THE UNITED STATES MEDICAL LICENSING EXAMINATION: PART ONE

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ABSTRACT

The United States Medical Licensing Examination (USMLE), co-sponsored and co-owned by the Federation of State Medical Boards (FSMB) and the National Board of Medical Examiners (NBME), was implemented in 1992-94 as the successor of the NBME certifying examinations (Parts I, II and III) and the Federation Licensing Examination (FLEX). It is a three-step examination for medical licensure in the United States. The USMLE assesses a physician's ability to apply knowledge, concepts and principles, and to demonstrate fundamental patient-centered skills important in health and disease and constitute the basis of safe and effective patient care. Results of the USMLE are reported to medical licensing authorities in the United States for their use in granting the initial license to practice medicine.

This article is the first in a series focusing on the USMLE program. The following article provides a broad overview of the USMLE program along with a brief description of the USMLE content, characteristics of test administration, and information on the scoring of the exam. Subsequent articles will focus on development of examination content, quality assurance mechanisms, standard setting and such administrative issues as test accommodations and irregular behavior. The intent of this series is to provide the reader with short, topical articles that collectively provide a better understanding of the nature, role and function of the USMLE in assisting medical licensing authorities in the United States.

HISTORY

In 1988, the Educational Commission for Foreign Medical Graduates (ECFMG), the Federation of State Medical Boards (FSMB) and the National Board of Medical Examiners (NBME) sponsored a task force charged with studying the feasibility and benefits of a single examination for medical licensure in the United States. The task force included representatives from a broad array of organizations and entities engaged in academic medicine and the licensing community.[1]

At that time the landscape of medical licensure included multiple examinations serving different, yet often complementary, purposes and audiences. Some were explicitly designed as licensing exams (e.g., FLEX and the three-part examination of the National Board of Osteopathic Medical Examiners); others were intended solely for use as certifying examinations (e.g., the Foreign Medical Graduates Examination of Medical Sciences which fulfilled one of the prerequisites for ECFMG certification). Still others were certifying examinations that had become recognized in many jurisdictions as a licensing examination (e.g., the National Board of Medical Examiners Parts examination leading to certification as a diplomate of the NBME).

The task force viewed the existence of these multiple examinations as counterproductive to a greater goal: the establishment of a single, high-quality examination fostering a national standard for the assessment of physician candidates for initial medical licensure. Their efforts culminated in a major recommendation — *A Proposal for A Single Examination for Medical Licensure* — that set the stage for one of the more significant changes in the field of medical regulation in the late 20th century: the creation of the United States Medical Licensing Examination (USMLE) as the first step toward a single examination written by all physician candidates for initial medical licensure in the United States.

The first USMLE Step 1 and Step 2 examinations were

administered in 1992, followed by Step 3 in 1994. Since its inception in 1992, the USMLE has been the predominant choice of medical licensing authorities for an objective examination to meet their statutory requirement for demonstration of competence prior to issuance of an initial medical license.

Today, the program administers approximately 100,000 Step examinations annually. Most students at LCME-accredited medical schools take Step 1 at the end of their second year and the two components of Step 2 prior to graduation.[2] The majority of physicians take the Step 3 during their residency training, in most cases approximately six to 36 months into residency. Although taken at three different points in the prospective physician's career, the USMLE is considered a single examination. Each of the USMLE Steps complements the others; no Step stands alone in the assessment of readiness for medical licensure.

GOVERNANCE

The USMLE is jointly sponsored by the FSMB and the NBME. Program policies and content integrity for the USMLE are established through an appointive governing body (the Composite Committee) comprised of representatives from the two parent organizations, the ECFMG and the American public. Membership on the committee is drawn from the medical licensing, academic and practice communities; five members of the current membership served previously on their state's medical licensing board. The committee meets biannually with additional quarterly meetings scheduled on an as needed basis.

EXAMINATION CONTENT

Collectively the three Steps of the USMLE provide a broad assessment of physician knowledge and skills appropriate for the unsupervised practice of medicine. Each Step has its own examination blueprint outlining test content.

The Step 1 assesses whether individuals understand and can apply the important concepts of the basic medical sciences; further, that one has a mastery of scientific principles required for maintenance of competence through lifelong learning. Examinees are commonly required to interpret graphic and tabular material; identify gross and microscopic pathologic and normal specimens; and to apply basic science knowledge to clinical problems. The Step 1 consists of approximately 350 multiple-choice items.

The Step 2 contains two components: Clinical Knowledge (CK) and Clinical Skills (CS). The Step 2 CK is a broadly based, integrative 370 item multiple-choice examination appropriate to individuals providing patient care under supervision. Examinees are asked to provide diagnosis, prognosis, indicate underlying mechanisms of disease and/or the next step in medical care.

The Step 2 CS ensures examinees can demonstrate the fundamental clinical and communication skills essential for safe and effective patient care under supervision, e.g., taking a relevant medical history, performing a focused physical examination, communicating effectively with a patient, clearly and accurately documenting findings and diagnostic hypotheses. Examinees interact with "standardized" patients as they move through a series of patient encounters.

The Step 3 contains approximately 480 multiple-choice items, nine computer-case simulations and is organized along two principal dimensions: clinical encounters and physician tasks. The clinical encounters are structured to include emergency, initial and continuing care, and the test content focuses on knowledge related to history taking, physical examination, formulating diagnoses/prognoses and patient management.

A complete outline of the examination content for all three Steps is available on the USMLE website at http://www.usmle.org.

USE OF USMLE SCORES

The USMLE is an objective, high-quality, standardized examination used by state medical boards in their decision-making process when granting initial medical license. The USMLE provides state medical boards with a common standard for assessing physician licensure candidates.

While medical licensing authorities are the primary intended users of the USMLE, it is recognized that other audiences commonly utilize the examination as well – specifically, medical schools and residency training programs. The latter have commonly used individual performance on Step 1 and Step 2 CK as one factor in screening and evaluating applicants for their residency programs. Thus, the numeric Step scores reported on a USMLE transcript and forwarded to program directors as part of the annual residency match become important criteria in the evaluation of residency applicants.

Medical schools are even more specific in their incorporation of the USMLE as part of their ongoing evaluation of student progress. For example, in 2002, 84 percent of all U.S. medical schools required its students take and pass the Step 1 either for advancement to the third year or graduation; over half required their students to take and pass both Step 1 and Step 2 for graduation.[3] This percentage is hardly surprising. The USMLE offers an objective, national standard against which all schools can gauge their students' progress and evaluate the educational effectiveness of their curricula.

ADMINISTRATION OF THE USMLE

At its April 1995 Annual Meeting, the FSMB House of Delegates approved a Strategic Plan for Enhancement of the USMLE. This plan contained several key objectives: transitioning all Steps to a computer-based administration; including an assessment of patient management skills using computer-based case simulations in Step 3; and incorporating a clinical skills assessment into the USMLE.

The first two objectives were completed as part of the initial phase of implementation in 1999 when the USMLE program moved the exam from paper-pencil administration to computer-based administration. Whereas previously all Steps were administered twice annually at a relatively limited number of domestic and international sites, today the USMLE is administered throughout the year to examinees at more than 500 Thomson Prometric testing centers in the United States and around the world. The transition to computer-based testing has provided examinees with the benefits of more flexibility in scheduling and greater uniformity in the testing environment. Examinees can schedule and sit a USMLE Step at virtually any time throughout the year and have an even greater number of testing sites from which to choose.

Examinees, however, were not the only ones to benefit from the move to a computer-based administration. When the USMLE program assumed the responsibility of test administration for all Steps in 1999, medical licensing authorities were able to forego the substantial costs associated with administering the Step 3, such as renting a test site(s), hiring test proctors and secure handling of test materials.

Other significant advantages rendered by computer-based testing involve enhanced testing capabilities and increased exam security. The Primum case simulation portion of Step 3 is the most obvious example of the former. Administering examinations by computer has also made possible improved graphics and pictorials for use in all three Steps. Complementing these enhanced testing capabilities are improvements in the area of exam security — e.g., videotaping of test sessions, digital images of examinees; delivery of test materials via encrypted electronic files.

Under a computer-based administration of the exam, USMLE Step 1 and Step 2 CK are available in the United States and internationally; Step 2 CS and Step 3 are administered only in the United States and its territories. All three Steps are offered routinely Monday through Friday and, in some instances, on weekends, throughout the year. Step 1, Step 2 CK and Step 2 CS are single day examinations; Step 3 covers two days of testing.

Thousands of test items and multiple test forms exist for each USMLE Step. Test forms are assigned randomly to individuals taking a Step for the first time. Standard procedures ensure that individuals repeating a Step are not assigned the same test form from a prior administration.

The USMLE program complies with the Americans with Disabilities Act (ADA) by administering the exam with appropriate accommodations to individuals who have documented disabilities covered under the ADA. In 2004, approximately 300 Step examinations were administered to students and/or physicians requiring testing accommodations under the ADA.

STEP 2 CLINICAL SKILLS

The USMLE program achieved the final objective of its strategic plan with the implementation of the Step 2 Clinical Skills (CS) component in June 2004. Drawing upon years of NBME research and the experiences of the ECFMG and the Medical Council of Canada in administering large-scale, high stakes clinical skills assessments, the USMLE program's Step 2 CS represents the first assessment of clinical and communication skills in a medical licensing examination in the United States since the demise of the clinical bedside encounter from the NBME Parts exam 40 years ago.

The Step 2 CS typically involves 12 standardized patients (SPs) portraying a spectrum of cases reflecting common and important symptoms one would expect to encounter in a clinic, office, emergency room and/or hospital setting. Prior to each encounter with an SP the examinee

receives a brief set of information on the SP (i.e., pertinent biographic information and vital signs). A 15-minute patient encounter is followed by an opportunity for the examinee to record pertinent medical history and physical findings, render initial differential diagnoses, and describe an initial diagnostic workup.

The Step 2 CS is a pass/fail examination with scoring performed around three subcomponents: Integrated Clinical Encounter, Communication and Interpersonal Skills, and Spoken English Proficiency. All three subcomponents must be passed in order to receive an overall passing performance on Step 2 CS.

Like all other portions of the USMLE, the Step 2 CS is administered throughout the year. Regional testing sites for administering Step 2 CS are located in Atlanta, Chicago, Houston, Los Angeles and Philadelphia.

SCORING THE USMLE

The standard (i.e., minimum passing score) for each USMLE Step is reviewed by the Step Committees approximately every three years. As part of that review process, data are gathered from constituent surveys and from independent reviews of examination content.[4] Medical licensing authorities are routinely involved in this process, and representatives from a number of state medical boards participated in standard-setting exercises for the USMLE program during the last round of standard review. Standard setting for any USMLE Step involves a close review of examinee performance data, the results of standard-setting exercises conducted with physician panels, and survey data from key constituencies (e.g., medical schools deans, residency program directors, chairpersons from medical licensing authorities). Despite changes to the standard over time, the performance of United States/Canadian students and graduates taking any Step for the first time remains remarkably high – at or above a 90 percent pass rate.

The USMLE program's quality control procedures utilize independent scoring software to supplement the software used to score each examination. All score records are monitored for any unusual patterns (e.g., zero scores or missing sections) that might indicate a technical problem. Scoring takes approximately four weeks for Step 1 and Step 2 CK, approximately eight weeks for Step 2 CS and approximately four to six weeks for Step 3. Individuals who fail a Step can retake that examination no sooner than 60 days after the previously failed attempt. For reasons of examination security, the USMLE program limits individuals to three attempts at a given Step within a 12-month period.

The USMLE program reports the Step 1, 2 CK and 3 scores on a two- and three-digit scale. Scores are computed in such a way that a two-digit score of 75 always represents the minimum passing score for each Step. One common misconception among examinees is that the two-digit scaled score on a Step exam represents the percent of items answered correctly by the examinees. In fact, examinees must typically answer 60 to 70 percent of items correctly to achieve a passing score on any USMLE Step.

A "performance profile" relating feedback to examinees accompanies each USMLE score report. The performance profile provides examinees with a self-assessment tool that identifies their areas of relative strength and weakness for that administration of the Step.

Aggregate performance data for all USMLE Steps since the program's inception in 1992 are available at www.usmle.org. Aggregate performance data on Steps 1 and 2 are provided annually to all LCME- and AOA-accredited medical schools. Additionally, the Federation provides an annual report to each medical board on the aggregate Step 3 performance of that board's Step 3 registrants.

REFERENCES

1. Organizations represented on the task force included the Accreditation Council for Graduate Medical Education (ACGME); American Medical Association (AMA); Association of American Medical Colleges (AAMC); Department of Health and Human Services (DHHS); Educational Commission for Foreign Medical Graduates (ECFMG); Federation of State Medical Boards (FSMB); National Board of Medical Examiners (NBME); National Board of Osteopathic Medical Examiners (NBOME).
2. The USMLE is open to students and graduates of both LCME- and AOA-accredited medical schools. Most osteopathic students and graduates take the Comprehensive Osteopathic Medical Licensing Examination (COMLEX-USA).
3. Data derived from the 2001-2002 LCME Medical School Questionnaire conducted by the American Association of Medical Colleges.

4. At its April 2003 meeting, the Step 2 Committee approved a motion to increase its standard from a three-digit scaled score of 174 to 182; the Step 3 Committee raised its standard from 182 to 184 in March 2004. In 2003, the Step 1 Committee voted to maintain its current standard.