

THE COMPREHENSIVE OSTEOPATHIC MEDICAL LICENSURE EXAMINATION: A PARADIGM FOR ASSESSING THE SKILL AND KNOWLEDGE OF OSTEOPATHIC PHYSICIANS

Frederick G. Meoli, D.O., FACOS

ABSTRACT

Osteopathic Medicine was founded on the principles that the body possesses the inherent ability to heal itself, and that the musculoskeletal system has a significant impact on the homeostatic mechanisms that keep the body in health or in a state of wellness.

Over the years, 23 schools of osteopathic medicine have been established to promote these principles. They have developed medical educational programs that produce well-trained osteopathic physicians to practice full, unrestricted medicine, including osteopathic manipulative therapy.

In the early 1930s, the osteopathic profession recognized the need for a uniform licensure examination for osteopathic candidates who graduated from colleges of osteopathic medicine. This resulted in the establishment of the National Board of Examiners for Osteopathic Physicians in 1934.

Since introducing its licensing examination in 1935, which utilized an essay type format, the National Board of Osteopathic Medical Examiners (NBOME) examination has evolved into the current three-level examination sequence in computer-based format, including a clinical skills examination (PE) administered to augment Level 2.

This article is written to familiarize the licensing authorities and the public with the history and organizational structure of the NBOME, the content of the COMLEX-USA licensing examination, methods of design, standard setting, test construction, score reporting and administration, and the international recognition of the COMLEX-USA examination series.

In the late 1800s, traditional medicine faced poor sanitation, rampant infection, ineffective and unregulated

drugs, poor wound healing and amputations at intolerable levels for the management of complicated wounds. It was in this setting that Dr. Andrew Taylor Still, a licensed M.D., decided to depart from the traditional medical care of the times, and established osteopathic medicine as a new approach to address the medical needs of the public in the late 1800s.

An accomplished anatomist and physiologist, Dr. Still came to the realization that if properly cared for, the body would heal itself. Further, the body as a whole, with particular concern for the musculoskeletal system, could and would provide a homeostatic milieu in which the body would preserve wellness or seek to eliminate disease. On June 22, 1874, at Baker University in Baldwin City, Kan., Dr. Still announced that he was letting the “banner to the breeze” so the world should know of this new school of medicine called osteopathy. Finally after naming the new practice of medicine, Dr Still decided to share the philosophy, art and science of osteopathic medicine with others, and he established the American School of Osteopathy in Kirksville, Miss. in 1892.¹

Since that time, osteopathic medicine has evolved into the profession it is today with more than 52,000 practitioners and 23 schools of osteopathic medicine which offer training in all fields of medicine, including osteopathic manipulative therapy, to prepare their students for the full practice of medicine.^{5,6}

These schools still foster the basic osteopathic principles that helped to establish the profession and the concept that the body must be viewed as a whole being, and that the body possesses the innate ability to heal itself. Inculcation of osteopathic practitioners today also stresses wellness and disease prevention in the practice of osteopathic medicine.

In the early 1930s, the osteopathic profession recognized

that a uniform licensing examination was necessary in order to assure the public that osteopathic physicians possessed adequate knowledge and the clinical skill to practice osteopathic medicine. In 1934, the National Board of Examiners for Osteopathic Physicians (now the NBOME) was created to meet this need and, in 1935, the first candidates were tested using an essay type examination.³ The first “diplomate” of the National Board of Examiners for Osteopathic Physicians was Margaret Barnes, D.O., who received her certificate in 1935.

Since 1987, the NBOME has experienced a dramatic change in its organizational structure and the type of examination it utilizes for the current osteopathic medical licensing sequence. This article describes the current organization and the COMLEX-USA osteopathic licensure sequence.

HISTORY

COMLEX-USA draws from the experience of more than 70 years of testing in the medical licensure field since first being established in 1934.³ The initial examination utilized an essay-based format. For many years, the licensing examination was administered as the National Board of Examiners for Osteopathic Physicians and Surgeons of the United States of America Parts 1, 2 and 3. That examination series utilized an objective format of test items, e.g., multiple choice. This examination series utilized an objective format of test items (e.g., multiple choice), and at that time, was subject- (e.g., anatomy) and discipline-based (e.g., internal medicine) in design. From the 1960s through the early 1980s, Part 3 also involved an actual patient evaluation and a chart review over a prescribed period of time by approved examiners. Although unique for its time, in the early 1980s this Part 3 patient evaluation was abandoned and replaced with an expanded objective type test format.

The COMLEX-USA examination series began development in the early 1990s with the realization that patients present clinically to the physician with problems, not just with a set of organs or a series of disciplines. The patient must also be viewed in the context of his or her psychosocial milieu. Physicians must address these problems by properly and appropriately applying certain tasks, knowledge and the clinical skills to address the patient’s complaint or health-based issues. Hence, the two “core” dimensions (patient problem and physician task) were applied to the COMLEX-USA sequence. These dimensions permeate the entire examination series, including the clinical skills examination in Level 2 (PE). The “task dimension” is modified for each Level of COMLEX-USA to account for the maturity of the

candidate based on his or her training. The Clinical Skills Examination augments Level 2 of the COMLEX examination by assessing clinical skills in two domains; the biomedical/biomechanical and the humanistic. Osteopathic principles and practice, and osteopathic manipulative therapy are integrated throughout the examination sequence.

Following years of development, the new format COMLEX-USA was introduced in stages beginning with Level 3 in 1995, and culminating with Level 1 in 1998.⁴ Each Level of the examination has typically been offered two or three times annually, in paper and pencil format, since the implementation of COMLEX-USA began. However, since introducing the CBT format in July 2005, the NBOME now offers the examination 40 times for each Level throughout the year, nationwide. Approximately 12,000 candidates take the COMLEX-USA series annually.

The COMLEX-USA examination is accepted for licensure in all 50 state jurisdictions in the United States, and is utilized by the AOA Commission on Accreditation of Osteopathic Colleges of Medicine (COCA) as an accreditation standard for all colleges of osteopathic medicine. In December 2005, the Province of Ontario, Canada adopted the COMLEX-USA for initial registration (licensure) in lieu of the MCCEE (Medical Council of Canada) examination.

ORGANIZATION

The National Board of Osteopathic Medical Examiners is governed by a board of directors consisting of 20 members.³ Lay members are represented on the board, as are members of the American Association of Osteopathic Examiners (AAOE), the American Association of Colleges of Osteopathic Medicine (AACOM) and the American Osteopathic Association (AOA). Members are elected to the board based on experience and expertise in the clinical and basic science disciplines, experience in medical education and assessment, medical or regulatory administrative experience and/or reflective of the needs of the public at large. The NBOME is a not-for-profit corporation with the mission to protect the public. The composition of the board is also reflective of the professional community it serves.

The NBOME has the following committees:

1. **Committees of the Board**
 - a. Finance
 - b. Liaison
 - c. Nomination

2. Committees for Operations

- a. ADA (Review for Americans with Disabilities)
- b. Clinical Skills Advisory Panel (PE)
- c. Marketing and Publications
- d. Membership and Recruitment
- e. Product
- f. Publications and Website
- g. Research
- h. Research Advisory Committee
- i. Standards and Assurances

All committees are important and contribute to the function and growth of the NBOME. However, of particular note is the Liaison Committee, which encourages a free exchange of ideas from all tiers of constituents having a stake or interest in the medical licensure field. Members of this committee include; the American Osteopathic Association, Student Osteopathic Association, Council of Student Government Presidents, Federation of State Medical Boards, American Association of Osteopathic Directors of Medical Education, American Council on Graduate Medical Education, American Association of Medical Colleges, American Association of Osteopathic Medical Examiners and others. This committee is a unique forum for these interested parties to meet and discuss issues of mutual interest. Within the profession, there is no other outlet to permit discourse between these organizations on a regular basis.

The NBOME has three major departments in the operational sectors of the organization:

1. Division of Administration

- a. ADA Compliance
- b. Administrative and Educational Services
- c. Finance
- d. Human Services
- e. IT Services
- f. Registration
- g. Test Administration
- h. Quality Assurance

2. Division of Testing and Research

- a. COMLEX-USA Level 1-3
- b. COMLEX-USA Level 2 - PE
- c. COMVEX-USA
- d. COMAT
- e. Research and Development
- f. Performance Improvement

3. Division of Clinical Skills Testing and Research

- a. Administration
- b. Development
- c. Research
- d. Performance Improvement

A vice president heads each major department. All vice presidents report to and are responsible to the president/CEO of the NBOME. The president is accountable to the chair of the board and the board of directors. The president makes an annual report to the board once each year at the annual meeting of the board of directors.

THE COMLEX-USA EXAMINATION SERIES

Design and Content

The COMLEX-USA examination series is built on the concept of life-long learning. It is a linked examination that must be taken in sequence as Dimension 2 (tasks) of the examination sequence is predicated on the maturation and the increasing depth of experience of the candidate being tested.⁴ The concept utilized in COMLEX-USA is demonstrated in Figure 1.

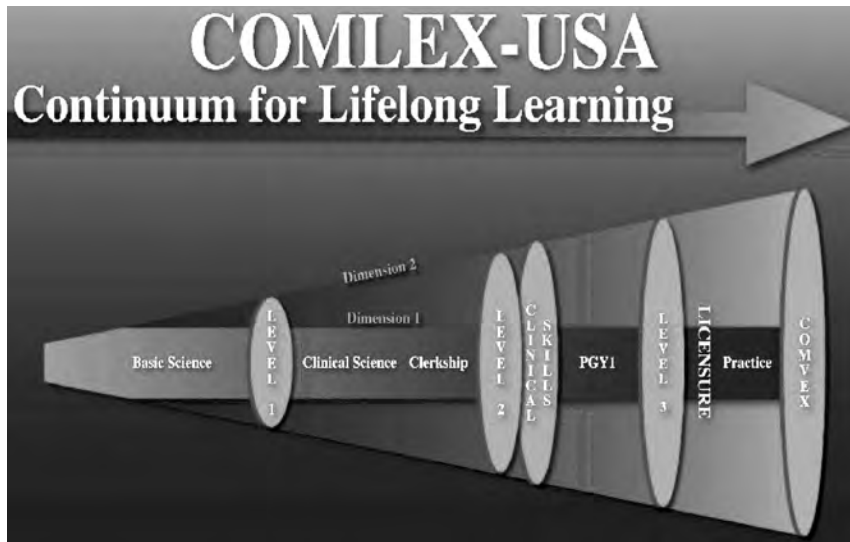
Dimension 1 is based on data derived from osteopathic medical school curricula, internal surveys and the national databases on the occurrence of patient problems as they present to practicing osteopathic physicians.^{2,4} Thus, Dimension 1 is a reflection of patient problems and issues across all three Levels of COMLEX-USA. This concept continues through the post-licensure examination, COMVEX-USA, which is designed for variable purposes or circumstances that may arise after initial licensure of a candidate. Osteopathic principles and practice are integrated throughout the examination series including the clinical skills examination. Table 1 presents a synopsis of the scope of the content contained in this axis.⁶

Dimension 2 explores the tasks an osteopathic physician must employ to recognize and manage the scope of problems captured by Dimension 1. Dimension 2 is modified depending on the level of training of the candidate, stressing the basic sciences in Level 1, history, physical diagnosis and disease recognition in Level 2, and case management and the prioritization of resources in Level 3. Table 2 demonstrates the tasks covered in Dimension 2.⁶

COMLEX-USA LEVEL 2 PE — THE CLINICAL SKILLS EXAMINATION

To augment the assessment of osteopathic medical knowledge, Level 2-PE was implemented in September 2004 to

Figure 1. COMLEX-USA Testing Continuum



evaluate the Clinical Skills of the candidate in two domains:

1. Bio-medical/bio-mechanical domain
2. Humanistic domain

The clinical skills examination uses Dimension 1 as the basis for the development and portrayal of the clinical cases used in the Level 2 PE Examination. Specially and rigorously trained standardized patients (SPs) are used in the clinical encounters that form the basis of this portion of the examination.

The COMLEX-USA Level 2 PE clinical skills examination is composed of 12 stations. Fourteen minutes are permitted for the clinical encounter with the standardized patient. The candidate then has an additional nine minutes to write an SOAP note (clinical progress note) to record the significant features of the encounter, propose a differential diagnosis, and develop a plan of action to address the case. In 25-40 percent of cases, the candidate is evaluated on his or her Osteopathic Manipulative Therapy (OMT) skills. SPs, using prescribed checklists, score each encounter. The OMT performance is scored by trained and certified osteopathic physicians to assess the candidate's performance from videos taken of the encounter, and a separate cadre of trained and certified osteopathic physician examiners rate each SOAP note.² The examination typically takes seven and a half hours to administer, including an extensive orientation program that precedes each examination. All candidates are tested in one location at the NBOME's National Center for Clinical Skills Testing in Conshohocken, Penn.⁶ The Center, a state-of-the-art facility, employs special equip-

ment for the assessment of the osteopathic candidates, such as adjustable examination tables, which facilitate the demonstration of osteopathic manipulative therapy. Score fidelity is assured by rigorous quality assurance measures used to monitor the assessment rendered by the SPs and the physician raters.

In the Biomedical/Biomechanical Domain of the examination, the candidate is evaluated for his or her individual performance of data gathering (history and physical diagnosis), osteopathic manipulative skills and the ability to formulate and legibly write a SOAP note to record the important aspects of the encounter.²

The Humanistic Domain requires that the candidate establish the doctor-patient relationship, demonstrate professionalism and the ability to communicate and use interpersonal skills.²

Although within a domain, the assessment is compensatory each domain remains conjunctive. Therefore, candidates

Table 1. Dimension I

	Level 1, Level 2 CE, Level 3
Asymptomatic & General Symptoms	8-16%
Symptoms & Disorders of Digestion & Metabolism	4-10%
Symptoms & Disorders of Sensory Alterations	28-38%
Symptoms & Disorders of Motor Alterations	6-12%
Symptoms & Disorders Related to Human Sexuality & Urination	3-8%
Symptoms & Disorders of Respiration & Circulation	8-16%
Symptoms & Disorders of Thermoregulation	2-6%
Symptoms & Disorders of the Tissues and Trauma	8-16%
Symptoms & Disorders of Human Development	3-8%

must pass both domains in order to successfully pass the PE examination. Candidates must also be able to conduct the clinical encounter and complete the SOAP note (legibly) in English.

Details of the content of the COMLEX-USA examination series can be obtained by visiting the NBOME website (www.nbome.org) and viewing the instructional videos for CBT and PE examinations available online.

The information provided from COMLEX-USA Levels 1-3 and the COMLEX-USA Level 2 PE (Clinical Skills Examination) offers licensing authorities a useful tool in deciding on the knowledge base, clinical skills and competency of a potential osteopathic practitioner seeking licensure in their jurisdiction. It should be pointed out that COMLEX-USA is the only high-stakes licensure examination supplying an evaluation of the candidate's knowledge and clinical skills in the assessment and application of OMT and osteopathic principles for those jurisdictions requiring such information of their candidates. For example, the Pennsylvania Osteopathic Medical Board ruled, in April 2006, that candidates who have successfully completed the COMLEX-USA sequence (including the PE portion) after July 2005 were exempt from having to take the practical OMT portion of the licensure requirement.

COMVEX-USA

It should be noted that the NBOME offers a post-licensure examination for osteopathic physicians who require re-evaluation after initial licensure. The circumstances in which the use of the Comprehensive Osteopathic Medical Variable Purpose Examination (COMVEX-USA) may include, but are not limited to the following:

1. The osteopathic physician originally licensed by an examination devoid of osteopathic content now applying for a license in a state that requires that an osteopathic physician take an osteopathic examination.
2. The osteopathic physician who is applying for licensure in a state that imposes a time limit (such as not being examined within a 10-year period) and the candidate has not been tested by a licensing board or a certifying board within that time frame.
3. The osteopathic physician who is requesting a reinstatement of a license following an interruption of his or her career.
4. The tenured osteopathic physician needing to demonstrate basic osteopathic medical competence.

Table 2. Dimension II

	Level 1	Level 2 CE	Level 3
Health Promotion & Disease Prevention	1-5%	15-20%	15-20%
History & Physical	5-15%	30-40%	10-20%
Diagnostic Technologies	1-5%	10-20%	15-25%
Management	2-7%	10-20%	25-40%
Scientific Understanding of Mechanisms	70-85%	5-15%	5-10%
Health Care Delivery	1-3%	5-10%	5-10%

The COMVEX-USA is available in CBT format (previously in paper and pencil format) nationwide at professional test centers (with at least one testing location in each of the 50 states) as of September 2006. The examination utilizes the same basic design features of the COMLEX-USA and employs the same "Dimensions" to assess the candidate. The examination contains 400 test items using objective type questions such as multiple choice, single best answer and matching test items.

Eligibility for the examination is solely determined by the licensing jurisdiction, and scores are ordinarily returned to the licensing authority within two to three weeks of the examination date. Licensing boards interested in utilizing this examination may contact the NBOME at (773) 714-0622 for additional information and to make arrangements for an examination for a candidate.

CONSTRUCTION PROCESS OF THE COMLEX-USA EXAMINATION

The NBOME utilizes an extremely rigorous process in order to construct the COMLEX-USA licensing examination. First, the blueprint is developed based on review of national data indicative of the practice patterns of osteopathic physicians centered on the manner in which patients present for care (patient-centered, problem-based approach). Consideration is also given to current curricula in the osteopathic medical schools with particular interest in evidence-based medicine and clinical competencies. Using the blueprint approved by the board, specific item assignments are sent to leading authorities in the appropriate domains. These test item writers construct the test items that, after further scrutiny, may ultimately appear in the appropriate Level of the examination.

Test items are elicited from a broad base of content experts from all geographic regions of the country through item writing assignments determined from the blueprint of specifications. Content experts are selected for their authority within a discipline or subject area, their academic experience in undergraduate or postgraduate medical education, or by virtue of the type and scope of their private practice.

Each COMLEX-USA (cognitive) test item goes through five independent committee reviews and is pre-tested before use in an actual examination. The newly written test items are first scrutinized by the staff to assure proper coding, grammar and context and checked to ascertain that any and all graphics match the correct test item. The “clean test items” are next surveyed by the New Item Review Committee, where items are reviewed, edited, modified and suggested for further revision or retirement. Afterward, the Approved Item Review Committee reviews items “accepted” by the New Item Review Committee. A third committee analyzes and approves test items that were selected for pre-testing. Items are then selected for operational examinations based on statistical quality (test item performance) and content. Poor items are rejected. All items selected for an operational examination are then reviewed by the Examination Review Committee. Items from the approved item bank are also incorporated into the examination at this time. All test items are then surveyed for content, correctness, grammar, clarity, adherence to the specifications of the blueprint, and are properly coded for use. Once the Examination Review Committee has approved the examination, it is further studied by the “galley sub-committee” as a final step before the test goes to print or is given to the CBT (computer-based test) vendor.

In the case of the vendor distributed examination, the “publishable examination” is reviewed no less than three additional times before the examination is placed on the vendor’s server system for testing of the candidates.

These processes are performed for all three Levels of COMLEX-USA on a continual basis.

The COMLEX-USA Level 2 PE, the clinical skills component, undergoes a similar process. The COMLEX-USA PE examination uses the same blueprint for its clinical cases as is utilized by the COMLEX-USA examination. The Clinical Skills Testing Advisory Committee assures that the standards imposed by the board are met, and periodically

assesses the quality of the clinical skills examination in much the same capacity as the Standards and Assurances Committee does the cognitive examinations. Case Development Workshops perform the same refinements as do the New Item and Exam Review Committees of the COMLEX-USA. All cases used in the PE examination are pre-tested before being included in an actual examination. The PE examination uses standardized patients (SPs) in all the scored encounters. SPs receive intensive and extensive training to assure the accuracy and reliability of their case portrayals, and the accuracy of documentation and scoring of the candidates during an examination.

Similarly, only specially trained and certified physician examiners are utilized to score the OMT performed by candidates on video or to score the written SOAP notes. Examiners are not asked to score both components (OMT-SOAP notes) as a matter of quality control. As a component of the case, OMT (osteopathic manipulative treatment) is assessed in approximately 25-40 percent of the encounters in any examination form. Every station requires that a SOAP note be written by the candidate, providing an opportunity for the candidate to document and synthesize his findings, provide an integrated differential diagnosis and a diagnostic and therapeutic plan for the patient’s care. Each examination form has clinical encounters that are characterized as acute, chronic, or that deal with disease prevention and health promotion. Encounters typically are placed in the ambulatory setting, including the emergency department.

The Clinical Skills Testing Advisory Committee, using adopted standards for high-stakes testing, periodically reviews the Level 2-PE for quality assurance purposes. The Product Committee continually monitors all aspects of the examination for currency and applicability.

A separate standard setting process is performed for each Level of COMLEX-USA including the Level 2-PE, every three to four years unless there is a significant change in content, format, or the overall performance of the candidates.

Eligibility to Test

COMLEX-USA can only be taken by candidates who are in attendance or have graduated from an AOA COCA accredited school or college of osteopathic medicine. At this time, there are no AOA COCA accredited schools or colleges of osteopathic medicine in countries other than the United States. A candidate is eligible to take Level 1 if he or she has completed their first year of study and is

actively enrolled in their second year of training at an AOA COCA accredited school or college of osteopathic medicine and is deemed eligible by his or her dean. A candidate may take Level 2, including the Level 2 PE, upon satisfactory completion of their second year of training and they must be actively enrolled in their third year of training at an AOA COCA accredited school or college of osteopathic medicine, and is deemed eligible by his or her dean. Candidates are eligible to take Level 3 of COMLEX-USA upon satisfactory completion of Level 1, Level 2 CE, Level 2 PE and have graduated from an AOA accredited school or college of osteopathic medicine as documented by their school or college of osteopathic medicine. Candidates are eligible to take COMVEX-USA only if they have been initially licensed in a jurisdiction and they are deemed eligible by the jurisdiction requesting the examination. COMVEX candidates need not have successfully completed COMLEX-USA, but must have attained initial licensure in order to be eligible to take this examination.

Using the Pass/Fail Standard

The NBOME exercises great care in assuring that the pass/fail standard is reflective of the minimal level of competency that should be exhibited by a candidate seeking licensure. The NBOME utilizes well-established psychometric methods to set the standard (pass/fail score) on all COMLEX-USA examinations. The NBOME also constantly monitors the quality and psychometric integrity of the COMLEX-USA series. Stable psychometric performance has been a hallmark of the examination series since it was fully implemented in 1998.³ This feature of the COMLEX sequence can be appreciated from the data presented in Table 3. Pass/fail rates for the conversion to CBT and the performance of candidates on the clinical skills examination (COMLEX-USA Level 2 PE) are presented in Tables 4 and 5, respectively.

Other Uses of the Score from the COMLEX-USA Examinations

Although the standard (passing score) is designed primarily for the use of the licensing regulatory authorities in exercising their judgments to grant a candidate a license, the examination scores are often used in other settings for which they are not recommended.

Scores for Level 1 and Level 2 are often used by residency program directors (DMEs) as a screening tool for admittance to GME programs. The Commission for Osteopathic College Accreditation (COCA) uses Level 1 and Level 2

Table 3. COMLEX-USA Performance 1998-2004^s

Level 1 Summary 1998-2004		
# Student	Total Exam	Passing %
June 04	2766	89%
June 03	2699	92%
June 02	2696	90%
June 01	2477	94%
June 00	2464	94%
October 04	79	61%
October 03	136	74%
October 02	102	75%
October 01	177	78%
October 00	132	83%
Level 2 Summary 1997-2005		
# Student	Total Exam	Passing %
January 05	792	92%
January 04	996	92%
January 03	1123	94%
January 02	1262	89%
March 01	1442	91%
March 00	1577	93%
August 04	2006	89%
August 03	1777	92%
August 02	1511	92%
August 01	1283	90%
August 00	1065	92%
Level 3 Summary 1997-1995		
# Student	Total Exam	Passing %
Dec 04	1895	90%
Dec 03	1794	90%
Dec 02	1666	91%
Dec 01	1489	90%
Feb 01	1658	93%
Feb 00	1673	89%
June 04	793	89%
June 03	798	89%
June 02	767	86%
June 01	459	94%
June 00	422	92%
PASS/FAIL STANDARD SCORE Level I 400 Level II 400 Level III 350 All Levels have a mean of 500 ^s		

Table 4. COMLEX-USA Performance Summary 2005-2006 (including CBT)⁹

	Paper-Pencil						CBT (7-1-05 to 2-1-06)		
	First Administration (June 2005)			Second Administration (October 2005)					
	N	N (item)	Passing (1st timer)	N	N (item)	Passing (1st timer)	N	N (item)	Passing (1st timer)
Level 1	2996	600	91%	528	596	68%	N/A		
Level 2	1091	596	92%	N/A			298	350	88%
Level 3	834	594	90%	N/A			939	350	90%

scores as criteria for the accreditation of osteopathic medical schools. All osteopathic schools of medicine require passing Level 1 for advancement. Most of the osteopathic schools use Level 2 as a graduation requirement.

Some osteopathic schools also require passage of the Level 2-PE to graduate, and all but one require taking the PE Examination as a graduation requirement. Beginning in 2008, COCA will require taking and passing the COMLEX Level 2-PE examination as an accreditation requirement for all osteopathic schools.

The DMEs will probably use the clinical skills examination (PE) as a future screening tool, and most programs require taking and passing Level 3 in order to remain in the graduate medical program (GME) beyond the PGY1 or PGY2 year. All candidates must take and pass Level 1, Level 2 CE and Level 2 PE in order to take Level 3.

The NBOME is a member of the Electronic Residency Application Service (ERAS) and as such provides transcripts of score reports that this agency utilizes at the

Table 5. Performance on the COMLEX-USA Level 2 PE for 2004-2005 is summarized in the table below.

PE Pass Rates for 2004-2005	96.2%
PE Fail Rates for 2004-2005	3.8%
Percent Failing by Domain	
Bio-Medical/Bio-Mechanical (as a percent of 3.8%)	76.5%
Humanistic Domain (as a percent of 3.8%)	19.8%
Both Domains (as a percent of 3.8%)	3.7%

Table 6. Benefits of CBT Testing Formats (COMLEX & COMVEX).

BENEFIT	Candidate	COM	DME	State Boards
Test When Ready	X	X	X	X
Flexible Scheduling	X	X	X	X
Retake Exam Sooner	X	X	X	X
Scores Returned Sooner	X	X	X	X
More Interesting Test Formats	X	X	X	X
Know When Candidates Schedule	X	X		X
Receive Scores Real-Time on Accounts	X	X		
Annual Performance Data Reports		X		
Data Available for ERAS	X	X	X	
Retest after 60 (90-COMVEX) Days of Failed Test	X	X	X	X
Electronic Transcripts (not yet available)	X		X	X
Multiple Test Sites Nationwide	X	X	X	X

request of the candidate when they apply for various match programs to pursue their graduate medical education. Since July 2005, the AOA has utilized the ERAS services for its match program much like the ACGME has done in the past. The NBOME also provides transcripts to the Federation Credentials Verification Service (FCVS), a service offered by the FSMB, upon request of the candidate.

Administration

COMLEX-USA is a quality examination sequence using standardized scores. In July 2005, COMLEX-USA was administered via a computer-based (CBT) format and replaced the traditional paper and pencil format. Level 1 was administered in CBT format in May 2006. This completed the implementation of all Levels of COMLEX-USA. COMLEX-USA is administered at more than 300 professional Thompson Prometric test sites with the potential for international use. Thompson Prometric is also the test vendor utilized by the National Board of Medical Examiners (NBME) to administer its USMLE examination nationwide.

The COMLEX-USA examination is offered 40 times per

year for each Level. At least one examination per Level is offered in each month of the year. The schedule is posted six months in advance on the NBOME website. Candidates who fail the examination may retake it at any time after 60 days from the date the failed examination was administered. Candidates may initially schedule to test within as little as 120 hours in advance of a scheduled test date.⁶ The 90-day no retest rule still applies to the COMLEX-USA Level 2 PE examination, as it is offered to candidates more often throughout the year than the CBT examinations.

The computerized conversion of COMLEX-USA from its current paper and pencil format offers many advantages to all interested parties. Table 6 represents some examples of the benefits gained by this program.

In the paper and pencil format, scores were returned to the candidates roughly eight to 10 weeks after testing. Scores from the CBT examination are typically returned in four to six weeks from the test date. In the case of the PE examination, scores are returned in 10 to 12 weeks or less. The scoring process for the PE examination is complex, and requires significantly more time to prepare the score report for the candidates than does the CBT examination.

In the computerized examination, once an initial cohort of candidates has been tested for standard setting purposes, scores for the CBT version of Levels 1, Level 2 CE and Level 3 will be returned to the student or another appropriate party within four weeks. The NBOME is also working hard to reduce the PE score return time to approximately eight weeks. There is no limit as to the number of times a candidate may take the examination or a time for completion of the series. However, the NBOME recommends that candidates who fail an examination three times, or who take longer than seven years to complete the sequence, should demonstrate some form of remediation before being extended the privilege of licensure.⁵

Modern day computers are efficient, however, it is necessary that certain psychometric and other assessments be performed on the completed examination before the scores are released to the candidates to avoid errors in scoring as they are returned to the candidates or other authorities requesting score reports. That is why scores will typically take four weeks to be returned for the CBT examination, and eight to 10 weeks for the PE clinical skills examination.

The NBOME considers applications from those candidates that have disabilities as defined by the Americans with Disabilities Act and is compliant with the requirements of the Act. After careful review of an application, the NBOME provides appropriate accommodations to candidates that require them. These include, but are not limited to; more test time, larger print (zoom text), separate testing area, quiet room, safety rails, rest room facilities, extra breaks, Braille signage in the PE examination center, permits the use of physical support devices, wheelchair access, the use of hearing aids and in some circumstances a reader for the candidate. However, the NBOME does not permit assistants to help the candidate evaluate and treat the SPs during the PE examination. NBOME rules require that the candidate “personally perform the evaluation of the patient and demonstrate the ability to perform OMT” as a criteria of the examination.¹⁰ The NBOME does not “flag” transcripts of the candidates taking the COMLEX-USA as having taken the examination under other than standard conditions.

Score Reports

The candidate receives important information with the score report. On the CBT examination, scores are reported to the candidate online. The candidate is provided a three digit and two digit standardized score, and an indication as to whether or not they have passed the examination. A three digit standard score of 400 on Level 1 and Level 2 CE is passing and 350 is passing on Level 3. The passing score for the two-digit designation on all Levels of COMLEX-USA is 75. The average Pass Rate for all Levels of COMLEX-USA is approximately 90 percent. Details of candidate performance are displayed in Tables 3 and 4.

On the obverse side of the score sheet, the candidate is provided with a graphic array of his or her performance either above or below the mean referenced to Dimension 2 (tasks).

On the PE (Clinical Skills Examination), no numeric score is rendered. The candidate is given a PASS or FAIL in the Biomedical/Biomechanical and the Humanistic Domains. The candidate must pass both domains to pass the Clinical Skills Examination. The Pass Rate for COMLEX-USA Level 2 PE is 96-97 percent. Details of the performance of the candidates taking the PE examination are displayed in Table 5.

For those who fail the PE examination, a graphic portrayal

of their performance is given on the obverse side of their score sheet of the two domains tested.

Candidates and deans of the colleges of osteopathic medicine can review the scores of their student's performance on their individual secure website accounts.

These scores are represented as suggestions to a jurisdiction granting a medical license. It is understood that it is the prerogative of any jurisdiction to utilize whatever passing score it deems appropriate for candidates applying for licensure. However, jurisdictions requesting information on applicants applying for licensure will receive a transcript containing the complete and entire history of the test taking experience of the candidate who is applying for licensure. There is no indication (flagging) on the transcript as to whether a special accommodation was made for a candidate who has taken any examination in the COMLEX-USA series.

The NBOME has endeavored to produce a reliable, quality instrument to assist medical boards in rendering a decision as to whether or not a candidate is competent to practice in their jurisdiction. This is in concert with its mission "to provide for the public welfare a means to assess competency in the health care disciplines relevant to osteopathic medicine."³

NBOME Services

The NBOME offers its candidates, the osteopathic colleges and the osteopathic profession a number of free services for their benefit. These services include educational programs, faculty development programs, item-writing workshops, instructional programs for medical students and programs for use by the osteopathic profession. The NBOME also produces "subject examinations" for use by the colleges of osteopathic medicine to assist in the assessment of their knowledge in certain subjects and disciplines.

The NBOME also offers other services to clients such as the specialty colleges and certifying boards of the osteopathic profession. These services include psychometric analysis, proctoring, item banking, CBT conversion of written examinations and assistance with developing quality test items through seminars for test construction and review committees.

The NBOME provides a continuously updated website that provides the candidate and public with current vital

information about the NBOME, and its examination sequence. Candidates can register, schedule and make inquiries on the website anytime.

The NBOME is involved in a number of domestic and international professional activities such as the FSMB Competency-Accountability Summit, Physician Suicide Prevention, the Osteopathic International Alliance and the International Association of Medical Regulatory Authorities.

SUMMARY

The NBOME has been in the high-stakes testing arena for medical licensure for more than 70 years, producing examinations to assist regulatory authorities in making decisions as to the competency of an individual applying for the privilege to practice in their jurisdiction. The COMLEX-USA is a patient-centered, problem-based examination built upon the premise that patients present with problems and health care issues must be addressed by appropriate physician tasking. Recognizing that knowledge alone may be insufficient to assess the competency of a candidate, the NBOME has added a clinical skills examination to augment its Level 2 examination to provide more information about the capabilities of the candidate. The NBOME has continued to conduct research to improve the quality, validity and reliability of the test instruments that it produces. The NBOME is further committed to continually assuring that the test products produced by the NBOME will always meet high standards for test quality.

This article is an overview of the NBOME as an organization and describes the purpose, design, administration and performance of the COMLEX-USA. The COMLEX-USA examinations sequence is the primary means by which osteopathic physicians seek medical licensure to practice osteopathic medicine in the United States, and in Oklahoma it is the only route to licensure for osteopathic physicians. The NBOME also maintains an active website, www.nbome.org, to keep candidates and the public informed. General information, information for ADA candidates, the *Bulletin of Information*, eligibility requirements, test dates and sample examinations are some of the many useful information resources available. Candidates may also register, schedule and pay for their examinations online.

AUTHOR AFFILIATIONS

Frederick G. Meoli, D.O., FACOS: President, National

Board of Osteopathic Medical Examiners; Associate Professor of Surgery, University of Medicine and Dentistry of New Jersey-School of Osteopathic Medicine.

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