	/	/	/	/	/
Pancreatic diabetes **LF**	/	/	/	/	/
Cystic fibrosis-related diabetes **LF**	/	/	/	/	/
Drug-induced diabetes	/	/	✓	/	/
RECOGNITION AND MANAGEMENT OF ASSOCIATED CONDITIONS *(2% of exam)*					
Hypertension	✓	✓	✓	✓	/
Dyslipidemia	✓	✓	✓	✓	/
Obesity	✓	✓	✓	✓	/
Sleep apnea	✓	✓	/	/	/
Fatty liver	✓	✓	✓	/	/
Thyroid disease	✓	✓	✓	✓	/
Celiac disease **LF**	/	/	/	/	/

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DIABETES MELLITUS AND HYPOGLYCEMIA *continued…* *(31% of exam)*	**Diagnosis**	**Testing**	**Treatment/ Care Decisions**	**Risk Assessment/ Prognosis/ Epidemiology**	**Pathophysiology/ Basic Science**
RECOGNITION AND MANAGEMENT OF ASSOCIATED CONDITIONS *continued… (2% of exam)*					
Polycystic ovary syndrome	✓	✓	✓	✓	⊘
Eating disorders **LF**	⊘	⊘	⊘	⊘	⊘
PREGNANCY *(<2% of exam)*					
Gestational diabetes	✓	✓	✓	✓	⊘
Pre-gestational diabetes	✓	✓	✓	⊘	⊘
DIABETES MELLITUS COMPLICATIONS *(5% of exam)*					
Microvascular					
Retinopathy	✓	✓	⊘	⊘	⊘
Nephropathy	✓	✓	✓	✓	⊘
Neuropathy	✓	✓	✓	⊘	⊘
Macular edema	⊘	⊘	⊘	⊘	⊘
Mononeuropathies **LF**	⊘	⊘	⊘	⊘	✗
Macrovascular					
Coronary artery disease	✓	✓	✓	✓	⊘
Heart failure	⊘	⊘	⊘	⊘	⊘
Peripheral vascular disease	✓	✓	⊘	⊘	⊘
Diabetic foot	✓	✓	✓	✓	⊘
Skin disorders					
Lipohypertrophy **LF**	⊘	⊘	⊘	⊘	⊘
Lipoatrophy **LF**	⊘	⊘	⊘	⊘	⊘
Necrobiosis lipoidica **LF**	⊘	✗	⊘	✗	✗
Acanthosis nigricans	✓	⊘	⊘	⊘	⊘
Neuropsychiatric **LF**	⊘	⊘	⊘	⊘	✗

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DIABETES MELLITUS AND HYPOGLYCEMIA *continued…* *(31% of exam)*	**Diagnosis**	**Testing**	**Treatment/ Care Decisions**	**Risk Assessment/ Prognosis/ Epidemiology**	**Pathophysiology/ Basic Science**
PANCREAS TRANSPLANTATION *(<2% of exam)*					
Pancreas transplantation LF	✓	✓	✓	✓	✓
HYPOGLYCEMIA INDEPENDENT OF DIABETES *(2% of exam)*					
Insulinoma LF	✓	✓	✓	✓	✓
Noninsulinoma LF	✓	✓	✓	✓	✓
INPATIENT DIABETES MANAGEMENT *(<2% of exam)*					
Intensive care unit	✓	✓	✓	✓	✓
Non-intensive care unit	✓	✓	✓	✓	✓

CALCIUM AND BONE DISORDERS *(12% of exam)*	**Diagnosis**	**Testing**	**Treatment/ Care Decisions**	**Risk Assessment/ Prognosis/ Epidemiology**	**Pathophysiology/ Basic Science**
HYPERCALCEMIA *(3% of exam)*					
Parathyroid hormone-mediated					
Primary hyperparathyroidism	✓	✓	✓	✓	✓
Familial hypocalciuric hypercalcemia LF	✓	✓	✓	✓	✓
Lithium-induced LF	✓	✓	✓	✓	✓
Non-parathyroid hormone-mediated					
Hypercalcemia of malignancy	✓	✓	✓	✓	✓
Milk-alkali syndrome LF	✓	✓	✓	✓	✓
Sarcoidosis, tuberculosis, and other granulomatous diseases LF	✓	✓	✓	✓	✓
Vitamin D intoxication LF	✓	✓	✓	✓	✓
Post-rhabdomyolysis LF	✓	✓	✓	✗	✗
Adynamic bone disease LF	✓	✓	✓	✓	✓
Myeloma LF	✓	✓	✓	✓	✓
Acute adrenal insufficiency LF	✓	✓	✓	✓	✓
Vitamin A LF	✓	✓	✓	✗	✗

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CALCIUM AND BONE DISORDERS *continued…* *(12% of exam)*	**Diagnosis**	**Testing**	**Treatment/ Care Decisions**	**Risk Assessment/ Prognosis/ Epidemiology**	**Pathophysiology/ Basic Science**
HYPOCALCEMIA *(3% of exam)*					
Hypoparathyroidism	✓	✓	✓	⊘	⊘
Parathyroid hormone (PTH) resistance LF	⊘	⊘	⊘	✗	⊘
Hypomagnesemia LF	⊘	⊘	⊘	⊘	⊘
Hyperphosphatemia LF	⊘	⊘	⊘	⊘	⊘
Celiac disease LF	⊘	⊘	⊘	⊘	⊘
Hypocalcemia (general)	✓	✓	✓	⊘	⊘
OSTEOPOROSIS *(4% of exam)*					
In female	✓	✓	✓	✓	✓
In male	✓	✓	✓	✓	✓
Post-transplant and glucocorticoid-induced	✓	✓	✓	⊘	⊘
Renal, hepatic, and gastrointestinal disease related	⊘	⊘	⊘	⊘	⊘
PAGET DISEASE OF BONE *(<2% of exam)*					
Paget disease of bone LF	✓	✓	⊘	⊘	⊘
HYPOVITAMINOSIS D *(<2% of exam)*					
Dietary deficiency	✓	✓	✓	⊘	⊘
Limited sun exposure	⊘	⊘	⊘	⊘	⊘
Malabsorption	✓	✓	✓	⊘	⊘
Liver failure LF	⊘	⊘	⊘	✗	✗
Renal insufficiency	⊘	⊘	⊘	⊘	⊘
Vitamin D dependent rickets type I and II LF	⊘	⊘	⊘	✗	⊘
Vitamin D resistant rickets LF	⊘	⊘	⊘	✗	⊘
Drug-induced LF	⊘	⊘	⊘	✗	⊘
Bone disease	✓	⊘	⊘	⊘	⊘
Nonskeletal disorders LF	⊘	⊘	⊘	✗	✗

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CALCIUM AND BONE DISORDERS *continued…* *(12% of exam)*	**Diagnosis**	**Testing**	**Treatment/ Care Decisions**	**Risk Assessment/ Prognosis/ Epidemiology**	**Pathophysiology/ Basic Science**
OSTEOMALACIA AND RICKETS *(<2% of exam)*					
Chronic hypophosphatemia **LF**	⊘	⊘	⊘	✗	⊘
Inhibitors of mineralization **LF**	⊘	⊘	⊘	✗	✗
RENAL OSTEODYSTROPHY *(<2% of exam)*					
Renal osteodystrophy	⊘	⊘	⊘	⊘	⊘
NEPHROLITHIASIS *(<2% of exam)*					
Nephrolithiasis	⊘	⊘	⊘	⊘	⊘
OSTEOGENESIS IMPERFECTA AND BONE DYSPLASIAS *(<2% of exam)*					
Osteogenesis imperfecta and bone dysplasias **LF**	⊘	⊘	⊘	✗	✗
FIBROUS DYSPLASIA AND OTHER DYSPLASTIC SYNDROMES *(<2% of exam)*					
Fibrous dysplasia and other dysplastic syndromes **LF**	✗	✗	✗	✗	✗
CALCIPHYLAXIS *(<2% of exam)*					
Calciphylaxis **LF**	⊘	⊘	⊘	✗	✗
HYPOPHOSPHATEMIA *(<2% of exam)*					
Renal losses **LF**	⊘	⊘	⊘	✗	✗
Gastrointestinal malabsorption **LF**	⊘	⊘	⊘	✗	✗
Internal redistribution **LF**	✗	✗	✗	✗	✗
RARE BONE DISEASES *(<2% of exam)*					
Hypophosphatasia **LF**	⊘*	⊘*	⊘*	✗*	✗*
Fibrodysplasia ossificans progressiva **LF**	⊘*	⊘*	✗*	✗*	✗*
Osteopetrosis **LF**	⊘*	⊘*	⊘*	✗*	✗*

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THYROID DISORDERS *(18% of exam)*	**Diagnosis**	**Testing**	**Treatment/ Care Decisions**	**Risk Assessment/ Prognosis/ Epidemiology**	**Pathophysiology/ Basic Science**
HYPERTHYROIDISM *(3.5% of exam)*					
Graves disease	✓	✓	✓	✓	✓
Toxic adenoma and multinodular goiter	✓	✓	✓	✓	⁄
Inappropriate thyroid-stimulating hormone syndromes					
TSH-secreting tumor **LF**	⁄	⁄	⁄	⁄	⁄
Resistance to thyroid hormone and thyroid hormone action **LF**	⁄	⁄	⁄	⁄	⁄
Artifactual TSH "derangements" **LF**	✓	✓	✓	⁄	⁄
Thyrotoxicosis with low radioactive iodine uptake					
Thyroiditis	✓	✓	✓	✓	⁄
Factitious, accidental, and iatrogenic thyrotoxicosis **LF**	✓	✓	✓	⁄	⁄
Iodine-induced **LF**	⁄	⁄	✓	⁄	⁄
Struma ovarii **LF**	⁄	⁄	⁄	✗	✗
Complicated thyrotoxicosis **LF**	✓	✓	✓	⁄	⁄
Subclinical hyperthyroidism	✓	✓	✓	✓	⁄
HYPOTHYROIDISM *(2.5% of exam)*					
Primary	✓	✓	✓	✓	✓
Secondary	✓	✓	✓	⁄	⁄
Subclinical hypothyroidism	✓	✓	✓	✓	⁄
Complicated hypothyroidism **LF**	✓	✓	✓	⁄	⁄
TSH resistance **LF**	✗	✗	✗	✗	✗
Therapy	*Not Applicable*		✓	✓	✓
NONTOXIC SOLITARY NODULES AND MULTINODULAR GOITER *(2.5% of exam)*					
Fine-needle aspiration/cytology and genetic test interpretation	✓	✓	*Not Applicable*	✓	✓
Roles of ultrasound and radionuclide scanning	✓	✓	*Not Applicable*	✓	✓

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THYROID DISORDERS *continued…* *(18% of exam)*	**Diagnosis**	**Testing**	**Treatment/ Care Decisions**	**Risk Assessment/ Prognosis/ Epidemiology**	**Pathophysiology/ Basic Science**
NONTOXIC SOLITARY NODULES AND MULTINODULAR GOITER *continued… (2.5% of exam)*					
Treatment					
Surgery	*Not Applicable*		✓	✓	⊘
Radioactive iodine	*Not Applicable*		✓	✓	⊘
Minimally invasive and noninvasive treatments **LF**	*Not Applicable*		⊘	⊘	✗
THYROID CANCER *(3.5% of exam)*					
Well-differentiated epithelial cancers	✓	✓	✓	✓	⊘
Hürthle cell cancer **LF**	✓	✓	✓	⊘	⊘
Anaplastic cancer **LF**	✓	⊘	⊘	⊘	✗
Lymphoma **LF**	⊘	⊘	⊘	⊘	✗
Medullary cancer **LF**	✓	✓	✓	⊘	⊘
THYROID TEST ABNORMALITIES WITHOUT THYROID DISEASE *(2.5% of exam)*					
Euthyroid hypothyroxinemia	✓	✓	⊘	⊘	⊘
Euthyroid hyperthyroxinemia **LF**	⊘	✓	⊘	⊘	⊘
Effect of drugs on thyroid function tests	✓	✓	✓	⊘	⊘
Euthyroid sick syndrome	✓	✓	✓	⊘	⊘
Thyroid hormone antibodies	✓	✓	⊘	⊘	⊘
Antibody interferences with TSH measurement **LF**	⊘	⊘	⊘	⊘	⊘
THYROID DISEASES IN PREGNANCY *(<2% of exam)*					
Hypothyroidism	✓	✓	✓	✓	✓
Hyperthyroidism	✓	✓	✓	✓	✓
Thyroid nodule and cancer	✓	✓	✓	✓	⊘

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