USMLE
United States
Medical
Licensing
Examination

CONTENT DESCRIPTION
and GENERAL INFORMATION

Step 1

A Joint Program of the Federation of State Medical Boards of the United States, Inc., and the National Board of Medical Examiners®

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Introduction

This booklet is intended to help you prepare for the Step 1 component of the United States Medical Licensing Examination® (USMLE®).

The information in this booklet, sample test materials and tutorials, and other informational materials are available on the USMLE website (http://www.usmle.org).

In addition to the information in this booklet, you should review relevant sections of the USMLE *Bulletin of Information*.

Sample test materials are available at the USMLE website, in both a web-based interface with tutorials and as sample items in a booklet. You **must** run the tutorial and sample materials to become familiar with the test software prior to your test date. The tutorial provided at the beginning of the Step 1 examination has fewer screens and less detailed information than the tutorial available as part of the Step 1 practice materials on the USMLE website.

In addition, the practice materials on the website include items with associated audio or video findings. You should become familiar with these types of test items before your test date.

Please monitor the USMLE website (http://www.usmle.org) announcements section to check for changes in the test delivery software and to access updated practice materials. You must obtain the most recent information before taking any USMLE examination.

Examination Format

Step 1 consists of multiple-choice questions prepared by examination committees composed of faculty members, teachers, investigators, and clinicians with recognized prominence in their respective fields. Committee members are selected to provide broad representation from the academic, practice, and licensing communities across the United States and Canada.

Step 1 is a one-day examination. It is divided into seven 60-minute blocks and administered in one 8-hour testing session. The number of questions per block on a given examination form will vary, but will not exceed 40. The total number of items on the overall examination form will not exceed 280.

Purpose and Design of the Examination

The Step 1 examination is designed to measure basic science knowledge. Some questions test the examinee's fund of information per se, but the majority of questions require the examinee to interpret graphic and tabular material, to identify gross and microscopic pathologic and normal specimens, and to solve problems through the application of basic science principles.

Content Description

The content description that follows is not intended as a curriculum development or study guide. It provides a flexible structure for test construction that can readily accommodate new topics, emerging content domains, and shifts in emphasis. The categorizations and content coverage are subject to change. Broadly based learning that establishes a strong general understanding of concepts and principles in the basic sciences is the best preparation for the examination.

Content Outline

All USMLE examinations are constructed from an integrated content outline, available on the USMLE website (http://www.usmle.org/pdfs/usmlecontentoutline.pdf), which organizes content according to general principles and individual organ systems. Test questions are classified in one of 18 major areas, depending on whether they focus on concepts and principles that are important across organ systems or within individual organ systems.

Sections focusing on individual organ systems are subdivided according to normal and abnormal processes, including principles of therapy. Each Step 1 examination covers content related to the following traditionally defined disciplines:

- anatomy
- behavioral sciences
- biochemistry
- biostatistics and epidemiology
- microbiology
- pathology
- pharmacology
- physiology

The Step 1 examination also covers content related to the following interdisciplinary areas:

- aging
- genetics
- immunology
- molecular and cell biology
- nutrition

While not all topics listed in the content outline are included in every USMLE examination, overall content coverage is comparable among the various examination forms that will be taken by different examinees for each Step.

Most organ systems are partitioned into Normal Processes and Abnormal Processes and include subcategories of specific disease processes. In most instances, knowledge of normal processes is evaluated in the context of a disease process or specific pathology. (See Table 1 on page 5.)

Table 1. USMLE Step 1 Test Specifications Systems and Processes*

System	Range
General Principles of Foundational Science**	**15% – 20%**
Organ System • **Immune System** • **Blood & Lymphoreticular System** • **Behavioral Health** • **Nervous System & Special Senses** • **Skin & Subcutaneous Tissue** • **Musculoskeletal System** • **Cardiovascular System** • **Respiratory System** • **Gastrointestinal System** • **Renal & Urinary System** • **Pregnancy, Childbirth, & the Puerperium** • **Female Reproductive System & Breast** • **Male Reproductive System** • **Endocrine System**	**60% – 70%**
Multisystem Processes & Disorders **Biostatistics & Epidemiology/Population Health** **Social Sciences**	**15% – 20%**
Process	**Range**
Normal Processes†	**10% – 15%**
Abnormal Processes	**55% – 60%**
Principles of Therapeutics	**15% – 20%**
Other‡	**10% – 15%**

* Percentages are subject to change at any time. See the USMLE website (http://www.usmle.org) for the most up-to-date information.

** The general principles category includes test items concerning those normal and abnormal processes that are not limited to specific organ systems. Categories for individual organ systems include test items concerning those normal and abnormal processes that are system-specific.

† This category includes questions about normal structure and function that may appear in the context of an abnormal clinical presentation.

‡ Approximately 10% to 15% of questions are not classified in the normal processes, abnormal processes, or principles of therapeutics categories. These questions are likely to be classified in the general principles, biostatistics/evidence-based medicine, or social sciences categories in the USMLE Content Outline.

Physician Tasks/Competencies

In addition to being organized by organ system, the Step 1 exam is organized by physician tasks and competencies, as shown in Table 2. More information about the physician task and competency outline is available on the USMLE website (http://www.usmle.org/pdfs/tcom.pdf).

Test items are constructed to assess one of the competencies listed below.

Table 2. USMLE Step 1 Specifications: Physician Tasks/Competencies*

Competency	Range
Medical Knowledge/Scientific Concepts	**55% – 65%**
Patient Care: Diagnosis • **History/Physical Examination** • **Laboratory/Diagnostic Studies** • **Diagnosis** • **Prognosis/Outcome**	**20% – 30%**
Patient Care: Management** • **Health Maintenance/Disease Prevention** • **Pharmacotherapy**	**7% – 12%**
Communication **Professionalism**	**2% – 5%**
Practice-based Learning and Improvement	**4% – 8%**

* Percentages are subject to change at any time. See the USMLE website (http://www.usmle.org) for the most up-to-date information.

** The Step 1 examination includes management questions in only the categories listed in this table. It does not include questions related to clinical interventions, mixed management, or surveillance for disease recurrence.

Step 1 MCQ Content and Competency Examples
Examples of MCQ items focused on each of the competencies and a sampling of topics from different areas of the content outline are shown below.

Competency: Medical Knowledge/Scientific Concepts: Applying foundational science concepts
Content Area: Cardiovascular System

A 65-year-old man is brought to the emergency department 30 minutes after the onset of acute chest pain at rest that radiates to his left arm. His pulse is 110/min, respirations are 20/min, and blood pressure is 150/80 mm Hg. Physical examination shows diaphoresis. The lungs are clear to auscultation of the chest. An ECG shows a new left bundle branch block. The tentative diagnosis of acute coronary syndrome is made. Treatment with oxygen via nasal cannula, oral aspirin, and sublingual nitroglycerin, followed by an intravenous dose of a β-adrenergic blocker, is begun. Which of the following sets of changes is most likely to occur in this patient after the intravenous dose?

	Heart Rate	**Myocardial Contractility**	**Myocardial O_2 Consumption**
(A)	No change	increased	increased
(B)	No change	increased	decreased
(C)	No change	decreased	increased
(D)	No change	decreased	decreased
(E)	Decreased	increased	decreased
(F)	Decreased	decreased	increased
(G)	Decreased	decreased	decreased

Answer: G

Competency: Patient Care: Diagnosis: Laboratory and diagnostic studies
Content Area: Gastrointestinal System
A 14-year-old girl has had nausea, intermittent diarrhea, and a 2.2-kg (5-lb) weight loss over the past 4 weeks. Examination shows a migrating serpiginous pruritic perianal rash. Her leukocyte count is 8000/mm^3 with 20% eosinophils. Which of the following tests is most likely to yield an accurate diagnosis?

(A) Blood smear
(B) Bone marrow biopsy
(C) KOH preparation
(D) Microscopic examination of the stool
(E) Skin snip

Answer: D

Competency: Patient Care: Diagnosis
Content Area: Renal/Urinary System

A 28-year-old man comes to the physician because of a 1-year history of pain with urination that has increased in severity during the past month. He also has had episodes of blood in his urine during the past 5 years. He lived in sub-Saharan Africa until he came to the USA 6 months ago for graduate school. His temperature is 38°C (100.4°F), pulse is 80/min, respirations are 16/min, and blood pressure is 110/84 mm Hg. Physical examination shows suprapubic tenderness. Laboratory studies show:

Hemoglobin	12.3 g/dL
Hematocrit	37%
Leukocyte count	13,400/mm^3
Segmented neutrophils	65%
Bands	5%
Eosinophils	5%
Lymphocytes	22%
Monocytes	3%
Serum	
Urea nitrogen	75 mg/dL
Creatinine	3.8 mg/dL
Urine	
Blood	3+
RBC	200/hpf
WBC	100/hpf
RBC casts	absent
WBC casts	absent

Imaging studies show bilateral hydroureter and hydronephrosis and foci of calcification in the region of the bladder. A biopsy specimen of the bladder shows marked chronic inflammation with fibrosis and scattered granulomas. Which of the following best explains the biopsy findings?

(A) Exposure to a chemical toxin
(B) Interstitial cystitis
(C) Malacoplakia
(D) Schistosomiasis
(E) Vesicoureteral reflux

Answer: D

Competency: Patient Care: Management: Pharmacotherapy
Content Area: Hematopoietic and Lymphoreticular System: Adverse effects of drugs

A 55-year-old woman with small cell carcinoma of the lung is admitted to the hospital to undergo chemotherapy. Six days after treatment is started, she develops a temperature of 38°C (100.4°F). Physical examination shows no other abnormalities. Laboratory studies show a leukocyte count of 100/mm^3 (5% segmented neutrophils and 95% lymphocytes). Which of the following is the most appropriate pharmacotherapy to increase this patient's leukocyte count?

(A) Darbepoetin
(B) Dexamethasone
(C) Filgrastim
(D) Interferon alfa
(E) Interleukin-2 (IL-2)
(F) Leucovorin

Answer: C

Competency: Practice-based Learning
Content Area: Biostatistics

A study is designed to evaluate the feasibility of acupuncture in children with chronic headaches. Sixty children with chronic headaches are recruited for the study. In addition to their usual therapy, all children are treated with acupuncture three times a week for 2 months. Which of the following best describes this study design?

(A) Case-control
(B) Case series
(C) Crossover
(D) Cross-sectional
(E) Historical cohort
(F) Randomized clinical trial

Answer: B

Competency: Professionalism
Content Area: Social Sciences

A 45-year-old man comes to the physician for HIV testing. He says that he has been having an extramarital affair with a woman for 6 months, and he hopes this affair will continue because it has made him very happy. He has no plans to tell his wife about the affair. The wife is also a patient of the physician. Physical examination shows no abnormalities, and the result of a serum HIV antibody test is negative. Which of the following is the most appropriate action by the physician?

(A) Alert the local public health department to the patient's activities
(B) Explain to the patient that one of them must tell the wife about the affair for her own safety
(C) Refer the patient for counseling
(D) Say nothing about the affair to anyone other than the patient
(E) Tell the patient's wife about the affair so she can make an informed decision about possibly being placed at risk in the future

Answer: D