

CONTENT DESCRIPTION  
and GENERAL INFORMATION

# Step 1



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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®).

Practice materials, which include Sample Test Items (PDF) and web-based Tutorial and Practice Test items, as well as other informational materials, are available at the USMLE website [www.usmle.org](http://www.usmle.org). Examinees must also read the *USMLE Bulletin of Information* at [www.usmle.org/bulletin](http://www.usmle.org/bulletin).

### **IMPORTANT:**

- You **must** run the web-based Tutorial and Practice Test Items 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 Step 1 practice materials on the USMLE website.
- The web-based Tutorial and Practice Test Items on the USMLE website include items with associated audio findings. Become familiar with how these types of test items function before your test date.
- The term *item* is used to describe a test question in any format.

Please visit the USMLE website [www.usmle.org](http://www.usmle.org) often to view announcements, regarding 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 (MCQs) 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 may 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 ([www.usmle.org/pdfs/usmlecontentoutline.pdf](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. Content weighting for these topics is provided in Table 1. Sections focusing on individual organ systems are subdivided according to normal and abnormal processes, including principles of therapy. Content weighting for these topics is provided in Table 2. In most instances, knowledge of normal processes is evaluated in the context of a disease process or specific pathology. 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.

**Table 1: Step 1 System Specifications\***

System	Range, %*
General Principles**	13–17
Behavioral Health & Nervous Systems/Special Senses	9–13
Reproductive & Endocrine Systems	9–13
Respiratory & Renal Urinary Systems	9–13
Blood & Lymphoreticular/Immune Systems	7–11
Multisystem Processes & Disorders	7–11
Cardiovascular System	6–10
Musculoskeletal, Skin & Subcutaneous Tissue	6–10
Gastrointestinal System	5–9
Biostatistics & Epidemiology/Population Health	5–7

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

\*\* The General Principles category for the Step 1 examination 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.

**Table 2: Step 1 Process Specifications**

Processes	Range, %
Normal Processes†	10–15
Abnormal Processes	55–60
Principles of Therapeutics	15–20
Other‡	10–15

† 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

An additional organizing construct for Step 1 design is physician tasks and competencies. Each test item is constructed to assess one of the competencies listed in Table 3. Detailed information about the physician tasks and competency outline is available at the USMLE website ([www.usmle.org/pdfs/tcom.pdf](http://www.usmle.org/pdfs/tcom.pdf)).

**Table 3: Step 1 Physician Tasks/Competencies Specifications\***

Competency	Range, %
Medical Knowledge: Applying Foundational Science Concepts	52–62
Patient Care: Diagnosis	20–30
History/Physical Exam	
Laboratory/Diagnostic Studies	
Diagnosis	
Patient Care: Management	7–12
Health Maintenance/Disease Prevention	
Pharmacotherapy	
Communication/Professionalism	5–7

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

Finally, each Step 1 examination covers content related to traditionally defined disciplines and interdisciplinary areas listed in Table 4.

**Table 4: Step 1 Discipline Specifications\***

<b>Discipline</b>	<b>Range, %*</b>
Pathology	45–52
Physiology	26–34
Pharmacology	16–23
Biochemistry & Nutrition	14–24
Microbiology & Immunology	15–22
Gross Anatomy & Embryology	11–15
Histology & Cell Biology	9–13
Behavioral Sciences	8–12
Genetics	5–9

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

## STEP 1 MCQ CONTENT AND COMPETENCY EXAMPLES

Examples of MCQs 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 55-year-old man has had crushing substernal chest pain on exertion over the past 6 weeks. He had a myocardial infarction 2 months ago. He takes nitroglycerin as needed and one aspirin daily. He has smoked two packs of cigarettes daily for 30 years. Examination shows normal heart sounds and no carotid or femoral bruits. Treatment with a  $\beta$ -adrenergic blocking agent is most likely to improve his symptoms due to which of the following mechanisms?

- (A) Decreasing myocardial contractility
- (B) Dilating the coronary arteries
- (C) Peripheral vasodilation
- (D) Preventing fibrin and platelet plugs

*Answer: A*

### **Competency: Patient Care: Diagnosis: Laboratory and diagnostic studies**

#### **Content Area: Gastrointestinal System**

A 14-year-old girl comes to the office because of 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  $8000/\text{mm}^3$  with 20% eosinophils. Which of the following studies 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 office 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 <sup>3</sup>
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 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<sup>3</sup> (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*

**Competency: Communication**

**Content Area: Social Sciences**

A 22-year-old man comes to the clinic to discuss the results of an HIV immunoassay done 1 week ago. At that time, he was also diagnosed with syphilis, and intramuscular penicillin was administered. He has no other history of serious illness and no known drug allergies. He takes no other medications. He had never previously undergone HIV testing. He has had sexual intercourse with six male sexual partners in his lifetime; they have used condoms inconsistently. Vital signs are within normal limits. Physical examination shows a resolving, painless chancre over the penis. He is informed that the HIV immunoassay results are positive. Which of the following is the most appropriate statement by the physician to the patient at this time?

- (A) "At this time, we recommend antiretroviral therapy for all HIV-infected patients. This needs to be taken consistently for the rest of your life. Are you ready to start therapy today?"
- (B) "I noticed that you had never been tested for HIV before last week, although you were at high risk for infection. Why is that?"
- (C) "Pre-exposure prophylaxis is very effective in preventing HIV infection. Had you ever considered using it?"
- (D) "What are your thoughts and feelings about this HIV test result?"
- (E) "You must be shaken by this diagnosis, but understand that we have effective treatment for this that can enable you to lead a normal life."

*Answer: D*