

FIRST AID FOR THE®

USMLE® STEP 3

Fourth Edition

A RESIDENT-TO-RESIDENT GUIDE

- Completely updated, comprehensive review for the new USMLE Step 3 •
 - High-yield topics and CCS-style minicases emphasize the “next step” in patient management •
 - Vignette-style flash cards test your application of knowledge •
 - New basic science correlations prepare you for foundational science questions •

**Mc
Graw
Hill**
Education

TAO LE ■ VIKAS BHUSHAN ■ JAMES YEH ■ KACHIU LEE

FIRST AID FOR THE[®] **USMLE Step 3**

Fourth Edition

TAO LE, MD, MHS

Associate Clinical Professor of Medicine and Pediatrics
Chief, Section of Allergy and Immunology
Department of Medicine
University of Louisville

VIKAS BHUSHAN, MD

Diagnostic Radiologist

JAMES S. YEH, MD, MPH

Attending Physician
Research Fellow
Department of Medicine
Brigham and Women's Hospital
Harvard Medical School



KACHIU CECILIA LEE, MD, MPH

Clinical and Research Fellow
Wellman Center for Photomedicine
Department of Dermatology
Massachusetts General Hospital
Harvard Medical School



New York Chicago San Francisco Athens London Madrid Mexico City
Milan New Delhi Singapore Sydney Toronto

First Aid for the® USMLE Step 3, Fourth Edition

Copyright © 2016 by Tao Le and Vikas Bhushan. All rights reserved. Printed in the United States of America. Except as permitted under the United States Copyright Act of 1976, no part of this publication may be reproduced or distributed in any form or by any means, or stored in a data base or retrieval system, without the prior written permission of the publisher.

Previous editions copyright © 2010, 2008, 2005 by Tao Le and Vikas Bhushan.

First Aid for the® is a registered trademark of McGraw-Hill Education. All rights reserved.

1 2 3 4 5 6 7 8 9 0 DOW/DOW 19 18 17 16 15

ISBN 9780071825962

MHID 0071825967

ISSN 1554-1363

NOTICE

Medicine is an ever-changing science. As new research and clinical experience broaden our knowledge, changes in treatment and drug therapy are required. The authors and the publisher of this work have checked with sources believed to be reliable in their efforts to provide information that is complete and generally in accord with the standards accepted at the time of publication. However, in view of the possibility of human error or changes in medical sciences, neither the authors nor the publisher nor any other party who has been involved in the preparation or publication of this work warrants that the information contained herein is in every respect accurate or complete, and they disclaim all responsibility for any errors or omissions or for the results obtained from use of the information contained in this work. Readers are encouraged to confirm the information contained herein with other sources. For example and in particular, readers are advised to check the product information sheet included in the package of each drug they plan to administer to be certain that the information contained in this work is accurate and that changes have not been made in the recommended dose or in the contraindications for administration. This recommendation is of particular importance in connection with new or infrequently used drugs.

This book was set in Electra LT Std by Rainbow Graphics.
The editors were Catherine A. Johnson and Christina M. Thomas.
The production supervisor was Jeffrey Herzich.
Project management was provided by Rainbow Graphics.
The designer was Alan Barnett.
RR Donnelley was printer and binder.

This book is printed on acid-free paper.

International Edition ISBN 978-1-25-925324-9, MHID 1-25-925324-4.

Copyright © 2016. Exclusive rights by McGraw-Hill Education for manufacture and export. This book cannot be re-exported from the country to which it is consigned by McGraw-Hill Education. The International Edition is not available in North America.

McGraw-Hill Education books are available at special quantity discounts to use as pre.miums and sales promotions or for use in corporate training programs. To contact a representative, please visit the Contact Us pages at www.mhprofessional.com.

DEDICATION

To Andrea “Andi” Fellows, who loyally shepherded countless *First Aid* manuscripts and proofs to publication for the benefit of students and physicians everywhere.

AUTHORS**Eike Blohm, MD**

Toxicology Fellow, Department of Emergency Medicine
University of Massachusetts

Mirjana Domakonda, MD

Fellow, Division of Child and Adolescent Psychiatry
Department of Psychiatry
New York-Presbyterian Hospital of Columbia and Cornell
Universities

Julie C. Fu, MD

Fellow, Department of Hematology/Oncology
Tufts Medical Center

Pourya Ghazi, MD

Hospitalist
Optum Medical Partners
Monarch HealthCare

Kate Humphrey, MD

Faculty, Division of Patient Safety and Quality
Pediatric Hospitalist, Division of General Pediatrics
Department of Medicine
Boston Children's Hospital

Joshua M. Liao, MD

General Internal Medicine Fellow
University of Pennsylvania School of Medicine

Rupal D. Mathur, MD

Resident, Department of Medicine
Massachusetts General Hospital
Harvard Medical School

Valentina Rodriguez-Triana, MD, MS

Health Sciences Assistant Clinical Professor
Department of Obstetrics and Gynecology
David Geffen School of Medicine
University of California at Los Angeles

Sonali Saluja, MD, MPH

General Internal Medicine Fellow
Cambridge Health Alliance
Harvard Medical School

Yifan Zheng, MD

Clinical Research Fellow, Division of Thoracic Surgery
Department of Surgery
Brigham and Women's Hospital
Harvard Medical School

IMAGE EDITOR**Mariam Aboian, MD, PhD**

Resident, Department of Radiology
University of California, San Francisco

FACULTY REVIEWERS

Aaron Berkowitz, MD, PhD

Associate Neurologist
Department of Neurology
Brigham and Women's Hospital
Instructor in Neurology
Harvard Medical School

Fabienne Bourgeois, MD, MPH

Pediatric Hospitalist, Division of General Pediatrics
Department of Medicine
Boston Children's Hospital

Eddy J. Chen, MD

Instructor of Medicine
Department of Medical Oncology
Dana-Farber Cancer Institute

Emily Grover, MD

Fellow in Medical Simulation and Education
STRATUS Center for Medical Simulation
Department of Emergency Medicine
Brigham and Women's Hospital
Harvard Medical School

Kathleen J. Haley, MD

Associate Physician, Pulmonary and Critical Care Medicine
Brigham and Women's Hospital
Associate Professor of Medicine
Harvard Medical School

Ole-Petter R. Hamnvik, MB, BCh, BAO, MMSc

Associate Director, Fellowship Program
Division of Endocrinology, Diabetes, and Hypertension
Department of Medicine
Brigham and Women's Hospital
Harvard Medical School

Hamed Khalili, MD, MPH

Instructor of Medicine, Division of Gastroenterology
Massachusetts General Hospital
Harvard Medical School

Katherine Lupton, MD

Instructor, Department of Medicine
Cambridge Health Alliance
Harvard Medical School

Richard J. Pels, MD

Director, Internal Medicine Residency Program
Cambridge Health Alliance
Harvard Medical School

Corinne Rhodes, MD

Fellow, Division of General Internal Medicine
Department of Medicine
Massachusetts General Hospital
Harvard Medical School

Brianne Romero, MD

Assistant Clinical Professor, Obstetrics and Gynecology
University of California, Los Angeles

Heather F. Sateia, MD

Instructor, Division of General Internal Medicine
Department of Medicine
Johns Hopkins School of Medicine

Joji Suzuki, MD

Director, Division of Addiction Psychiatry
Department of Psychiatry
Brigham and Women's Hospital
Harvard Medical School

Athe Tsibris, MD, MS

Associate Physician, Infectious Diseases
Brigham and Women's Hospital
Assistant Professor of Medicine
Harvard Medical School

Amanda R. Vest, MBBS

Assistant Professor, Division of Cardiology
Department of Medicine
Tufts University School of Medicine

Daniella A. Zipkin, MD

Associate Professor of Medicine
Department of Medicine
Duke University Medical Center

Preface

With *First Aid for the USMLE Step 3*, we continue our commitment to providing residents and international medical graduates with the most useful and up-to-date preparation guides for the USMLE exams. This fourth edition represents a thorough review in many ways and includes the following:

- An updated review of hundreds of high-yield Step 3 topics, presented in a format designed to highlight board-relevant information.
- A renewed emphasis on integrated pathophysiology and on the “next step” in diagnosis and management.
- More high-yield, vignette-style “flash cards” and four-color images designed to enhance study.
- A thoroughly revised exam preparation guide for the USMLE Step 3 with test-taking strategies pertinent to the newly revised exam.
- A high-yield guide to the Computer-based Case Simulations (CCS) that includes invaluable tips and shortcuts.
- One hundred updated minicases with presentations and management strategies similar to those of the actual CCS cases.

We invite you to share your thoughts and ideas to help us improve *First Aid for the USMLE Step 3*. See How to Contribute, p. xiii.

Tao Le
Louisville

Vikas Bhushan
Los Angeles

James S. Yeh
Boston

Kachiu Cecilia Lee
Boston

Acknowledgments

This has been a collaborative project from the start. We gratefully acknowledge the thoughtful comments, corrections, and advice of the residents, international medical graduates, and faculty who have supported the authors in the development of *First Aid for the USMLE Step 3*.

For support and encouragement throughout the process, we are grateful to Thao Pham, Isabel Nogueira, and Louise Petersen.

Thanks to our publisher, McGraw-Hill, for the valuable assistance of their staff. For enthusiasm, support, and commitment to this challenging project, thanks to our editor, Catherine Johnson. We also thank Rainbow Graphics—especially David Hommel, Donna Campbell, and Susan Cooper—for remarkable editorial and production work.

Finally, we want to give very special thanks and acknowledgment to Andrea “Andi” Fellows, who edited this book and has edited every book in the *First Aid for the Boards* series, including *First Aid for the USMLE Step 1*, over the past 20 years. Her wry humor and fanatical attention to detail are evident throughout our pages. The author team has been blessed to have her as a friend and colleague over the years.

Tao Le
Louisville

Vikas Bhushan
Los Angeles

James S. Yeh
Boston

Kachiu Cecilia Lee
Boston

How to Contribute

To help us continue to produce a high-yield review source for the USMLE Step 3 exam, you are invited to submit any suggestions or corrections. We also offer **paid internships** in medical education and publishing ranging from three months to one year (see below for details).

Please send us your suggestions for:

- Study and test-taking strategies for the computerized USMLE Step 3.
- New facts, mnemonics, diagrams, and illustrations.
- CCS-style cases.
- Low-yield topics to remove.

For each entry incorporated into the next edition, you will receive up to a \$20 gift certificate as well as personal acknowledgment in the next edition. Diagrams, tables, partial entries, updates, corrections, and study hints are also appreciated, and significant contributions will be compensated at the discretion of the authors. Also let us know about material in this edition that you feel is low yield and should be deleted.

The preferred way to submit entries, suggestions, or corrections is via the First Aid Team's blog at:

www.firstaidteam.com

Please include name, address, school affiliation, phone number, and e-mail address (if different from the address of origin).

NOTE TO CONTRIBUTORS

All entries become property of the authors and are subject to editing and reviewing. Please verify all data and spellings carefully. In the event that similar or duplicate entries are received, only the first entry received will be used. Include a reference to a standard textbook to facilitate verification of the fact. Please follow the style, punctuation, and format of this edition if possible.

INTERNSHIP OPPORTUNITIES

The author team is pleased to offer part-time and full-time paid internships in medical education and publishing to motivated physicians. Internships may range from three months (eg, a summer) up to a full year. Participants will have an opportunity to author, edit, and earn academic credit on a wide variety of projects, including the popular *First Aid* series. Writing/editing experience, familiarity with Microsoft Word, and Internet access are desired. For more information, e-mail a résumé or a short description of your experience along with a cover letter to the authors at firstaidteam@yahoo.com.

Contents

Authors	vii	CHAPTER 10. Infectious Disease	179
Image Editor	vii	CHAPTER 11. Musculoskeletal	213
Faculty Reviewers	viii	CHAPTER 12. Nephrology	231
Preface	ix	CHAPTER 13. Neurology	253
Acknowledgments	xi	CHAPTER 14. Obstetrics	273
How to Contribute	xiii	CHAPTER 15. Gynecology	293
CHAPTER 1. Guide to the USMLE Step 3 and Supplement: Guide to the CCS	1	CHAPTER 16. Pediatrics	309
CHAPTER 2. Ambulatory Medicine	15	CHAPTER 17. Psychiatry	355
CHAPTER 3. Cardiovascular	35	CHAPTER 18. Pulmonary	381
CHAPTER 4. Emergency Medicine	57	CHAPTER 19. High-Yield CCS Cases	397
CHAPTER 5. Endocrinology	85	Appendix	489
CHAPTER 6. Ethics and Statistics	105	Index	495
CHAPTER 7. Gastroenterology	115	About the Authors	529
CHAPTER 8. Hematology	137		
CHAPTER 9. Oncology	157		

GUIDE TO THE USMLE STEP 3

Introduction	2	WHAT IF I NEED TO RESCHEDULE THE EXAM?	6
USMLE Step 3	2	WHAT ABOUT TIME?	6
HOW IS STEP 3 STRUCTURED?	2	IF I LEAVE DURING THE EXAM, WHAT HAPPENS TO MY SCORE?	6
WHAT TYPES OF QUESTIONS ARE ASKED?	3	HOW LONG WILL I HAVE TO WAIT BEFORE I GET MY SCORES?	6
HOW ARE THE SCORES REPORTED?	5	USMLE/NBME Resources	6
HOW DO I REGISTER TO TAKE THE EXAM?	5	Testing Agencies	7

Introduction

The USMLE Step 3 is one of the last steps one must take toward becoming a licensed physician. The exam assesses the extent to which one can apply medical knowledge to the unsupervised practice of medicine. For international medical graduates (IMGs) who are applying for residency training in the United States, it also represents an opportunity to strengthen the residency application. The Step 3 exam focuses on the initial and **long-term** management of **common** clinical problems in **outpatient** settings. The content and format of the test were revised beginning with the November 2014 testing schedule.

KEY FACT

Step 3 is not a retread of Step 2.

In this section, we will provide an overview of the newly revised Step 3 exam and will offer you proven approaches toward conquering it. For a detailed description of Step 3, visit www.usmle.org or refer to the two booklets provided on the USMLE Web site: *USMLE Step 3 Content Description and General Information* and *USMLE Step 3 Sample Test Questions*.

USMLE Step 3

HOW IS STEP 3 STRUCTURED?

The Step 3 exam is administered on two separate days that need not be consecutively scheduled. The first day of the exam covers the Foundations of Independent Practice (FIP). The second day emphasizes Advanced Clinical Medicine (ACM).

Foundations of Independent Practice (FIP). Day 1 of testing lasts seven hours and consists of six blocks of 42–43 multiple-choice questions for a total of 256 questions. Test takers are given a maximum of 60 minutes to complete each block. There is a 45-minute break as well as an optional five-minute tutorial. Break time can be extended if a test taker skips the optional tutorial or finishes a test block early. Once you finish a test block, you cannot go back to it.

The content material on day 1 focuses on the basic principles required for the provision of effective health care. This includes basic foundational science (ie, knowledge of the underlying mechanisms of both normal and abnormal physiologic processes); knowledge of the history and physical examination, the diagnostic process, and use of studies in diagnosing diseases; the principles and interpretation of biostatistics, epidemiology, and population health; and the application of social sciences, including interpersonal skills, medical ethics, systems-based practice, and patient safety, to the provision of health care. Also included on day 1 are items that test one's ability to interpret the medical literature and pharmaceutical advertisements.

Advanced Clinical Medicine (ACM). Day 2 lasts approximately nine hours and consists of six blocks of 33 multiple-choice questions for a total of 198 questions. Test takers are given 45 minutes to complete each block. There is an optional five-minute tutorial. Day 2 also includes a Computer-based Clinical Simulation (CCS) component in which 13 case simulations are presented. Each case is allotted 10–20 minutes. There is also an optional seven-minute CCS tutorial and a 45-minute break. As on day 1, test takers can add

time to the break by completing a test block early or by skipping the optional tutorial. At the end of the day, there is an optional survey.

Day 2 of the exam focuses on the test taker's ability to apply medical knowledge in the context of patient management and the evolving manifestations of disease over time. The test focuses on knowledge of medical decision making, diagnosis and management, and disease prognosis and outcome. Additional emphasis is placed on screening and health maintenance management. Also included are multiple-choice questions and computer-based case simulations. Tables 1-1 and 1-2 graphically depict the areas of concentration of the revised Step 3 exam.

WHAT TYPES OF QUESTIONS ARE ASKED?

Virtually all questions on Step 3 are case based. A substantial amount of extraneous information may be given, or a clinical scenario may be followed by a question that one could answer without actually reading the case. It is your job to determine which information is superfluous and which is pertinent to the case at hand. There are three question formats:

TABLE 1-1. Step 3 Content Areas Tested

CATEGORY	PERCENT OF OVERALL CONTENT
General Principles of Foundational Science ^a	1–3%
Biostatistics and Epidemiology/Population Health and Interpretation of the Medical Literature Social Science	14–18%
Individual Organ Systems ^b	80–85%
Immune System	
Blood and Lymphoreticular System	
Behavioral Health	
Nervous System and Special Senses	
Skin and Subcutaneous Tissue	
Musculoskeletal System	
Cardiovascular System	
Respiratory System	
Gastrointestinal System	
Renal and Urinary System	
Pregnancy, Childbirth, and the Puerperium	
Female Reproductive System and Breast	
Male Reproductive System	
Endocrine System	
Multisystem Processes and Disorders	

^aThis category includes test items covering underlying physiologic mechanisms that are normal and not limited to specific organ systems.

^bThis category includes test items covering both normal and abnormal physiologic processes that affect specific organ systems.

TABLE 1-2. Step 3 Competencies Tested^a

COMPETENCY	DAY 1: FIP	DAY 2: ACM
Medical Knowledge/Scientific Concepts	18–22%	—
Patient Care: Diagnosis	40–45%	—
<ul style="list-style-type: none"> ■ History/Physical Exam ■ Laboratory/Diagnostic Studies ■ Diagnosis 		
<ul style="list-style-type: none"> ■ Prognosis/Outcome 	—	20–25%
Patient Care: Management	—	75–80%
<ul style="list-style-type: none"> ■ Health Maintenance/Disease Prevention ■ Pharmacotherapy ■ Clinical Interventions ■ Mixed Management ■ Surveillance for Disease Recurrence 		
Communication and Professionalism	8–12%	—
Systems-based Practice/Patient Safety and Practice-based Learning	22–27%	—

^aThe competencies listed in rows 2–4 (Patient Care: Diagnosis and Management) are also tested on the CCS.

- **Single items.** This is the **most frequent** question type. It consists of the traditional single-best-answer question with 4–5 choices.
- **Multiple-item sets.** This consists of a clinical vignette followed by 2–3 questions regarding that case. These questions can be answered **independently**. Again, there is only one best answer.
- **Cases.** This is a clinical vignette followed by 2–5 questions. You actually receive additional information as you answer questions, so it is important that you answer questions sequentially without skipping. As a result, once you proceed to the next question in the case, you cannot change the answer to the previous question.

Questions are organized by clinical **setting** and include an outpatient office/community health center, an inpatient hospital, and an emergency department. The clinical care situations you will encounter in these settings include:

- **Initial workup:** This is characterized by the initial assessment and management of clinical issues among patients typically seen in an outpatient setting.
- **Continued care:** This physician-patient encounter typically occurs in an ambulatory context but may also take place in an inpatient setting. The encounter focuses on the management of previously diagnosed conditions and issues surrounding health maintenance. Encounters are characterized by the evaluation and management of acute exacerbations or complications of chronic and progressive medical illnesses.
- **Urgent intervention:** This encounter tests the prompt recognition and management of life-threatening emergencies, typically in emergency departments or in the context of hospitalized patients.

KEY FACT

For long vignettes, read the question stem first, and then read the case.

KEY FACT

Remember that Step 3 tends to focus on outpatient continuing-management scenarios.

When approaching vignette questions, you should keep a few things in mind:

- Be sure to note the age and race of the patient in each clinical scenario. When ethnicity is given, it is often relevant. Know these associations well (see high-yield facts), especially for more common diagnoses.
- Be able to recognize key facts that distinguish major diagnoses.
- Questions often describe clinical findings rather than naming eponyms (eg, they cite “audible hip click” instead of “positive Ortolani’s sign”).

HOW ARE THE SCORES REPORTED?

Like the Step 1 and 2 score reports, your Step 3 report includes your pass/fail status, a score with a three-digit scale, and a graphical performance profile organized by discipline and disease process. A minimum score of **190** is required for passing. According to the USMLE, the mean score for first-time test takers from accredited US medical schools ranges from 215 to 235 with a standard deviation of approximately 20.

According to recent data from the USMLE Web site, approximately **95%** of graduates from US and Canadian medical schools passed Step 3 on their first try, whereas 80–85% of IMGs passed on their first attempt. Detailed, year-to-year performance information can be found at www.usmle.org/performance-data/.

HOW DO I REGISTER TO TAKE THE EXAM?

The process of registering for the Step 3 exam varies depending on whether you are a US or a Canadian-based medical student, an allopathic or osteopathic student, or a student living outside the United States or Canada. For US and Canadian medical students, application is made through the Web site of the Federation of State Medical Boards (FSMB), www.fsmb.org. The registration fee varies and was \$815 in 2015. Note again that **the two days of the exam do not need to be scheduled consecutively**.

Your scheduling permit is sent via e-mail to the e-mail address provided on the application materials. Once you have received your scheduling permit, it is your responsibility to print it and decide when and where you would like to take the exam. For a list of Prometric locations nearest you, visit www.prometric.com. Call Prometric’s toll-free number or visit www.prometric.com to arrange a time to take the exam.

The electronic scheduling permit you receive will contain the following important information:

- Your USMLE identification number.
- The eligibility period in which you may take the exam.
- Your “scheduling number,” which you will need to make your exam appointment with Prometric.
- Your Candidate Identification Number, or CIN, which you must enter at your Prometric workstation in order to access the exam.

Prometric has no access to these codes or your scheduling permit and will not be able to supply them for you. You will not be allowed to take Step 3 unless you present your permit, printed ahead of time, along with an unexpired, government-issued photo identification that contains your signature (eg, a driver’s license or passport). Make sure the name on your photo ID exactly matches the name that appears on your scheduling permit.

KEY FACT

As part of its multiple-choice questions, the exam tests your ability to understand and interpret medical journal abstracts and pharmaceutical advertisements.

KEY FACT

Check the “FAQ” and “Scores” tabs of the USMLE Web site for the latest score information.

KEY FACT

The exam is scheduled on a “first-come, first-served” basis, so contact Prometric as soon as you receive your scheduling permit!

WHAT IF I NEED TO RESCHEDULE THE EXAM?

You can change your date and/or center within your three-month eligibility period at no charge by contacting Prometric. If space is available, you may reschedule up to five days before your test date. If you reschedule within five days of your test date, Prometric will charge a rescheduling fee. If you need to reschedule outside your initial three-month period, you can apply for a single three-month extension (eg, April/May/June can be extended through July/August/September) after your eligibility period has begun (go to www.nbme.org for more information). For other rescheduling needs, you must submit a new application along with another application fee.

WHAT ABOUT TIME?

Time is of special interest on the exam. As you take the exam, the computer will keep track of how much time has elapsed. However, the computer will show you only how much time remains in a given test block (unless you look at the full clock by using the **Alt-T** command). Therefore, it is up to you to determine if you are pacing yourself properly. Note that on both days of the exam, you have approximately **75 seconds** per multiple-choice question. If you feel that you can't answer a question within a reasonable period of time, take an educated guess and move on, as there are **no penalties** for wrong answers.

It should be noted that 45 minutes is allowed for break time. However, you can elect not to use all of your break time, or you can gain extra break time either by skipping the tutorial or by finishing a block ahead of the allotted time. **The computer will not warn you** if you have used more than your allotted break time.

IF I LEAVE DURING THE EXAM, WHAT HAPPENS TO MY SCORE?

You are considered to have started the exam once you have entered your CIN onto the computer screen. In order to receive an official score, however, you must finish the entire exam. This means that you must start an exam block and either finish it or run out of time. If you do **not** complete all the blocks, your USMLE score transcript will document your exam as an incomplete attempt, and no actual score will be reported.

The exam ends when all blocks have been completed or time has elapsed. As you leave the testing center, you will receive a written test-completion notice to document your completion of the exam.

HOW LONG WILL I HAVE TO WAIT BEFORE I GET MY SCORES?

The USMLE typically reports scores 3–4 weeks after the examinee's test date. During peak periods, however, it may take **up to eight weeks** for scores to be made available. Official information concerning the time required for score reporting is posted on the USMLE Web site.

USMLE/NBME Resources

We strongly encourage you to use and study the free materials provided by the testing agencies as well as those found on the USMLE Web site at www.usmle.org/practice-materials/index.html. These include:

KEY FACT

Never, ever leave a question blank! You can always mark it and come back later.

- *USMLE Step 3 Content Description and General Information*
- *USMLE Step 3 Sample Test Questions*
- *Tutorial and Practice Test Items for Multiple-Choice Questions*
- *Primum Computer-based Case Simulations (CCS)*

In addition, computer-based practice tests are available for a fee through the NBME for those who seek to become familiar with the Prometric test center environment.

Testing Agencies

National Board of Medical Examiners (NBME)

Department of Licensing Examination Services
3750 Market Street
Philadelphia, PA 19104-3102
215-590-9500
Fax: 215-590-9457
www.nbme.org

Educational Commission for Foreign Medical Graduates (ECFMG)

3624 Market Street
Philadelphia, PA 19104-2685
215-386-5900
Fax: 215-386-9196
www.ecfmg.org

Federation of State Medical Boards (FSMB)

400 Fuller Wisner Road, Suite 300
Euless, TX 76039
817-868-4000
Fax: 817-868-4041
www.fsmb.org

USMLE Secretariat

3750 Market Street
Philadelphia, PA 19104-3102
215-590-9700
Fax: 215-590-9460
www.usmle.org