foundation
valid entrustable reliable
What lies behind us and what lies before us are tiny matters compared to what lies within us.

—Ralph Waldo Emerson

PROTECTING THE PUBLIC
The National Board of Osteopathic Medical Examiners, NBOME, protects the public by providing high-quality, high-stakes, evidence-based assessment for the osteopathic medical profession and related health care professions. The COMLEX-USA examination series is the osteopathic assessment used for initial licensure of osteopathic physicians in the United States and internationally. In addition to providing the pathway to licensure for osteopathic medical practice, COMLEX-USA is a graduation requirement for earning a DO degree from a college of osteopathic medicine and is required for progression in graduate medical education.

Successfully providing assessments that protect the integrity of osteopathic medical education, training, and practice for over 80 years.
CONTENTS

02 MESSAGE FROM THE BOARD CHAIR AND PRESIDENT & CEO

05 STRATEGIC PLAN AND PRIORITIES

06 BOARD OF DIRECTORS
  06 Board of Directors
  10 Tribute to Gary L. Slick, DO, MA
  11 Board Retreat

NBOME AWARDS
  12 Santucci Award
  14 Clark Award for Patient Advocacy
  15 President’s Award for Outstanding Service
  16 Certificates of Appreciation and Meritorious Service
  18 Item Writers, Case Writers and Case Author of the Year

20 COMLEX-USA CHAIRS

21 2017 MILESTONES
  21 Enhancing COMLEX-USA
  25 New and Expanded Assessments
  28 Research Summary
  32 Stronger Together

34 NATIONAL FACULTY LEADERSHIP

38 2017 PERFORMANCE DATA
  38 Examination Data
  42 Testing Services for Client and Partner Organizations
  44 Supporting Our Workforce and Community
  46 Financial Stewardship

48 NBOME COMMITTEES AND EXAMINATION CONTRIBUTORS
The underlying foundational premise: assessment is important and valid, reliable, defensible assessment has a key role in protecting the public and affecting the quality of osteopathic medical education, training, and practice. The validity evidence supports this premise. The trust we’ve earned by the nation’s state medical and osteopathic medical licensing boards, as well as the accreditation authorities for undergraduate medical education (Commission on Osteopathic College Accreditation) and graduate medical education (Accreditation Council for Graduate Medical Education, American Osteopathic Association) solidifies the important primary and secondary uses of NBOME’s assessments.

The infrastructure: quality assessment in undergraduate and graduate medical education helps to drive teaching and learning toward osteopathic medical care that impacts the health of patients and communities and further inspires lifelong learning and continuous professional development. The foundation supporting the NBOME superstructure includes the collective talents, wisdom, strengths, and commitment of the NBOME 23 member Board of Directors, over 700 members of our credentialed National Faculty, and the more than 220 professional staff. Inspired by the NBOME mission and core values, the strength of our collective foundation to support quality patient care from DOs and related health care professions is solid and durable.

The NBOME’s foundation is strengthened by collaboration and support from numerous partners and organizations, including the American Osteopathic Association (AOA), the Commission on Osteopathic College Accreditation (COCA), the American Association of Colleges of Osteopathic Medicine (AACOM) and its Assembly of Osteopathic Graduate Medical Educators (AOGME), the Accreditation Council for Graduate Medical Education.
Education (ACGME), the Federation of State Medical Boards (FSMB) and the American Association of Osteopathic Examiners (AAOE). Contributions and input from representatives from other key stakeholder groups, including the Council of Osteopathic Student Government Presidents (COSGP), the Student Osteopathic Medical Association (SOMA), the AOA Bureau of Emerging Leaders (BEL), the Organization of Program Directors Associations (OPDA), and the member organizations of the Coalition for Physician Accountability (CPA)—all are essential to the structure, as are important connections with the Electronic Residency Application Service (ERAS) and the National Residency Matching Program (NRMP).

COMLEX-USA, NBOME’s core assessment program for osteopathic physician licensure, further solidified its foundation with the 2017 release of the enhanced COMLEX-USA Master Blueprint. The Master Examination Blueprint emphasizes the competencies required for generalist physicians to deliver safe and effective osteopathic medical care. The framework of COMLEX-USA is based on the foundation of the osteopathic approach to patient care. Its evidence-based design assures state licensing boards and the public that a DO has demonstrated minimal competence by passing a series of national standardized examinations designed for the practice of osteopathic medicine. COMLEX-USA test administration enhancements centered on improving the test experience and reducing anxieties for candidates, for example by building additional optional break times into the computer-based administrations for COMLEX-USA Levels 1, 2-CE, and 3 and providing additional tools, such as a computer mouse and clipboard, in the Level 2-PE clinical skills examinations. The enhancements to the attestation requirements for
COMLEX-USA candidate eligibility begin in 2018 with Level 3, and Levels 1 and 2 in 2019, and will include information from deans and residency program directors indicating that individuals are in good academic and professional standing. These requirements align with the public’s need for entrustability. They serve to assure patients that those who are granted the privilege to be a physician and provide osteopathic medical care, have been assessed along the continuum for behaviors and milestones in knowledge and other competencies—including professionalism, with integrity and responsiveness to the needs of patients that supersedes self-interest.

Foundational to understanding the human condition in health and disease, osteopathic medical students learn and study core biomedical concepts in the first two years at US DO-granting medical schools, who requested national standardized assessments to align with teaching and learning similar to NBOME’s COMAT clinical examinations for the clerkship/clinical rotation years. The COMAT program announced the 2018 release of a new portfolio of assessment services for undergraduate medical education, COMAT-Foundational Biomedical Sciences. In development for the past five years, the comprehensive basic sciences examination will launch in late 2018, and targeted assessments geared for assessment by foundational science discipline or by organ body system are scheduled to be made available in late 2019.

Integral to our work are important collaborative assessment programs supporting testing for students, residents, pediatric dentists, cosmetic surgeons, podiatrists, osteopathic certification boards, practicing physicians and related health care professionals throughout their careers. This work has expanded internationally in recent years, with a number of consulting services provided to medical and related professional institutions around the globe. While the bulk of these collaborative initiatives have historically centered on traditional secure, proctored, summative multiple choice question examinations, or clinical skills/performance or oral practical examinations, there is a growing interest in assessment for learning, formative assessment, and longitudinal assessment with flexible delivery and immediate feedback for examinees.

NBOME’s CATALYST platform launched in 2017 and is instrumental in several successful osteopathic board certification pilots demonstrating meaningful alternatives to the AOA’s Osteopathic Continuous Certification (OCC) requirements regarding recertification/continuous certification assessment. Initial results are promising, with practicing physicians reporting that CATALYST participation helps them take better care of their patients and is showing statistically significant correlation between CATALYST-delivered content and traditional recertification assessment formats. In 2018, NBOME’s COMSAE self-assessment will launch via a CATALYST platform to provide an option for DO students looking for additional learning, practice and feedback regarding their proficiency in the application of osteopathic medical knowledge and other competencies in COMLEX-USA-like test item formats.

We continually measure ourselves and constantly endeavor to improve our assessments and services. We recognize that there is no “perfect test,” but your feedback allows us to continue to strive for the best in providing valid, reliable and defensible assessments, and to attend to the test-taking experience. In the words of Confucius, “Humility is the solid foundation of all virtues,” and we believe this value, held collectively by our dedicated volunteer and professional staff workforce, strengthens our foundation for a strong future in continuing to meet our mission.

“If you can’t measure it, you can’t improve it.”
— Peter F. Drucker, writer, educator and management consultant
Accreditation Council for Graduate Medical Education (ACGME), the Federation of State Medical Boards (FSMB) and the American Association of Osteopathic Examiners (AAOE). Contributions and input from representatives from other key stakeholder groups, including the Council of Osteopathic Student Government Presidents (COSGP), the Student Osteopathic Medical Association (SOMA), the AOA Bureau of Emerging Leaders (BEL), the Organization of Program Directors Associations (OPDA), and the member organizations of the Coalition for Physician Accountability (CPA)—all are essential to the structure, as are important connections with the Electronic Residency Application Service (ERAS) and the National Residency Matching Program (NRMP).

COMLEX-USA, NBOME’s core assessment program for osteopathic physician licensure, further solidified its foundation with the 2017 release of the enhanced COMLEX-USA Master Blueprint. The Master Examination Blueprint emphasizes the competencies required for generalist physicians to deliver safe and effective osteopathic medical care. The framework of COMLEX-USA is based on the foundation of the osteopathic approach to patient care. Its evidence-based design assures state licensing boards and the public that a DO has demonstrated minimal competence by passing a series of national standardized examinations designed for the practice of osteopathic medicine. COMLEX-USA test administration enhancements centered on improving the test experience and reducing anxieties for candidates, for example by building additional optional break times into the computer-based administrations for COMLEX-USA Levels 1, 2-CE, and 3 and providing additional tools, such as a computer mouse and clipboard, in the Level 2-PE clinical skills examinations. The
enhancements to the attestation requirements for COMLEX-USA candidate eligibility begin in 2018 with Level 3, and Levels 1 and 2 in 2019, and will include information from deans and residency program directors indicating that individuals are in good academic and professional standing. These requirements align with the public’s need for entrustability. They serve to assure patients that those who are granted the privilege to be a physician and provide osteopathic medical care, have been assessed along the continuum for behaviors and milestones in knowledge and other competencies—including professionalism, with integrity and responsiveness to the needs of patients that supersedes self-interest.

Foundational to understanding the human condition in health and disease, osteopathic medical students learn and study core biomedical concepts in the first two years at US DO-granting medical schools, who requested national standardized assessments to align with teaching and learning similar to NBOME’s COMAT clinical examinations for the clerkship/clinical rotation years. The COMAT program announced the 2018 release of a new portfolio of assessment services for undergraduate medical education, COMAT-Foundational Biomedical Sciences. In development for the past five years, the comprehensive basic sciences examination will launch in late 2018, and targeted assessments geared for assessment by foundational science discipline or by organ body system are scheduled to be made available in late 2019.

Integral to our work are important collaborative assessment programs supporting testing for students, residents, pediatric dentists, cosmetic surgeons, podiatrists, osteopathic certification boards, practicing physicians and related health care professionals throughout their careers. This work has expanded internationally in recent years, with a number of consulting services provided to medical and related professional institutions around the globe. While the bulk of these collaborative initiatives have historically centered on traditional secure, proctored, summative multiple choice question examinations, or clinical skills/performance or oral practical examinations, there is a growing interest in assessment for learning, formative assessment, and longitudinal assessment with flexible delivery and immediate feedback for examinees.

NBOME’s CATALYST platform launched in 2017 and is instrumental in several successful osteopathic board certification pilots demonstrating meaningful alternatives to the AOA’s Osteopathic Continuous Certification (OCC) requirements regarding recertification/continuous certification assessment. Initial results are promising, with practicing physicians reporting that CATALYST participation helps them take better care of their patients and is showing statistically significant correlation between CATALYST-delivered content and traditional recertification assessment formats. In 2018, NBOME’s COMSAE self-assessment will launch via a CATALYST platform to provide an option for DO students looking for additional learning, practice and feedback regarding their proficiency in the application of osteopathic medical knowledge and other competencies in COMLEX-USA-like test item formats.

We continually measure ourselves and constantly endeavor to improve our assessments and services. We recognize that there is no “perfect test,” but your feedback allows us to continue to strive for the best in providing valid, reliable and defensible assessments, and to attend to the test-taking experience. In the words of Confucius, “Humility is the solid foundation of all virtues,” and we believe this value, held collectively by our dedicated volunteer and professional staff workforce, strengthens our foundation for a strong future in continuing to meet our mission.
STRATEGIC PRIORITIES

2017 marked the first year of our new three-year strategic plan, ACEL 2017-2019, to align, connect, experience and learn. Ten strategic priority goals helped us advance our mission to protect the public and work toward becoming a global leader in assessment for osteopathic medicine and related health care professions.

**Align**
Align growth strategy for core assessments, services and new initiatives with data-driven, market-based needs, and lead the advancement of assessment for osteopathically educated physicians.
- Deliver COMLEX-USA examinations incorporating enhanced COMLEX-USA Master Blueprint and design.
- Conduct CATALYST pilot(s) to study applications for use including board recertification, professional development, COMSAE to develop and deliver CATALYST in production.

**Experience**
Develop and promote high-quality experiences, assessments and services.
- Upgrade diagnostic images and photographs to improve quality to reflect real life experience in all levels of the COMLEX-USA series.
- Provide an optional test break that does not count against testing time for COMLEX-USA cognitive examinations.

**Connect**
Increase our reach, influence and effectiveness in advancing the NBOME mission to protect the public.
- Develop the means to connect the value and importance of osteopathically distinctive assessment to relevant groups including, osteopathic medical students, residency program directors and state medical boards, with a new website and new and improved information on tests, research and resources for residency program directors.
- Expand proposals and service offerings to current and potential client organizations.
- Add resident and newly practicing physicians to NBOME operational committees.

**Learn**
Foster a learning culture among the NBOME staff, National Faculty, and Board and increase support for assessment research.
- Develop a board-approved NBOME research agenda, publish additional validity evidence for COMLEX-USA in peer-reviewed journals and present on validity research evidence at major industry and professional conferences.
- Create and publish new NBOME Learning Center modules for professional development of the NBOME Board, National Faculty, staff and clients.
BOARD OF DIRECTORS

executive committee members

DANA C. SHAFFER, DO
Board Chair
Pikeville, Kentucky
Installed as Chair Dec. 2017

GERALDINE T. O’SHEA, DO
Board Vice-Chair
Jackson, California
Installed as Vice-Chair Dec. 2017

RICH J. LABAERE, II, DO, MPH
Board Secretary-Treasurer
Ortonville, Michigan
Installed as Secretary-Treasurer Dec. 2017

SUSAN I. BELANGER, PhD, MA, RN
Public Member
Lewiston, Maine
Outgoing Dec. 2017

RONALD R. BURNS, DO
Winter Park, Florida

WAYNE R. CARLESEN, DO
Athens, Ohio
Outgoing Immediate Past Chair Dec. 2017

JED G. MAGEN, DO, MS
East Lansing, Michigan
Elected to EC Dec. 2017

GARY L. SLICK, DO, MA
Immediate Past Chair
Tulsa, Oklahoma
Outgoing Chair Dec. 2017

KAREN T. SNIDER, DO
Kirksville, Missouri
For more than five decades, Gary L. Slick, DO, MA, Immediate Past Chair of the NBOME Board, has devoted his time and wisdom to the NBOME. A leader of exceptional character and expertise, with a steadfast and fierce commitment to the NBOME’s mission to protect the public, he served as Chair of the NBOME Board from 2015 to 2017. Dr. Slick is also the designated institutional official for graduate medical education programs at the Oklahoma State University (OSU) College of Osteopathic Medicine and OSU Medical Center in Tulsa, medical director and chief academic officer at Oklahoma’s Teaching Health Center residency programs, and professor of medicine at the OSU Center for Health Sciences (OSU-CHS), as well as a member of the board of directors of the Accreditation Council for Graduate Medical Education (ACGME).

At the NBOME Annual Board of Directors dinner on December 8, 2017, Dr. Slick was recognized for his devotion and lasting, immeasurable impact by Board Vice-Chair Dana C. Shaffer, DO. In his tribute, Dr. Shaffer thanked Dr. Slick for his selfless service to the NBOME and recognized the legacy of his leadership and clear vision for the future.

Since 1978, Dr. Slick has served as an item writer in physiology for the NBOME Part 1 examination, COMLEX-USA Level 1, and in internal medicine for NBOME Part 2 and 3 examinations, and COMLEX-USA Levels 2-CE and 3. He was a member of the Test Construction Committee in interdisciplinary medicine and served with John E. Thornburg, DO, PhD as a final reviewer of COMLEX-USA Level 1 examinations for many years. Dr. Slick became a member of the NBOME Board in 2005 and was installed as Board Vice-Chair in 2013. Since that time, he chaired numerous committees, including the Liaison Committee, the COMAT Advisory Committee, the Nominating Committee, and the Standards & Assurances Committee.

Throughout his tenure as Board chair, Dr. Slick has devoted his time and wisdom to the NBOME, making an immeasurable impact. Most of all, he has provided a steadfast and fierce commitment to our mission to protect the public.”

—Dana C. Shaffer, DO
2017 BOARD RETREAT
BUILDING A FOUNDATION FOR A NEW FUTURE—ACCELERATING INTO 2025

In December, the Board held its semi-annual retreat to explore strategic opportunities in the international arena, develop recommendations for 2018-2019 strategic priority goals, and evaluate its governance model. Retreat guests included (left to right) Mark Baker, DO, 2018 President, American Osteopathic Association, Ron Blanck, DO, Chair, Educational Commission for Foreign Medical Graduates (ECFMG), Martin Crane, MD, former Chair, Federation of State Medical Boards and William Pinsky, MD, President & CEO, ECFMG.

In December, the Board held its semi-annual retreat to explore strategic opportunities in the international arena, develop recommendations for 2018-2019 strategic priority goals, and evaluate its governance model. Retreat guests included (left to right) Mark Baker, DO, 2018 President, American Osteopathic Association, Ron Blanck, DO, Chair, Educational Commission for Foreign Medical Graduates (ECFMG), Martin Crane, MD, former Chair, Federation of State Medical Boards and William Pinsky, MD, President & CEO, ECFMG.
2017 NBOME AWARDS

Each year the NBOME Board recognizes outstanding service and leadership and bestows awards to those who have demonstrated exemplary dedication to the NBOME’s mission of protecting the public. The contributions of those recognized reflect high standards and a commitment to excellence.

THE SANTUCCI AWARD

The Santucci Award is bestowed on an individual for sustained outstanding contributions to the mission of the NBOME: protecting the public by providing the means to assess competencies for osteopathic medicine and related health care professions. The Santucci Award was established in 2009, named for Thomas F. Santucci, Jr., DO, president and chair of the NBOME Board from 1985 to 1987, in honor of his legacy. Dr. Santucci was the award’s first recipient in recognition of his visionary efforts to advocate for competency-based assessment licensure by assessing basic scientific knowledge and its clinical application. His efforts helped the NBOME develop examinations to ensure the competency and quality of osteopathic medical practice.

WAYNE R. CARLSEN, DO, received the Santucci Award, the NBOME’s highest honor, on December 8, 2017. With great appreciation, Gary L. Slick, DO, NBOME Board Chair, acknowledged and honored Dr. Carlsen for his long-standing history of contributions to the NBOME, its mission, and the profession at large.

Since 1989, when he became an item writer for the NBOME, Dr. Carlsen has served on a variety of exam construction and item review committees. In the late 1990s, he was the Level 3 Coordinator for COMLEX-USA and was a member of the Health Promotion, Disease Prevention/Health Care Delivery Examination Construction Committee. A member of the NBOME Board from 2005 to 2017, he served as chair of the board from 2013-2015, chair of the Compensation Subcommittee, and as a member of the Nominating Committee.

Dr. Carlsen is vice dean and associate professor in the Department of Family Medicine at the Ohio University Heritage College of Osteopathic Medicine (OU-HCOM), where he has been a faculty member since 1993. A practicing geriatrician in Ohio for over 20 years, Dr. Carlsen serves the health care needs of uninsured residents through OU-HCOM’s community health programs. He is a graduate of the University of Medicine and Dentistry of New Jersey School of Osteopathic Medicine, a fellow in the American College of Osteopathic Internists, the American Geriatrics Society, and the American College of Physicians.
SANTUCCI
AWARD
RECIPIENTS

2017
Wayne R. Carlsen, DO

2016
William G. Anderson, DO

2015
John W. Becher, DO
Janice A. Knebl, DO, MBA

2014
John E. Thornburg, DO, PhD
Shirley Bodett

2013
Boyd R. Buser, DO

2012
Sheryl Bushman, DO
Linjun Shen, PhD, MPH

2011
Joseph F. Smoley, PhD

2010
Frederick G. Meoli, DO

2009
Thomas F. Santucci, DO
Throughout his distinguished career, Dr. Crane’s primary focus has always been to advocate for patients, a true reflection and embodiment of the NBOME’s mission to protect the public through assessment.”

— Gary R. Clark

THE NBOME CLARK AWARD FOR PATIENT ADVOCACY

Established by the NBOME in 2016, the Clark Award for Patient Advocacy recognizes individuals who have demonstrated an outstanding commitment to patient safety, patient protection, and quality of care. The award is named after long-time NBOME Board public member and leader in medical regulation and state medical licensure, Mr. Gary R. Clark.

MARTIN CRANE, MD, was honored with the NBOME Clark Award for Patient Advocacy on December 8, 2017. A board-certified obstetrician and gynecologist, Dr. Crane is a graduate of Princeton University and Harvard Medical School, as well as a commander in the Medical Corps of the U.S. Navy Reserves. He is past chair of the Board of Directors for the Federation of State Medical Boards (FSMB), past chair of the National Committee on Foreign Medical Education and Accreditation of the U.S. Department of Education, and former chair of the Massachusetts Board of Registration in Medicine.

Dr. Crane has been involved in a wide array of quality assurance and improvement programs for more than 30 years and has spoken extensively on patient safety and adverse event reporting systems. The second recipient of the award for his lifelong advocacy for patient safety and physician quality initiatives, he is responsible for leading improved maintenance of physician licensure processes during his term as chair of the FSMB. Gary R. Clark, the award’s namesake and its first recipient presented the award to Dr. Crane, recognizing him as a longstanding advocate for osteopathic medicine and the COMLEX-USA examination program.
PRESIDENT’S AWARD FOR OUTSTANDING SERVICE

The Frederick G. Meoli, DO President’s Award for Outstanding Service recognizes a NBOME employee who has demonstrated exemplary performance directly related to the NBOME core values—accountability, collaboration, excellence, integrity, and patient safety. The award was first established in 2015 to recognize a member of the NBOME staff for meritorious service. In 2016, the award was renamed after Frederick G. Meoli, DO, the NBOME’s first full-time DO President and CEO from 1999 to 2009. Dr. Meoli led and served the NBOME and the osteopathic medical profession with dedication and wisdom, helping to grow the NBOME’s national and international recognition and preeminence.

The Frederick G. Meoli, DO President’s Award for Outstanding Service is given to a staff member who exemplifies the high standards set by the NBOME in areas such as supporting NBOME practices, procedures, and policies by bringing about significant positive change, eliminating obstacles in support of the NBOME’s mission, showing innovation and proactive leadership, and building relationships and partnerships.

CHRISTOPHER B. THOMAN is the third recipient of the NBOME Frederick G. Meoli, DO, President’s Award for Outstanding Service. Since joining the NBOME in 2012 as a software developer, Chris has led many software development projects, bringing continuous improvement to the Candidate Registration System performance, increasing system availability to 100 percent, and facilitating transcript reporting automation with immediate results for the Electronic Residency Application Service (ERAS). Chris’ technology skills, work ethic, leadership and dedication to customer service are outstanding.
2017 CERTIFICATES OF APPRECIATION AND MERITORIOUS SERVICE

IN 2017, THE NBOME RECOGNIZED INDIVIDUALS FOR OUTSTANDING SERVICE AND APPRECIATION FOR THEIR CONTRIBUTIONS TO THE NBOME.

DON A. “JAKE” JACOBSON, CLU, CHFC was recognized on June 24, 2017, for outstanding service for his contributions to the financial oversight of the NBOME and for his dedicated service on the Finance Committee from 2008-2017. Jake is co-owner, partner, and current president of Dean Jacobson Financial Services, LLC, having been with the firm since 1980. Board Chair Gary L. Slick, DO, MA, presented the award, acknowledging the good fortune of the NBOME to have Jake serve as a member of the Finance Committee and the Investment Subcommittee. Dr. Slick recognized the sound financial advice and guidance Jake has brought to the NBOME throughout a period of great growth and change.

JEANNE M. SANDELLA, DO, was honored with a Certificate of Appreciation and Meritorious Service on December 8, 2017. Board Chair Gary L. Slick, DO, MA thanked Dr. Sandella for her many years of service to the NBOME. Dr. Sandella served as vice president for Clinical Skills Testing from 2014 through 2017 and was a member of the NBOME staff for 13 years. Dr. Sandella left the NBOME staff at the end of 2017 to begin a full-time hospital-owned practice in Pennsylvania. During her tenure with the NBOME, Dr. Sandella was instrumental in the success of the COMLEX-USA Level 2-PE examination. Under her direction, clinical skills and continuous professional development sustained unprecedented growth. A graduate of the Philadelphia College of Osteopathic Medicine, Dr. Sandella is a board-certified family physician and a clinical faculty member at the Philadelphia College of Osteopathic Medicine family medicine residency program.
Jake Jacobson is honored for his service to the NBOME in June 2017 by Gary L. Slick, DO, MA, NBOME Board Chair and John R. Gimpel, DO, MEd, President and CEO.
ITEM WRITERS, CASE WRITERS AND CASE AUTHOR OF THE YEAR AWARD WINNERS

In December 2017, the NBOME announced the awardees for Item Writers, Case Writers, and Case Author of the year. Each year, examination items (test questions), and clinical cases contributed by members of the NBOME National Faculty for the COMLEX-USA and COMAT examinations are evaluated. The authors whose contributions are of exceptional quality, serving as models for item and case development, are selected to receive the awards. Congratulations to the 2017 award winners, whom we recognize for their dedication to the NBOME mission.

Their contributions demonstrate the high standards of our examinations and reflect the commitment and excellence of the NBOME National Faculty.”

—Janice A. Knebl, DO, MBA, Chair, COMLEX-USA Composite Examination Committee

The NBOME family has trained me well and has helped me tremendously in advancing my professional and academic growth.”

—Rani Bright, MBBS, HCLD

Rani Bright, MBBS, HCLD
Assistant Professor in the Department of Bio-Medical Sciences at the Philadelphia College of Osteopathic Medicine, Philadelphia, Pennsylvania

ITEM WRITER OF THE YEAR
COMLEX-USA Level 1

Shannon C. Scott, DO
Medical Director, Midwestern University Multispecialty Clinic • Assistant Dean and Clinical Associate Professor, Department of Family Medicine, Midwestern University Arizona College of Osteopathic Medicine, Glendale, Arizona

ITEM WRITER OF THE YEAR
COMLEX-USA Level 2-Cognitive Evaluation (Level 2-CE)
<table>
<thead>
<tr>
<th>Name</th>
<th>Title</th>
<th>Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Janice A. Knebl, DO, MBA</td>
<td>Chair</td>
<td>COMLEX-USA Composite Examination Committee</td>
</tr>
<tr>
<td>Charles A. Finch Jr., DO</td>
<td>Chair</td>
<td>COMLEX-USA Level 2-CE</td>
</tr>
<tr>
<td>John E. Thornburg, DO, PhD</td>
<td>Chair</td>
<td>COMLEX-USA Level 1</td>
</tr>
<tr>
<td>David Kuo, DO</td>
<td>Chair</td>
<td>COMLEX-USA Level 2-PE</td>
</tr>
<tr>
<td>Michael F. Oliverio, DO</td>
<td>Chair</td>
<td>COMLEX-USA Level 3</td>
</tr>
</tbody>
</table>
2017 milestones

COMLEX-USA IS THE PATHWAY TO LICENSURE FOR OSTEOPATHIC PHYSICIANS. IT IS THE PRINCIPAL MEANS BY WHICH THE NBOME DELIVERS ON ITS MISSION TO PROTECT THE PUBLIC BY PROVIDING ASSESSMENT OF COMPETENCIES FOR OSTEOPATHIC MEDICINE AND RELATED HEALTH CARE PROFESSIONS.

ENHANCING COMLEX-USA

The COMLEX-USA examination series is designed to assess osteopathic medical knowledge, fundamental clinical skills, and other foundational competencies considered essential for the practice of osteopathic medicine. The primary and intended purpose of COMLEX-USA is for licensure of osteopathic physicians, and COMLEX-USA is accepted for medical licensure in all US states and jurisdictions.

FOUNDATION FOR COMLEX-USA

A CORNERSTONE OF OUR MISSION COMMITMENT IS THE FOUNDATION OR BLUEPRINT UPON WHICH COMLEX-USA IS BUILT AND ENTRUSTMENT DECISIONS ARE MADE.

The foundation of COMLEX-USA is based on osteopathic principles and practice and the tenets of osteopathic medicine:

- The body is a unit; the person is a unit of body, mind, and spirit
- The body is capable of self-regulation, self-healing, and health maintenance
- Structure and function are reciprocally interrelated
- Rational treatment is based upon an understanding of the basic principles of body unity, self-regulation, and the interrelationship of structure and function

(from the American Osteopathic Association, Tenets of Osteopathic Medicine)
In July 2017, after more than nine years of extensive research, development, and review by stakeholders and expert reviewers, the new COMLEX-USA Master Blueprint was released. The master examination blueprint emphasizes the competencies required for generalist physicians to deliver safe and effective osteopathic medical care.

The framework of COMLEX-USA is based on the foundation of the osteopathic approach to patient care. Its evidence-based design assures state licensing boards and the public that a DO has demonstrated minimal competence by passing a series of national standardized examinations designed for the practice of osteopathic medicine. Aligned with the education and training pathway of a DO, passing Levels 1 and 2 of COMLEX-USA is also an accreditation standard for graduation with a DO degree and required for entry into residency training.

Prior to release of the new blueprint, Evidence-Based Redesign of the COMLEX-USA Licensure Examination Program, a manuscript published in the *Journal of the American Osteopathic Association* in April 2017, summarizing the evidence-based design processes that served as the foundation for blueprint development and the evidence supporting its validity, and providing an overview of the blueprint’s two dimensions: Competency Domains and Clinical Presentations.

Featuring a framework that maps content to competency domains and clinical presentations, the new COMLEX-USA master examination blueprint and test specifications will be implemented in the Level 3 examination in September 2018. The new blueprint and test specifications for each exam will be introduced into Level 1, Level 2-PE, and Level 2-CE with the new test cycles beginning in 2019. Score reports will be revised to reflect the new master blueprint and test specifications.
CHANGES TO ELIGIBILITY

The NBOME’s responsibility for professional self-regulation is shared with other authorities across the continuum in medical education, training, and licensure. In keeping with our mission, features to enhance protection for patients were added to the COMLEX-USA examination program in 2017.

In addition to existing requirements that candidates are only eligible to take the COMLEX-USA Level 1 examination after having successfully completed at least one full year at an AOA-COCA accredited college of osteopathic medicine (COM) and after attestation of good standing by the COM dean, the NBOME Board adopted new eligibility requirements for implementation in 2018-2019 which add the requirement for a dean’s attestation of good academic and professional standing to the current eligibility requirements for Level 1. For Levels 2-CE and 2-PE, candidates must meet the expanded attestation requirement for good academic and professional standing, in addition to having passed Level 1 and completing at least two years at a COM.

Effective in September of 2018, DO residents are required to receive an attestation from their residency program directors in ACGME- and AOA-accredited GME programs that the resident is in good academic and professional standing in order to be eligible to take Level 3, in addition to existing requirements that a candidate must have earned a DO degree and passed Levels 1 and 2, in order to take Level 3. The NBOME recommends that Level 3 candidates complete a minimum of six months of residency training prior to taking Level 3. Beginning in 2018, score reports will be released to program directors who attest to the eligibility of a resident.

ENHANCING CANDIDATE EXPERIENCE

With the addition of a second National Center for Clinical Skills Testing (NCCST) in Chicago in August 2016 and the remodeling of the NCCST in Philadelphia in 2017, COMLEX-USA Level 2-PE candidates now appreciate the ability to choose to take their exams in either of two state-of-the-art test facilities.

Based on feedback from candidates, enhancements to COMLEX-USA computer-based exams and the clinical skills examination were implemented with the beginning of the new test cycles this year. A popular new enhancement allows optional 10-minute morning and afternoon breaks that do not count against allocated examination time. Other enhancements to COMLEX-USA Levels 1, 2-CE, and 3 include embedded lab value reference ranges and a standard online calculator feature. A computer mouse and clipboard were added to the Level 2-PE examination.

Initial feedback from candidates on the examination enhancements has been very positive, ranging from 81 to 91
percent satisfied with the new break format, and 98 percent satisfied with the embedded laboratory reference ranges. Major progress toward a comprehensive upgrade to replace and update media used in examinations occurred in 2017. Over 4,000 images (e.g., photography, diagnostic imaging) in the item bank were reviewed for quality, precision and clarity of diagnosis. Recommendations were made for expanded multimedia use in future testing and investigations into further use of avatars and other advanced image types. Beginning in 2018, new standards for quality and clarity will be implemented for all media used in NBOME examinations.

Thank you for including the normal lab values in the question stem! …less time is spent trying to navigate through the list of values.”

“It is a long test, and being able to have those 10-minute breaks without penalty was very nice.”
NEW AND EXPANDED ASSESSMENTS

CATALYST FOR CHANGE

In response to changes in the environment and requests by certifying specialty boards to explore alternatives to traditional board recertification cognitive examinations, the NBOME partnered with several clients to pilot a new and innovative approach to competency assessment. CATALYST, the NBOME’s flexible, innovative assessment-for-learning platform, supports continuous professional development via longitudinal assessment. In 2017, pilot tests with AOA Certification Boards, the American Osteopathic Board of Internal Medicine (AOBIM), the American Osteopathic Board of Obstetrics and Gynecology (AOBOG) and the American Osteopathic Board of Pediatrics (AOBP) were conducted with board-certified osteopathic physician diplomates of the AOBIM, AOBOG and AOBP using the CATALYST platform. Initial results of the pilot studies are extremely positive with participating physician diplomates reporting that CATALYST would help them take better care of patients and is a preferred alternative to traditional recertification examinations. The CATALYST platform will be used with NBOME’s COMSAE self-assessment program in early 2018.

I often tell people that you never know where a job will take you. I joined the NBOME in November 2012 as a Standardized Patient (SP); in 2014 I joined the Training Team as SP Trainer and in 2016 relocated to the Chicago NCCST to take on the role of Assistant Director for SP Training. I have been fortunate to work with a talented group of people who take the NBOME mission statement of protecting the public very seriously. I’ve never worked in a more collaborative environment, and appreciate the NBOME’s commitment to work/life balance. Whether I’m facilitating the exam as the Trainer on Duty, joining my coworkers in a 5K walk for charity, or eating delicious food at the multicultural potluck, I am surrounded by a remarkable team of individuals dedicated to the success of the NBOME.”

—Bob Mason, Assistant Director for Standardized Patient Training

2016

JULY  Release of updated FOMCD
JULY  Overview of COMLEX-USA Master Blueprint published
DEC  NBOME adopts new COMLEX-USA eligibility criteria

2017

FEB–MAR  New eligibility criteria/attestation public comment period
JULY  COMLEX-USA Master Blueprint 2018-2019, effective beginning September 2018, published
The Comprehensive Osteopathic Medical Achievement Test (COMAT) program continues to grow each year. In addition to growth of the COMAT clinical examinations in 2017, introduction of the Foundational Biomedical Sciences (FBS) comprehensive examination was announced for availability in 2018. Requested by colleges of osteopathic medicine (COMs), COMAT FBS is designed to assess first- and second-year student progress in basic biomedical sciences. Examination content is organized by major organ body systems and biomedical science disciplines. After the first year, COMAT FBS targeted examinations by organ body system and biomedical science discipline are targeted for delivery in late 2019.

EXPANDING OUR FOUNDATION THROUGH RESEARCH

In 2017, the NBOME updated its research agenda to support the strategic plan, with an emphasis on collaborative research to support the validity of COMLEX-USA for its primary and secondary purposes, the validity of the COMAT clinical subject examinations for achievement in clinical disciplines, predictive validity studies to provide evidence for correlation of scores on COMLEX-USA and COMAT examinations, and resident in-service and board certification examinations. The research team continued research on the use of innovative item types and novel assessments. Additional research activities include collaborative research projects with partnering organizations and opportunities to improve the testing experience.
Activities included submitting to and publishing manuscripts in major medical journals; delivering presentations and displaying posters at conferences and key professional meetings; and conducting workshops and participating in symposia in the United States and abroad.

On October 17, 2017, the NBOME hosted a Research Advisory Forum in its Chicago Corporate Offices and Conference Center. The “Innovative Item Types and Assessments” conference brought together experts from numerous leading assessment organizations in the health professions for roundtable discussions and presentations on the development, practice, and implementation of innovative assessments for high-stake licensure and related testing. Automated item generation and the use of artificial intelligence in testing were among the presentation and discussion topics.

Thank you for creating this opportunity for our community to come together and advance the conversation on continuing learning and assessment; these conversations and cross-fertilization of ideas are so valuable, and I hope we are able stay connected as we all move forward.”

—Ann E. Harman, PhD, Chief Assessment Officer, American Board of Anesthesiology, 2017 NBOME Research Advisory Forum
NBOME RESEARCH SUMMARY FOR 2017

THE FOLLOWING LIST OF ARTICLES, PAPERS AND PRESENTATIONS REFLECTS THE SCHOLARLY WORK OF NBOME STAFF MEMBERS, WHOSE NAMES ARE SHOWN IN BOLD, AND THEIR COLLEAGUES.

JOURNAL ARTICLES

Published


• Roberts WL, Boulet J, Sandella J. Comparison study of judged clinical skills competence from standard setting ratings generated under different administration conditions. Advances in Health Sciences Education: Theory and Practice, 2017. doi: 10.1007/s10459-017-9766-1

Submitted


PRESENTATIONS

Delivered


• Gimpel JR. NBOME & COMLEX-USA Update. Presented at the Osteopathic Medical Educators &
- **Gimbel JR.** **NBOME & COMLEX-USA Update.**
  Presented to faculty and students at the Nova Southeastern University College of Osteopathic Medicine, Fort Lauderdale, FL, January 23, 2017.
- **Gimbel JR.** **NBOME & COMLEX-USA Update.**
  Presentation to faculty and students at Campbell University School of Osteopathic Medicine, Buies Creek, NC, February 17, 2017.
- **Gimbel JR.** **NBOME Update to AOA Board of Trustees & Affiliates.** Presented at the American Osteopathic Association’s Midyear Business Meeting, Honolulu, HI, March 1, 2017.
- **Gimbel JR.** **A Primer for Residency Program Directors.** Presented at the Accreditation Council for Graduate Medical Education’s Annual Conference, Kissimmee, FL, March 11, 2017.
- **Shao C,** Cheng Y, Kim D, Woo A. **The Impact of Missing Data and Multidimensionality on Item Calibration in Computerized Adaptive Testing.**
- **Shao C,** Cheng Y. **Detection of Test Speededness Using Change-Point Analysis with Response Time Data.**
- **Basehore P,** Fischer J, Overbeck K, **Ronkowski E,** **Browne M.** **Multiple Choices to Increase Exam Effectiveness: Successful Strategies at the National and School Level.** Accepted for presentation at the American Association of Colleges of Osteopathic Medicine Annual Conference, Baltimore, MD, April 2017.
- **Gimbel JR.** **NBOME Spring Visitation 2017.**
- **Gimbel JR.** **NBOME & COMLEX-USA Update.**
  Presented to students at the Texas College of Osteopathic Medicine at the University of North Texas Health Science Center, Fort Worth, TX, April 19, 2017.
- **Roberts WL,** Qui Y, Smith L. **Investigating the Validity of Performance Ratings on a Clinical Skills Licensure Examination.**
- **Gallagher L,** **Lavelle N.** **Faculty Development: How Technology Can Enhance Standardization in Training in Clinical Skills Evaluations.**
  Presentation at AACOM/AODME Meeting Baltimore, MD April 2017.
- **Marquez-Hall S,** Horber D. **Improving Patient Care Using an Interprofessional Team Approach.**
- **Li I,** Song H, Liu Q, Tsai T-H, Wang Y. **An Elaborate Scheme to Score and Analyze Clinical Decision Making Exam Questions.**
- **Flamini J,** Gimbel JR, Tsai E, Wattleworth RA. **Implementing a New COMLEX-USA Master Blueprint & Enhancing the COMAT Program.**
- **Gimbel JR.** **Enhanced COMLEX-USA Blueprint 2018-2019 - COSGP Blueprint Focus Group.**
  Presented to the Council of Student Government Presidents, Baltimore, MD, April 27, 2017.
- **Flamini J,** Gimbel JR, Sandella JM, Slick GL. **NBOME & COMLEX-USA Update to AACOM.**
  Presented at the Annual Meeting of the American Association of Colleges of Osteopathic Medicine, Baltimore, MD, April 28 2017.
- **Gimbel JR.** **NBOME & COMLEX-USA Update.**
  Presented to faculty and students at the Rowan School of Osteopathic Medicine, Stratford, NJ, May 19, 2017.
- **Gimbel JR.** **NBOME & COMLEX-USA Update.**
  Presented to faculty at the Chicago College of Osteopathic Medicine at Midwestern University, Downers Grove, IL, June 2, 2017.
- **Li I,** Liu Q, Tsai E. **Applying Supervised Learning Technologies to Predict Misdiagnosis and Overtreatment Using Data from Medical Examinations.**
  Presentation at MedBiquitous Annual Conference, Baltimore, MD, June 5-6, 2017.
- **Gimbel JR.** **NBOME & COMLEX-USA Update and Item Writing Workshop.**
  Presented to the faculty at Liberty University College of Osteopathic Medicine, Lynchburg, VA, June 8, 2017.
- **Gimbel JR.** **NBOME & COMLEX-USA Update.**
  Presented to faculty and students at Michigan State University College of Osteopathic Medicine, East Lansing, MI, July 6, 2017.
- **Gimbel JR,** Slick GL. **NBOME Update to AOA Board of Trustees & Affiliates.** Presented at the American Osteopathic Association’s Annual Business Meeting, Chicago, IL, July 19, 2017.


Gimpel JR. NBOME & COMLEX-USA Update. Presented to faculty and students at the University of New England College of Osteopathic Medicine, Biddeford, ME, September 12, 2017.

Gimpel JR. NBOME & COMLEX-USA Update and Item Writing Workshop. Presented to faculty and students at Touro College of Osteopathic Medicine, New York, NY, September 26, 2017.


Gimpel JR. NBOME Update. Webinar presented to the Association of Osteopathic Directors and Medical Educators, November 1, 2017.


Gimpel JR. NBOME & COMLEX-USA Update. Presented to faculty and students at the Burrell College of Osteopathic Medicine, Las Cruces, NM, November 13, 2017.

Gimpel JR. NBOME & COMLEX-USA Update. Presented to faculty and students at the Touro University Nevada College of Osteopathic Medicine, Henderson, NV, November 14, 2017.


Gimpel JR. NBOME & COMLEX-USA Update. Presented to faculty and students at the Rocky Vista University College of Osteopathic Medicine, Parker, CO, November 15, 2017.


Gimpel JR. NBOME & COMLEX-USA Update. Presented to the Commission on Osteopathic College Accreditation, Chicago, IL, December 1, 2017.
Submitted


- Errichetti A, Fancher S. Standardized Patient Communication Assessment in Medical and Advanced Practice Nursing Education: Two Perspectives. Podium presentation abstract submitted for 18th International Meeting on Simulation in Healthcare, Los Angeles, January 13-17, 2018.

NBOME 2017 RESEARCH ADVISORY FORUM

INNOVATIVE ITEM TYPES AND ASSESSMENTS

The Research Advisory Forum included individuals from the following organizations:

**ACT, Inc.**
Ada Woo, PhD, Senior Director of Strategy Implementation and Operations

**American Board of Anesthesiology**
Ann E. Harman, PhD, Chief Assessment Officer

**American Board of Family Medicine**
Tom O’Neill, PhD, Vice President of Psychometric Services

**American Board of Medical Specialties**
David B. Swanson, PhD, Vice President, Academic Affairs

**American Board of Pediatrics**
Linda A. Althouse, PhD, Vice President of Psychometrics and Assessment Services

**Foundation for Advancement of International Medical Education and Research**
Jack Boulet, PhD, Vice President, Research and Data Resources

**National Board of Medical Examiners**
Mark Raymond, PhD, Research Director and Principal Assessment Scientist

**Pearson**
Kirk Becker, PhD, Senior Research Scientist; David Shin, PhD, Manager, Principal Research Scientist

**Touchstone Consulting**
Cynthia G. Parshall, PhD, Principal Consultant

**Philadelphia College of Osteopathic Medicine**
David Kuo, DO, Associate Dean for Graduate Medical Education and Associate Professor of Family Medicine

The research Advisory forum included individuals from the following organizations:

- ACT, Inc.
  - Ada Woo, PhD, Senior Director of Strategy Implementation and Operations
- American Board of Anesthesiology
  - Ann E. Harman, PhD, Chief Assessment Officer
- American Board of Family Medicine
  - Tom O’Neill, PhD, Vice President of Psychometric Services
- American Board of Medical Specialties
  - David B. Swanson, PhD, Vice President, Academic Affairs
- American Board of Pediatrics
  - Linda A. Althouse, PhD, Vice President of Psychometrics and Assessment Services
- Foundation for Advancement of International Medical Education and Research
  - Jack Boulet, PhD, Vice President, Research and Data Resources
- National Board of Medical Examiners
  - Mark Raymond, PhD, Research Director and Principal Assessment Scientist
- Pearson
  - Kirk Becker, PhD, Senior Research Scientist; David Shin, PhD, Manager, Principal Research Scientist
- Touchstone Consulting
  - Cynthia G. Parshall, PhD, Principal Consultant
- Philadelphia College of Osteopathic Medicine
  - David Kuo, DO, Associate Dean for Graduate Medical Education and Associate Professor of Family Medicine

Cynthia Parshall, PhD

Gary L. Slick, DO, MA,
John R. Gimpel, DO, MEd,
Dana C. Shaffer, DO
A key strategic objective is connecting to the various members of the NBOME community—patients, state licensing boards, colleges of osteopathic medicine, graduate medical education programs, osteopathic medical students, resident physicians, practicing osteopathic physicians, specialty boards, and organizational stakeholders—to advance our mission by expanding our outreach, influence and effectiveness. As we approach 2020 and full implementation of the single accreditation system (SAS) for graduate medical education (GME), the need for continuous, clear and accurate communications is stronger than ever. NBOME advocates for the single accreditation system for graduate medical education, for COMLEX-USA and osteopathic medical assessment for DOs. In 2017, we hosted nearly 100 in-house meetings in our Chicago and Philadelphia offices, hosting thousands of attendees; visited 13 colleges of osteopathic medicine; participated in and presented to external organizations at more than 34 external meetings across the nation and internationally; and communicated daily and directly with thousands of individuals. In March, to spread the 2017 NRMP Match Day results, we launched a campaign, Perfectly Matched—engaging osteopathic medical students and residents to share their Match success stories with COMLEX-USA, the licensing examination designed to assess DO credentials for safe and effective osteopathic medical care. Throughout 2017, we promoted testimonials on social media to share the news within and outside the osteopathic medical profession.

Another big advancement in 2017 was the launch of a new website in August to improve the user experience of all stakeholders with improved interactivity and navigation, adaptive, responsive design, and optimized search capability. The new site features audience pages, enhanced access to NBOME research, news and announcements, account login functionality and more.
I sought out programs that recognize and give equal weight to COMLEX-USA. I took only COMLEX-USA and was selected for interviews at top children’s hospitals across the country.”

— Jonathan Bardahl
Chicago College of Osteopathic Medicine of Midwestern University—Class of 2017
Matched in the Pediatrics Residency Program at the University of Illinois Saint Francis Medical Center
The NBOME’s National Faculty is critical to our mission of protecting the public through valid and reliable competency assessment for osteopathic medicine and related health care professions. Our diverse, dedicated Faculty includes nearly 800 professionals across the nation with expertise in osteopathic medical practice and medical education spanning the various disciplines and specialties, including a large number from full-time clinical practice and the physician licensure community.

To enhance the NBOME’s position as the leader in osteopathically distinctive assessment, and consistent with our strategic goal to increase our reach, influence and effectiveness in advancing the organization’s mission to protect the public, in 2017 we expanded opportunities for resident and newly practicing physicians to serve on operational committees.

Of the nearly 100 National Faculty added in 2017, about 50 percent were in the “newly practicing physician” category of physicians in practice for 10 years or less. The National Faculty play an important role in the NBOME, with greater than 20 percent serving on operational and examination committees and attending more than 96 meetings in 2017. NBOME worked with the American Osteopathic Association to provide 474 1-A and 5,725.75 1-B continuing medical education credits for 345 National Faculty in 2017 and sent recognition for scholarly activity to 75 organizations on behalf of 222 National Faculty members.

In August, the National Faculty Conclave met to recognize new and outgoing department and division chairs, update National Faculty Chairs about NBOME goals and product developments and receive input on new initiatives for 2018-2019.
COMLEX-USA EXAMINATION CHAIRS

- COMLEX-USA Level 1: John E. Thornburg, DO, PhD
- COMLEX-USA Level 2-CE: Charles A. Finch, Jr., DO
- COMLEX-USA Level 2-PE: David Kuo, DO
- COMLEX-USA Level 3: Michael F. Oliverio, DO

CLINICAL SCIENCES DEPARTMENT AND DIVISION CHAIRS

- Emergency Medicine: Ben D. Huang, DO, MPH
- Family Medicine: Joel L. Dickerman, DO
- Internal Medicine, Geriatric Medicine, and Dermatology: Darrin C. D’Agostino, DO, MBA, MPH
- Obstetrics and Gynecology
  - January 2017-June 2017: Joseph M. Kaczmarczyk, DO, MPH
  - July 2017-December 2017: Eric J. Carlson, DO, MPH
- Osteopathic Principles and Practice/Neuromusculoskeletal Medicine: Mark E. Sandhouse, DO, MS
- Pediatric and Adolescent Medicine: Ava C. Stanczak, DO
- Preventive Medicine and Health Promotion: James E. Foy, DO
- Biostatistics and Epidemiology Division: Alan G. Giaros, PhD
- Health Care Delivery and Patient Safety Division: Michael A. Becker, DO, MS
- Medical Ethics, Jurisprudence, and Professionalism Division: Elizabeth M. Petsche, JD
- Public Health and Preventive Medicine Division: Ali Moradi, MD, DrPH, MPH
- Psychiatry, Neurology, and Clinical Neurosciences: Jed G. Magen, DO, MS
- Radiology and Diagnostic Imaging: Joseph W. Stengel, DO
- Surgery, Surgical Subspecialties, and Anesthesia: Robert D. McGarrigle, DO

FOUNDATIONAL BIOMEDICAL SCIENCES CHAIRS

- Foundational Biomedical Sciences: John E. Thornburg, DO, PhD
  - Anatomy Division: Randy J. Kulesza, Jr., PhD
  - Biochemistry Division: Sean M. Lynch, PhD
  - Genetics Division: Susan M. Viselli, PhD
  - Microbiology and Immunology Division: Peter G. Gulick, DO
  - Pathology Division: Mary Jo Robinson, DO
  - Pharmacology Division: Gerald B. Call, PhD
  - Physiology Division: Michael L. Smith, PhD

COMAT EXAMINATION CHAIRS

- Emergency Medicine: Alan R. Janssen, DO
- Family Medicine: Tracy O. Middleton, DO
- Foundational Biomedical Sciences: Michael L. Smith, PhD
- Internal Medicine: Mousumi Som, DO, MS
- Obstetrics and Gynecology: Bryan C. Roehl, DO
- Osteopathic Principles and Practice: Danielle L. Cooley, DO
- Pediatrics: Tami Hendriksz, DO
- Psychiatry: Ryan M. Smith, DO, MSEd
- Surgery: Craig A. Gudakunst, DO

COMVEX EXAMINATION CHAIR

- COMVEX: H. Timothy Dombrowski, DO, MPH

CONTENT COMMITTEE CHAIRS

- Clinical Decision-Making and Key Features: John L. Goudreau, DO, PhD
- Point-of-Care Knowledge, Education, and Testing: Dennis J. Dowling, DO, MA
NATIONAL FACULTY BY REGION

NORTHEAST 241 | SOUTH 113 | MIDWEST 226 | SOUTHWEST 110 | WEST 98

A DIVERSIFIED NATIONAL FACULTY

DO 72%  MD 5%  PHD 20%  OTHER 2%

MALE 56%  FEMALE 44%

MILLENIALS (18-34) 7%  GENERATION X (35-54) 53%  BABY BOOMERS (55+) 35%  N/A 4%

COLLEGES OF OSTEOPATHIC MEDICINE

● CIRCLES INDICATE MAIN CAMPUS  ■ SQUARES INDICATE ADDITIONAL SITE  ▲ TRIANGLES INDICATE BRANCH CAMPUS

ANNUAL REPORT 2017
2017 PERFORMANCE DATA

The NBOME’s COMLEX-USA, COMSAE and COMAT examination series form the center of our program activity. The series of COMLEX-USA examinations assess essential osteopathic medical knowledge and clinical skills for licensure and entrance into unsupervised practice as an osteopathic generalist physician. The COMSAE examinations are self-assessments of a candidate’s knowledge and ability and correspond to COMLEX-USA Level 1, Level 2-CE, and Level 3. The COMAT program consists of eight subject examinations in core osteopathic medical disciplines to assess progress using a national-normed standard.

<table>
<thead>
<tr>
<th></th>
<th>2014-15</th>
<th>2015-16</th>
<th>2016-17</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1ST TIME TEST TAKERS</strong></td>
<td>5539</td>
<td>6177</td>
<td>6559</td>
</tr>
<tr>
<td><strong>PASSING</strong></td>
<td>93.9%</td>
<td>92.3%</td>
<td>92.7%</td>
</tr>
<tr>
<td><strong>ALL TAKERS</strong></td>
<td>6005</td>
<td>6790</td>
<td>7181</td>
</tr>
<tr>
<td><strong>PASSING</strong></td>
<td>91.8%</td>
<td>90.3%</td>
<td>90.4%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>2014-15</th>
<th>2015-16</th>
<th>2016-17</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1ST TIME TEST TAKERS</strong></td>
<td>5423</td>
<td>5416</td>
<td>6084</td>
</tr>
<tr>
<td><strong>PASSING</strong></td>
<td>92.6%</td>
<td>92.2%</td>
<td>93.2%</td>
</tr>
<tr>
<td><strong>ALL TAKERS</strong></td>
<td>5953</td>
<td>6033</td>
<td>6662</td>
</tr>
<tr>
<td><strong>PASSING</strong></td>
<td>90.7%</td>
<td>89.6%</td>
<td>91.2%</td>
</tr>
</tbody>
</table>
### COMLEX-USA LEVEL 2-PE EXAMINATION PERFORMANCE

<table>
<thead>
<tr>
<th></th>
<th>2014-15*</th>
<th>2015-16</th>
<th>2016-17</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>N</strong></td>
<td>3577</td>
<td>5711</td>
<td>6209</td>
</tr>
<tr>
<td><strong>1ST TIME TAKERS</strong></td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td><strong>PASS</strong></td>
<td>3291</td>
<td>5308</td>
<td>5764</td>
</tr>
<tr>
<td><strong>FAIL</strong></td>
<td>286</td>
<td>403</td>
<td>445</td>
</tr>
<tr>
<td><strong>HUMANISTIC DOMAIN</strong></td>
<td>86</td>
<td>131</td>
<td>127</td>
</tr>
<tr>
<td><strong>BIOMEDICAL DOMAIN</strong></td>
<td>174</td>
<td>237</td>
<td>277</td>
</tr>
<tr>
<td><strong>BOTH DOMAINS</strong></td>
<td>26</td>
<td>35</td>
<td>41</td>
</tr>
<tr>
<td><strong>ALL TAKERS</strong></td>
<td>3920</td>
<td>6179</td>
<td>6687</td>
</tr>
</tbody>
</table>

*8-month testing cycle (July 2014 – February 2015)

### COMLEX-USA LEVEL 3 EXAMINATION PERFORMANCE

<table>
<thead>
<tr>
<th></th>
<th>2014-15</th>
<th>2015-16</th>
<th>2016-17</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1ST TIME TAKERS</strong></td>
<td>5084</td>
<td>4987</td>
<td>5557</td>
</tr>
<tr>
<td><strong>PASSING</strong></td>
<td>96.4%</td>
<td>96.5%</td>
<td>96.7%</td>
</tr>
<tr>
<td><strong>ALL TAKERS</strong></td>
<td>5304</td>
<td>5245</td>
<td>5791</td>
</tr>
<tr>
<td><strong>PASSING</strong></td>
<td>95.6%</td>
<td>95.4%</td>
<td>96.1%</td>
</tr>
</tbody>
</table>

41,254 COMAT Examinations Administered

22,972 COMSAE Examinations Administered
(l-r): Lorenzo L. Pence, DO, Accreditation Council for Graduate Medical Education; Humayun J. Chaudhry, DO, MS, Federation of State Medical Boards; Gregory B. Snyder, MD, Federation of State Medical Boards; Johnny Dias, DO, AOA Bureau of Emerging Leaders; Joseph Flamini, MBA, NBOME; Richard Ortoski, DO, NBOME; Melissa Turner, MS, NBOME; Sandra Waters, MEM, NBOME; Lynn Mark, DO, Association of Osteopathic Directors and Medical Educators; Nick Schilligo, MS, American Osteopathic Association; Barbara Walker, DO, American Association of Osteopathic Examiners; Boyd R. Buser, DO, American Osteopathic Association; Geraldine T. O’Shea, DO, NBOME; Stephen C. Shannon, DO, MPH, American Association of Colleges of Osteopathic Medicine; Ashley Sam, OMS IV, Council of Osteopathic Student Government Presidents; Thomas A. Cavaleri, DO, American Association of Colleges of Osteopathic Medicine; Katie Cassella, OMS IV, Student Osteopathic Medical Association; Dana C. Shaffer, DO, NBOME (chair); Elise Lovell, MD, Organization of Program Director Associations; John R. Gimpel, DO, MEd, NBOME; Gary L. Slick, DO, MA, NBOME

2017 NBOME LIAISON COMMITTEE
2017 NBOME TESTING SERVICES FOR CLIENT AND PARTNER ORGANIZATIONS

NBOME PARTNERS WITH 16 OSTEOPATHIC SPECIALTY BOARDS AND RELATED HEALTH CARE ORGANIZATIONS to provide examination development, administration and psychometric services to meet their needs for assessment in training and certification. In 2017, the NBOME provided support for 40 examination programs for our testing partners and expanded test administration options for iPad delivery and score reporting. We continue to offer alternatives for testing to new clients. In 2017, the NBOME entered into an agreement with the American Academy of Osteopathy to develop a new assessment, Core Osteopathic Recognition Readiness Examination (CORRE™), for physicians applying to ACGME-accredited residency programs with Osteopathic Recognition. CORRE will be delivered initially in 2018 and used by residency programs to evaluate physicians applying to their programs.
<table>
<thead>
<tr>
<th>Organization</th>
<th>Examining Examinations</th>
</tr>
</thead>
<tbody>
<tr>
<td>American Academy of Osteopathy</td>
<td>American Academy of Osteopathy CORRE Examination</td>
</tr>
<tr>
<td>American Academy of Pediatric Dentistry</td>
<td>American Academy of Pediatric Dentistry Resident In-Service Examination</td>
</tr>
<tr>
<td>American Board of Cosmetic Surgery</td>
<td>American Board of Cosmetic Surgery Certification &amp; Recertification Examinations</td>
</tr>
<tr>
<td>American College of Osteopathic Emergency Physicians</td>
<td>American College of Osteopathic Emergency Physicians Resident In-Service &amp; Board Preparation Examinations</td>
</tr>
<tr>
<td>American College of Osteopathic Family Physicians</td>
<td>American College of Osteopathic Family Physicians Resident In-Service Examination</td>
</tr>
<tr>
<td>American College of Osteopathic Internists</td>
<td>American College of Osteopathic Internists Resident In-Service Examination</td>
</tr>
<tr>
<td>American College of Osteopathic Pediatricians</td>
<td>American College of Osteopathic Pediatricians Resident In-Service Examination</td>
</tr>
<tr>
<td>American College of Osteopathic Surgeons</td>
<td>American College of Osteopathic Surgeons Resident In-Service Examination</td>
</tr>
<tr>
<td>American Osteopathic Board of Anesthesiology</td>
<td>American Osteopathic Board of Anesthesiology Item Writing Faculty Development</td>
</tr>
<tr>
<td>American Osteopathic Board of Emergency Medicine</td>
<td>American Osteopathic Board of Emergency Medicine Certification, Recertification, &amp; Subspecialty Examinations</td>
</tr>
<tr>
<td>American Osteopathic Board of Internal Medicine</td>
<td>American Osteopathic Board of Internal Medicine General Internal Medicine, Subspecialty, and CAQ Certification &amp; Recertification Examinations</td>
</tr>
<tr>
<td>American Osteopathic Board of Neurology and Psychiatry</td>
<td>American Osteopathic Board of Neurology and Psychiatry Item Writing Faculty Development</td>
</tr>
<tr>
<td>American Osteopathic Board of Neuromusculoskeletal Medicine</td>
<td>American Osteopathic Board of Neuromusculoskeletal Medicine Item Writing Faculty Development</td>
</tr>
<tr>
<td>American Osteopathic Board of Obstetrics and Gynecologists</td>
<td>American Osteopathic Board of Obstetrics and Gynecologists CATALYST Pilot</td>
</tr>
<tr>
<td>American Osteopathic Board of Pediatrics</td>
<td>American Osteopathic Board of Pediatrics Certification and Recertification Examinations</td>
</tr>
<tr>
<td>National Board of Podiatric Medical Examiners</td>
<td>National Board of Podiatric Medical Examiners American Podiatric Medical Licensing Examination Part II Clinical Skills Patient Encounter</td>
</tr>
</tbody>
</table>
Our staff continues to grow and evolve in both NBOME offices—the Chicago Corporate Offices and Conference Center and the Philadelphia Executive Offices—plus our two National Centers for Clinical Skills Testing in Chicago and Philadelphia. In 2017, as our assessment product and service offerings and client list expanded, we grew to 233 full- and part-time employees, adding 25 new roles and promoting 21 employees to meet our growing needs while supporting retention of a talented and sustainable workforce. Critical to our foundation, our mission-driven staff is committed to our core values. In 2017 we embraced our strategic objective—Learn—with employees participating in 21 professional development and educational programs throughout the year.

Committed to better health care through fulfillment of our mission, employees promoted wellness with programs encouraging healthy eating, healthy lifestyles and a healthy work environment. Throughout the year, we participated in a variety of events to support communities where we live, work, and serve. Staff contributed, promoted and volunteered to raise awareness; meet those in need; and advance research for a variety of critical causes and initiatives. Whether supporting troops overseas, ensuring school children have the supplies they need to be successful, helping advance cures for serious health problems by supporting research programs, or recognizing the important contributions of osteopathic medicine and all physicians who provide care to their patients and communities, our staff members are passionate about our mission to protect the public while making a difference in the lives of others. Some of the various 2017 events are shown below and on the next page.
I am proud of the collaborative efforts between our departments and with members of the National Faculty to reach our goals in implementing the new master blueprint and upgrading our media items. Staff and subject matter experts spent countless hours recoding thousands of items and evaluating media quality. The results will make for better exam quality.”

—Candice Pernell, Manager for Test Development
FINANCIAL STEWARDSHIP

2017 was a good year with positive financial results and strong financial stewardship, ensuring revenue growth to advance continuous quality improvement in fulfillment of our mission. Aligned with our vision, we continued development and progress with new products and partnerships with client organizations, making enhancements across the health care delivery continuum to assess competencies for osteopathic medicine and related professions. External validation of our financial results was once again achieved in the annual financial audit, demonstrating strength in fiduciary oversight, internal controls, revenue diversification, and favorable expense ratios compared with national peer benchmarks. Sound management, planning, and negotiation result in minimal fee increases in our product and service offerings in 2017, helping secure a strong financial position for continued expansion to meet needs for expected growth of our programs and services.
### 2017 REVENUE

- COMLEX-USA: 80%
- COMSAE: 4%
- COMAT: 6%
- CLIENT/OPAIM: 5%
- ADMIN SERVICES: 5%

### 2017 EXPENSES

- SALARIES AND BENEFITS: 54%
- DEPRECIATION: 5%
- EXAM ADMINISTRATION: 14%
- GOVERNANCE: 2%
- EXAM DEVELOPMENT: 6%
- PHYSICIAN EXAMINERS: 3%
- OFFICE SPACE: 6%
- IT, SUPPLIES, FEES AND OTHER: 10%
BOARD COMMITTEES

AUDIT COMMITTEE
Susan I. Belanger, PhD, MA, RN*  Covenant Health System
Dee H. Grimes, MBA  MedStudy Corporation
Terri Donlin Huesman, MBA  Osteopathic Heritage Foundations
Geraldine T. O’Shea, DO  Foothills Women’s Medical Ctr.
Donald H. Polk, DO  Donald H. Polk, DO

AWARDS COMMITTEE
Millicent K. Channell, DO, MA*  RowanSOM
Lori A. Kemper, DO, MS  AZCOM/MWU
Jed G. Magen, DO, MS  MSUCOM
Karen T. Snider, DO  ATSU-KCOM

COMPLEX-USA COMPOSITE EXAMINATION COMMITTEE
John R. Boulet, PhD, MA  Educational Commission for Foreign Medical Graduates
Boyd R. Buser, DO  UP-KYCOM
Peter B. Dane, DO  NYIT-COM
Joel L. Dickerman, DO  RVUCOM
Charles A. Finch, Jr., DO  AZCOM/MWU
Janice A. Knebl, DO, MBA*  UNTHSC/TCOM
David Kuo, DO  PCOM
Richard J. LaBaere, II, DO, MPH  ATSU-KCOM
Michael F. Oliverio, DO  Michael F. Oliverio, DO, PC
Richard A. Ortoski, DO  LECOM
Mark E. Sandhouse, DO, MS  NSU-COM
Anita L. Showalter, DO  PNWU-COM
John E. Thornburg, DO, PhD  MSUCOM

COMPENSATION SUBCOMMITTEE
Peter B. Ajluni, DO  MSUCOM
Wayne R. Carlsen, DO*  OU-HCOM
Geraldine T. O’Shea, DO  Foothills Women’s Medical Ctr.
Dana C. Shaffer, DO  UP-KYCOM

FINANCE COMMITTEE
Peter B. Ajluni, DO  MSUCOM
James M. Andriole, DO  Disability Consultants USA, Inc.
Anthony L. Cossetti, CPA  Beneficial Bank
J. Michael Finley, DO  WesternU/COMP
Don Jacobson  Dean Jacobson Financial Services, LLC
Geraldine T. O’Shea, DO*  Foothills Women’s Medical Ctr.

LIAISON COMMITTEE
Boyd R. Buser, DO  American Osteopathic Association
Katie Cassella, OMS IV  Student Osteopathic Medical Association
Thomas A. Cavalieri, DO  American Association of Colleges of Osteopathic Medicine
Humayun J. Chaudhry, DO, MS  Federation of State Medical Boards
Johnny Dias, DO  AOA Bureau of Emerging Leaders
Elise Lovell, MD  Organization of Program Director Associations
Lynn Mark, DO  Association of Osteopathic Directors and Medical Educators
Geraldine T. O’Shea, DO  NBOME
Lorenzo L. Pence, DO  Accreditation Council for Graduate Medical Education
Ashley Sam, OMS IV  Council of Osteopathic Student Government Presidents

STANDARDS & ASSURANCES COMMITTEE
Susan I. Belanger, PhD, MA, RN  Covenant Health System
Ronald Berezniak, PhD  LECOM Bradenton
Robert G. Cuzzolino, EdD  PCOM
Martin Diamond, DO  TouroCOM-Harlem
J. Michael Finley, DO  WesternU/COMP
Robert M. Fisk, Jr., PhD, MA  WVSOM
Rita K. Getz, PhD  ICOM
Mollie M. James, DO, MPH  Des Peres Hospital
Laurie L. Kerns, MS  Education Management Solutions
JooHee Kim, MPH  LMU-DCOM
Ronald V. Marino, DO, MPH  Winthrop-University Hospital

NOMINATING COMMITTEE
Ronald R. Burns, DO*  University Family Med. Ctr., PA
Wayne R. Carlsen, DO  OU-HCOM
Richard A. Ortoski, DO  LECOM
Donald H. Polk, DO  Donald H. Polk, DO
Anita L. Showalter, DO  PNWU-COM
Karen T. Snider, DO  ATSU-KCOM

AN ASTERISK (*) DENOTES A COMMITTEE CHAIR. A GLOSSARY OF SCHOOL ACRONYMS CAN BE FOUND ON THE INSIDE BACK COVER.
OPERATIONAL COMMITTEES

ADVANCED ITEMS COMMITTEE
Robert Castro, DO  Palmetto General Hospital
Jonathan D. Colen, DO  Choate Mental Health Hospital
Danielle L. Cooley, DO  RowanSOM
Carmella L. D’Addezio, DO, MS  Sheppard AFB
Carmine D. D’Amico, DO  LECOM
Michelle F. DeVoe, DO  Treasure Valley Pediatrics
Shawna R. Duncan, DO  OSU-COM
Thomas J. Fotopoulos, DO  ICOM
Robert T. Hasty, DO*  ICOM
Carl R. Hoegerl, DO, MSc  LUCOM
Lauren Noto-Bell, DO  P.COM
Gregg S. Silberg, DO, RPh  WCU-COM
Belinda A. Stillman, DO, MHSA  Barber National Institute

COMAT ADVISORY COMMITTEE
Pamela M. Basehore, MPH, EdD  RowanSOM
Danielle L. Cooley, DO  RowanSOM
Tyler C. Cymet, DO  American Association of Colleges of Osteopathic Medicine
Craig A. Gudakunst, DO  MSUCOM
Tami Hendirzak, DO  TUCOM-CA
Alan R. Janssen, DO  Genesys Regional Medical Center
Rebel Jones  UNTHSC/TCOM
Tracy O. Middleton, DO*  AZCOM/MWU

COMLEX-USA LEVEL 1 ADVISORY COMMITTEE
Janice U. Blumer, DO  WesternU/COMP-NW
Gerald B. Call, PhD  AZCOM/MWU
Wayne R. Carlsen, DO  OU-HCOM
Annette T. Carron, DO  MSUCOM
Jay M. Crutchfield, MD  ATSUSOMA
Shawna R. Duncan, DO  OSU-COM
Alan G. Glaros, PhD  Consultant
Elizabeth Hengstebeck, DO  MSUCOM
Ben D. Huang, DO, MPH  Monroe Hospital
Anne C. Jones, DO, MPH  Gannett Health Services, Cornell University
David G. Krefetz, DO, MBA  PRA Health Sciences
Randy J. Kulesza, Jr., PhD  LECOM
Mary Jo Robinson, DO  MU-COM
Mark E. Sandhouse, DO, MS  NSUCOM
John E. Thornburg, DO, PhD*  MSUCOM
Susan M. Viselli, PhD  CCOM/MWU

COMLEX-USA LEVEL 2-CE ADVISORY COMMITTEE
Michael A. Becker, DO, MS  PCOM
Luke H. Mortensen, PhD  American Association of Colleges of Osteopathic Medicine
Mary Jo Robinson, DO  MU-COM
Bryan C. Roehl, DO  Mercy Clinic
Michael L. Smith, PhD  UNTHSC/TCOM
Ryan M. Smith, DO, MSEd  UECOM
Mousumi Som, DO, MS  OSU-COM
John E. Thornburg, DO, PhD  MSUCOM

COMPLEX-USA LEVEL 2-PE ADVISORY COMMITTEE
John R. Boulet, PhD, MA  Educational Commission for Foreign Medical Graduates
Sheryl A. Bushman, DO  Optimum Healthcare IT
Millicent K. Channell, DO, MA  RowanSOM
Gautam J. Desai, DO  KCU-COM
Dennis J. Dowling, DO, MA  Nassau University Medical Center
J. Michael Finley, DO  WesternU/COMP
David Kuo, DO*  PCOM
Robert D. McGarrigle, DO  Robert D. McGarrigle, DO
Ronald R. Paolini, DO  Dwight D. Eisenhower Army Medical Center
Frederic A. Rawlins, II, DO  VCOM-VC
R. Taylor Scott, DO  MSUCOM

Richard A. Ortoski, DO*  LECOM
Doris Stoll, PhD  GME Consultants, LLC

Natasha N. Bray, DO, MSEd  ARCOM
Rocco J. Cresczenzo, DO  Pfizer
Charles A. Finch, Jr., DO*  AZCOM/MWU
Edward P. Finnerty, PhD  DMU-COM
Ronald Januchowski, DO  VCOM-CC
Jed G. Magen, DO, MS  MSUCOM
Ali Moradi, MD, MPH, DrPH  GA-PCOM
Paul D. Petry, DO  KCU-COM
Pamela E. Potter, PhD  AZCOM/MWU
James E. Powers, DO  CUSOM
Randall K. Ricardi, DO  AZCOM/MWU
Shannon C. Scott, DO  AZCOM/MWU
Karen T. Snider, DO  ATSU-KCOM
Ava C. Stanczak, DO  LMU-DCOM

PAMELABASEHORE, MPH, EdD  RowanSOM
Danielle L. Cooley, DO  RowanSOM
Tyler C. Cymet, DO  American Association of Colleges of Osteopathic Medicine
Craig A. Gudakunst, DO  MSUCOM
Tami Hendirzak, DO  TUCOM-CA
Alan R. Janssen, DO  Genesys Regional Medical Center
Rebel Jones  UNTHSC/TCOM
Tracy O. Middleton, DO*  AZCOM/MWU

ANNUAL REPORT 2017
COMLEX-USA LEVEL 3 ADVISORY COMMITTEE
Carmella L. D’Addezio, DO, MS Sheppard AFB
Darrin C. D’Agostino, DO, MBA, MPH KCU-COM
Carmine D. D’Amico, DO LECOM
Joel L. Dickermand, DO RVUCOM
James E. Foy, DO TUCOM-CA
Matthew F. Geromi, DO PsyCare, Inc.
John L. Goudreau, DO, PhD MSUCOM
Peter G. Gulick, DO MSUCOM
Stephen D. Laird, DO, MHPE PNWU-COM
Sean M. Lynch, PhD CCOM/MWU
Heather C. McCarthy, DO NSU-COM
Michael F. Oliverio, DO* Michael F. Oliverio, DO, PC
Jeffrey S. Rabrich, DO Mount Sinai St. Luke’s
Brett S. Stecker, DO Tristan Medical
Joseph W. Stengel, DO PNWU-COM

TEST ACCOMMODATIONS COMMITTEE
James M. Andriole, DO Disability Consultants USA, Inc.
Robert W. Foster, DO WVSOM
Rita K. Getz, PhD ICOM
Grant H. Gilroy, DO Indiana University School of Medicine
Lori A. Kemper, DO, MS AZCOM/MWU
Richard J. LaBaere, II, DO, MPH ATSU-KCOM
Jed G. Magen, DO, MS* MSUCOM
J. William McCord, Jr., DO, MS Highlands Medical Center
Mousumi Som, DO, MS OSU-COM
Brian E. Wood, DO VCOM-VC

AN ASTERISK (*) DENOTES A COMMITTEE CHAIR. A GLOSSARY OF SCHOOL ACRONYMS CAN BE FOUND ON THE INSIDE BACK COVER.

COMLEX-USA LEVEL 2-PE ADVISORY SUBCOMMITTEE FOR SOAP NOTE MISREPRESENTATION
Sheryl A. Bushman, DO Optimum Healthcare IT
Gautam J. Desai, DO KCU-COM
Dennis J. Dowling, DO, MA* Nassau University Med. Ctr.
J. Michael Finley, DO* WesternU/COMP

COM VEX SUBCOMMITTEE
H. Timothy Dombrowski, DO, MPH* Kennedy Health System
Anna Hayden, DO Broward Health
Tami Hendriksz, DO TUCOM-CA
Teresa A. Hubka, DO, MS CCOM/MWU
Lynn Mark, DO NYIT-COM
Richard A. Ortoski, DO LECOM
Wayne J. Reynolds, DO Sentara Medical Group
Anita M. Steinbergh, DO OU-HCOM
Jan D. Zieren, DO, MPH LMU-DCOM

POINT-OF-CARE KNOWLEDGE, EDUCATION AND TESTING WORKGROUP
Mari M. Batta, DO Milstein Batta Dermatology
Michael A. Becker, DO, MS PCOM
Barbara Capozzi, DO NYIT-COM
Danielle L. Cooley, DO RowanSOM
Darrin C. D’Agostino, DO, MBA, MPH KCU-COM
Dennis J. Dowling, DO, MA* Nassau University Med. Ctr.
Peter A. Guiney, DO Nassau University Med. Ctr.
Adarsh K. Gupta, DO, MS RowanSOM
Kimberly A. Huntington-Alfano, DO, MBA CCOM/MWU
Teresa M. Kilgore, DO VCOM-CC
Milind J. Kothari, DO Penn State Milton S. Hershey Medical Center
Erik E. Langenau, DO, MS PCOM

RONALD D. HEDGER, DO TUCOM
DAVID KUO, DO PCOM
RICHARD A. ORTOSKI, DO LECOM
R. TAYLOR SCOTT, DO MSUCOM
### Examination Contributors

#### Advanced Item Writers

<table>
<thead>
<tr>
<th>Name</th>
<th>Institution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Robert Castro, DO</td>
<td>Palmetto General Hospital</td>
</tr>
<tr>
<td>Jonathan D. Colen, DO</td>
<td>Choate Mental Health Hospital</td>
</tr>
<tr>
<td>Danielle L. Cooley, DO</td>
<td>RowanSOm</td>
</tr>
<tr>
<td>Carmella L. D’Addeo, DO</td>
<td>Sheppard AFB</td>
</tr>
<tr>
<td>Carmine D. D’Amico, DO</td>
<td>LECOM</td>
</tr>
<tr>
<td>Michelle F. DeVoe, DO</td>
<td>Treasure Valley Pediatrics</td>
</tr>
<tr>
<td>Shawn R. Duncan, DO</td>
<td>OSU-COM</td>
</tr>
<tr>
<td>Thomas J. Fotopoulou, DO</td>
<td>ICOM</td>
</tr>
<tr>
<td>Robert T. Hasty, DO</td>
<td>ICOM</td>
</tr>
<tr>
<td>Carl R. Hoegerl, DO, MSc</td>
<td>LUCOM</td>
</tr>
<tr>
<td>Robert C. Lee, DO, MS</td>
<td>Winthrop-University Hospital</td>
</tr>
<tr>
<td>Lauren Noto-Beli, DO</td>
<td>PCOM</td>
</tr>
<tr>
<td>Ryan A. Seals, DO</td>
<td>UNTHSC/TCOM</td>
</tr>
<tr>
<td>Gregg S. Silberg, DO, RPh</td>
<td>WCUCOM</td>
</tr>
<tr>
<td>Belinda A. Stillman, DO</td>
<td>MHSA  Barber National Institute</td>
</tr>
</tbody>
</table>

#### Comat

#### Emergency Medicine Item Review

<table>
<thead>
<tr>
<th>Name</th>
<th>Institution</th>
</tr>
</thead>
<tbody>
<tr>
<td>John F. Dery, Jr., DO</td>
<td>Emergency Medical Associates</td>
</tr>
<tr>
<td>John W. Graneto, DO, MEd</td>
<td>California Health Sciences University</td>
</tr>
<tr>
<td>Alan R. Janssen, DO, MEd</td>
<td>Genesys Regional Med. Ctr.</td>
</tr>
<tr>
<td>Katherine A. Mitzel, DO</td>
<td>AZCOM/MWU</td>
</tr>
<tr>
<td>Frederic A. Rawlins, II, DO</td>
<td>VCOM-VC</td>
</tr>
<tr>
<td>Michael P. Seaman, DO</td>
<td>LMU-DCOM</td>
</tr>
</tbody>
</table>

#### Item Writing

<table>
<thead>
<tr>
<th>Name</th>
<th>Institution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Curt W. Cackovic, DO</td>
<td>Inspira Health Network</td>
</tr>
</tbody>
</table>

### Portfolio & Expanded Assessment Task Force

- **John R. Boulet, PhD, MA** | Educational Commission for Foreign Medical Graduates
- **Hasco W. Craver, III, DO** | GA-P COM
- **J. Michael Finley, DO** | WesternU/COMP
- **Timothy J. Kowalski, DO** | VCOM-CC
- **David Kuo, DO** | PCOM
- **Richard J. LaBaere, II, DO, MPH** | ATSU-KCOM
- **Kathryn C. Lambert, DO** | RowanSOm
- **Machelle Lisenmeyer, EdD** | WVSOm
- **Lorenzo L. Pence, DO** | Accreditation Council for Graduate Medical Education
- **Michael P. Rowane, DO, MS** | University Hospitals Regional Hospitals
- **R. Taylor Scott, DO** | MSUCOM
- **Jan M. Wilcox, DO** | VCOM-VC

### Examination Contributors

- **Laurie C. Clark, DO** | OSU-COM
- **Paul L. DiModica, DO** | Marian Regional Medical Center
- **Marie R. Fleury, DO, MBA** | Silver Cross Hospital
- **Rodney M. Fullmer, DO, MBS** | Franciscan St. James Health Olympia Fields
- **John W. Graneto, DO, MEd** | California Health Sciences University
- **Alan R. Janssen, DO, MEd** | Genesys Regional Med. Ctr.
- **James R. Kowalczyk, DO** | Ingalls Memorial Hospital
- **Fanny Janeth Mantilla, DO, MD** | St. Barnabas Hospital
- **Katherine A. Mitzel, DO** | AZCOM/MWU
- **Narasinga Rao, DO** | St. Barnabas Hospital
- **Michael P. Seaman, DO** | LMU-DCOM
- **Tai T. Tran, DO** | Aurora Sinai Medical Center

### Family Medicine

#### Item Review

- **Kerry E. Agnello, DO** | Womack Army Medical Center
- **Robert N. Agnello, DO** | IPMC Fort Bragg
- **Laurie C. Clark, DO** | OSU-COM
- **Tracy O. Middleton, DO** | AZCOM/MWU
- **Valerie G. Vilbert, DO** | Exton Family Medicine
- **Anna Yeung, DO** | WesternU/COMP

#### Item Writing

- **Kerry E. Agnello, DO** | Womack Army Medical Center
- **Robert N. Agnello, DO** | IPMC Fort Bragg
- **Warren A. Bodine, DO** | Greater Lawrence Family Health Center
- **Laurie C. Clark, DO** | OSU-COM
- **Joel L. Dickerman, DO** | RVUCOM
- **Lisa A. Kassenoff, DO** | RowanSOm
<table>
<thead>
<tr>
<th>Name</th>
<th>School/Acronyms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tracy O. Middleton</td>
<td>AZCOM/MWU</td>
</tr>
<tr>
<td>Stephen Miller, DO, MPH</td>
<td>ACOM</td>
</tr>
<tr>
<td>Patricia L. Rehfield, DO, MPH</td>
<td>TUCOM-CA</td>
</tr>
<tr>
<td>Nicole Shields, MD</td>
<td>LMU-DCOM</td>
</tr>
<tr>
<td>Jonathan W. Torres, DO</td>
<td>MMC Family Medicine</td>
</tr>
<tr>
<td>Valerie G. Vilbert, DO</td>
<td>Exton Family Medicine</td>
</tr>
<tr>
<td>Robert M. Fisk, Jr., MA, PhD</td>
<td>WWSOM</td>
</tr>
<tr>
<td>Abby L. Geis, PhD</td>
<td>ARCOM</td>
</tr>
<tr>
<td>Helmut B. Gottlieb, PhD</td>
<td>UIWSOM</td>
</tr>
<tr>
<td>Zeynep Gromley, PhD</td>
<td>LMU-DCOM</td>
</tr>
<tr>
<td>Jandy B. Hanna, PhD</td>
<td>WWSOM</td>
</tr>
<tr>
<td>Jennifer L. Hotzman, PhD</td>
<td>WCUCOM</td>
</tr>
<tr>
<td>Manish Issar, MS, PhD</td>
<td>WesternU/COMP</td>
</tr>
<tr>
<td>Raj Kanclpal, PhD</td>
<td>WesternU/COMP</td>
</tr>
<tr>
<td>Christine S. Kell, PhD</td>
<td>LECOM</td>
</tr>
<tr>
<td>Monica N. Kinde, PhD, MS</td>
<td>KCU-COM</td>
</tr>
<tr>
<td>Randy J. Kulesza, Jr., PhD</td>
<td>LECOM</td>
</tr>
<tr>
<td>Michael LaFontaine, PhD</td>
<td>MU-COM</td>
</tr>
<tr>
<td>Eric G. Lee, PhD</td>
<td>ARCOM</td>
</tr>
<tr>
<td>Jonathan Leo, PhD</td>
<td>LMU-DCOM</td>
</tr>
<tr>
<td>Kathryn J. Leyva, PhD</td>
<td>AZCOM/MWU</td>
</tr>
<tr>
<td>Kathryn L. Lovell, PhD</td>
<td>MSUCOM</td>
</tr>
<tr>
<td>James Mahaney, PhD</td>
<td>VCOM-VC</td>
</tr>
<tr>
<td>Kristen Metzler-Wilson, PhD</td>
<td>MU-COM</td>
</tr>
<tr>
<td>Michael Miller, PhD</td>
<td>TouroCOM-Middletown</td>
</tr>
<tr>
<td>David J. Mokler, PhD</td>
<td>UNECOM</td>
</tr>
<tr>
<td>Shin Murakami, PhD</td>
<td>TUCOM-CA</td>
</tr>
<tr>
<td>Swapan K. Nath, PhD</td>
<td>ARCOM</td>
</tr>
<tr>
<td>Kathleen P. O’Hagan, PhD</td>
<td>CCOM/MWU</td>
</tr>
<tr>
<td>Balbina J. Plotkin, MEd, PhD</td>
<td>CCOM/MWU</td>
</tr>
<tr>
<td>Rebecca L. Pratt, PhD</td>
<td>Oakland University William</td>
</tr>
<tr>
<td></td>
<td>Beaumont School of Medicine</td>
</tr>
<tr>
<td>Christopher M. Reilly, PhD</td>
<td>VCOM-CC</td>
</tr>
<tr>
<td>Michael L. Smith, PhD</td>
<td>UNTTHSC/TCOM</td>
</tr>
<tr>
<td>Ryan M. Smith, DO, MSEd</td>
<td>UNECOM</td>
</tr>
<tr>
<td>Michelle Swanson-Mungerson, PhD</td>
<td>CCOM/MWU</td>
</tr>
<tr>
<td>Colleen Talbot, PhD</td>
<td>WesternU/COMP</td>
</tr>
<tr>
<td>Robert J. Theobald, Jr., PhD</td>
<td>ATSU-KCOM</td>
</tr>
<tr>
<td>Amanda Troy, MS, PhD</td>
<td>LUCOM</td>
</tr>
<tr>
<td>Edward J. Wagner, PhD</td>
<td>WesternU/COMP</td>
</tr>
<tr>
<td>Wayne A. Wilson, PhD</td>
<td>DMU-COM</td>
</tr>
<tr>
<td>Yir Gloria Yueh, PhD</td>
<td>AZCOM/MWU</td>
</tr>
<tr>
<td>Naunihal Zaveri, PhD</td>
<td>TUNCOM</td>
</tr>
<tr>
<td>Robert J. Theobald, Jr., PhD</td>
<td>ATSU-KCOM</td>
</tr>
<tr>
<td>Amanda Troy, MS, PhD</td>
<td>LUCOM</td>
</tr>
<tr>
<td>Edward J. Wagner, PhD</td>
<td>WesternU/COMP</td>
</tr>
<tr>
<td>Wayne A. Wilson, PhD</td>
<td>DMU-COM</td>
</tr>
<tr>
<td>Yir Gloria Yueh, PhD</td>
<td>AZCOM/MWU</td>
</tr>
<tr>
<td>Naunihal Zaveri, PhD</td>
<td>TUNCOM</td>
</tr>
<tr>
<td>Robert J. Theobald, Jr., PhD</td>
<td>ATSU-KCOM</td>
</tr>
</tbody>
</table>

An asterisk (*) denotes a Committee Chair. A glossary of school acronyms can be found on the inside back cover.
OBSTETRICS AND GYNECOLOGY

ITEM REVIEW

Sheryl A. Bushman, DO Optimum Healthcare IT
Jason D. Meade, DO Inspira Health / PCOM
Holly A. Ray, DO Aurora Health Care
Bryan C. Roehl, DO Mercy Clinic

ITEM WRITING

David J. Boes, DO MSUCOM
Vernon H. Boling, DO, MS Boling Obstetrics & Gynecology Care
Sheryl A. Bushman, DO Optimum Healthcare IT
Corinne Jedynak-Bell, DO, MBA, RN UIWSOM
Joseph R. Johnson, DO OSU-COM
Shawnaree L. Lee, DO Integris
Jason D. Meade, DO Inspira Health / PCOM
Todd A. Moyerbrailean, DO Alliance Obstetrics & Gynecology
Kaaren Olesen, DO, MS DMU-COM
Stephanie Persondek, DO Yakima Valley Farm Workers Clinic
Bryan C. Roehl, DO Mercy Clinic

OSTEOPATHIC PRINCIPLES
AND PRACTICE

ITEM REVIEW

Lisa R. Chun, DO UIWSOM
Andrea S. Clem, DO CCOM/MWU
Danielle L. Cooley, DO RowanSOM
Patricia S. Kooyman, DO NYIT-COM

ITEM WRITING

David R. Boesler, DO, MS NSU-COM
Dennis A. Burke, DO TouroCOM-Middletown
Lisa R. Chun, DO UIWSOM
Andrea S. Clem, DO CCOM/MWU
Danielle L. Cooley, DO RowanSOM
Jay B. Danto, DO KCU-COM
Patricia S. Kooyman, DO NYIT-COM
Kara C. Mintier, DO WesternU/COMP-NW
Yasmin Qureshi, DPT, MHS, MS NSU-COM
Eva Shay, DO WCUCOM
Richard G. Sloan, Jr., DO WCUCOM
Sajid A. Surve, DO UNTHSC/TCOM
Jonathan W. Torres, DO MMC Family Medicine

PEDIATRICS

ITEM REVIEW

Thomas Chan, DO NYIT-COM
Tami Hendriksz, DO TUCOM-CA
Megan Krease, DO, MS All Children Pediatrics
Donna-Marie McMahon, DO NYIT-COM
Ava C. Stanczak, DO LMU-DCOM
Timothy J. York, DO LMU-DCOM

ITEM WRITING

John B. Bishara, DO Good Samaritan Hospital Medical Center
Thomas Chan, DO NYIT-COM
Hilda M. DeGaetano, DO, MEd NSU-COM
Mark Gabay, DO NSU-COM
Tami Hendriksz, DO TUCOM-CA
Michael G. Hunt, DO St. Vincent’s Health Partners, Inc.
Jacqueline M. Kaari, DO RowanSOM
Megan Krease, DO, MS All Children Pediatrics
Donna-Marie McMahon, DO NYIT-COM
Heath A. Parker, DO ACOM
Ava C. Stanczak, DO LMU-DCOM
Judith K. Thierry, DO, MPH Consultant
Lisa Warren, DO WesternU/COMP
Timothy J. York, DO LMU-DCOM
Gregg S. Zankman, DO Happy Kids Pediatrics

PSYCHIATRY

ITEM REVIEW

Furhut R. Janssen, DO Central Michigan University Medical School

AN ASTERISK (*) DENOTES A COMMITTEE CHAIR. A GLOSSARY OF SCHOOL ACRONYMS CAN BE FOUND ON THE INSIDE BACK COVER.
Jacqueline Locronto, DO  Augusta University  
Andrew Lovy, DO  ATSU-KCOM  
Miko Rose, DO  Michigan State University  
Ryan M. Smith, DO, MSEd  UNECOM

**ITEM WRITING**

Thor Agustsson, DO  Counseling Center of Nashua  
Leah S. Cobb-Snodgrass, MD  LMU-DCOM  
Justin Faden, DO  RowanSOM  
Gina Forte, DO  Arnot Ogden Medical Center  
Matthew F. Geromi, DO  PsyCare, Inc.  
Paul H. Janda, DO, JD  Valley Hospital Medical Center  
Furhut R. Janssen, DO  Central Michigan University  
David G. Krefetz, DO, MBA  PRA Health Sciences  
Genomary Krigbaum, MA, PsyD  Bullhook Community Health Care  
Alyse F. Ley, DO  MSUCOM  
Matthew Macaluso, DO  University of Kansas School of Medicine  
Sristi Nath, DO  AZCOM/MWU  
Mireille Rizkalla, PhD  CCOM/MWU  
Miko Rose, DO  Michigan State University  
Ryan M. Smith, DO, MSEd  UNECOM

**SURGERY ITEM REVIEW**

Jay M. Crutchfield, MD  ATSU-SOMA  
Craig A. Gudakunst, DO  MSUCOM  
Stephen D. Laird, DO, MHPE  PNWU-COM  
Robert D. McGarrigle, DO  Robert D. McGarrigle, DO

**COMLEX-USA LEVEL 1**

**BLUEPRINT RECODING**

Janice U. Blumer, DO  WesternU/COMP-NW  
Linda Boyd, DO  RowanSOM  
Natsaha N. Bray, DO, MSEd  ARCOM  
Gerald B. Call, PhD  AZCOM/MWU  
Raeann L. Carrier, PhD  WSOM  
Andrea S. Clem, DO  CCOM/MWU  
Shawna R. Duncan, DO  OSU-COM  
Charles A. Finch, Jr., DO  AZCOM/MWU  
Edward P. Finnerty, PhD  DMU-COM  
Thomas J. Fotopoulos, DO  ICOM  
David P. Gardner, PhD  MU-COM  
Alan G. Glaros, PhD  Consultant  
Jacalyn M. Green, PhD  CCOM/MWU  
Sarah E. Hall, DO  OSU-COM  
Elizabeth Hengstebbeck, DO  MSUCOM  
T. Bucky Jones, PhD  AZCOM/MWU  
David G. Krefetz, DO, MBA  PRA Health Sciences  
Regina M. Lewis, DO  OSU-COM  
Kathryn J. Leyva, PhD  AZCOM/MWU  
Sean M. Lynch, PhD  CCOM/MWU  
Balbina J. Plotkin, MEd, PhD  CCOM/MWU  
Pamela E. Potter, PhD  AZCOM/MWU  
Randall K. Ricardi, DO  AZCOM/MWU  
Mary Jo Robinson, DO  MU-COM  
Ryan M. Smith, DO, MSEd  UNECOM  
Karen T. Snider, DO  ATSU-KCOM  
Robert J. Theobald, Jr., PhD  ATSU-KCOM  
John E. Thornburg, DO, PhD  MSUCOM

**CLINICAL REVIEW**

Gerald B. Call, PhD  AZCOM/MWU  
Annette T. Carron, DO  MSUCOM  
Andrea S. Clem, DO  CCOM/MWU  
Jay M. Crutchfield, MD  ATSU-SOMA  
Shawna R. Duncan, DO  OSU-COM  
Alan G. Glaros, PhD  Consultant  
Elizabeth Hengstebbeck, DO  MSUCOM  
Ben D. Huang, DO, MPH  Monroe Hospital  
Randy J. Kulesza, Jr., PhD  LECOM  
John E. Thornburg, DO, PhD  MSUCOM  
Susan M. Viselli, PhD  CCOM/MWU

**EXAM CONTENT REVIEW**

Kerry E. Agnello, DO  Womack Army Medical Center  
Robert N. Agnello, DO  IPMC Fort Bragg  
Melissa M. Blessing, DO  Mayo Clinic College of Medicine  
Rebecca J. Bowers, DO  VCOM-CC  
Kristie G. Bridges, PhD  WVSOM
ITEM REVIEW

Melissa M. Blessing, DO  
Mayo Clinic College of Medicine

Michael W. Bradbury, PhD  
California Northstate University

Neal R. Chamberlain, PhD  
ATSU-KCOM

Kirk E. Dineley, PhD  
CCOM/MWU

Terry A. Else, PhD  
TUNCOM

Sébastien Fuchs, MD, PhD  
WesternU/COMP

Joanna Goral, PhD  
CCOM/MWU

Ben D. Huang, DO, MPH  
Monroe Hospital

Randy J. Kulesza, Jr., PhD  
LECOM

Denene Loftland, PhD  
TUCOM-CA

Sean M. Lynch, PhD  
CCOM/MWU

Shin Murakami, PhD  
TUCOM-CA

Alisdair R. Philip, PhD  
University of Kansas Med. Ctr.

Milton Pong, PhD  
ATSU-SOMA

Mary Jo Robinson, DO  
MU-COM

Janice A. Schwartz, PhD  
MSUCOM

Shirley Siew, MD, MS, PhD  
MSUCOM

Michael L. Smith, PhD  
UNTHSC/TCOM

Melissa K. Stuart, PhD  
ATSU-KCOM

John E. Thornburg, DO, PhD  
MSUCOM

Susan M. Viselli, PhD  
CCOM/MWU

ITEM WRITING

Adrienne Z. Ables, PharmD  
VCOM-CC

Linda R. Adkisson, PhD  
Consultant

Thor Agustsson, DO  
Counseling Center of Nashua

Zulficar Ahmad, PhD  
ATSU-KCOM

Samina Akbar, PhD  
MU-COM

Anthony W. Alfrey, MD  
OSU-COM

Kenneth B. Alonso, MD  
Morehouse School of Medicine

Tafline C. Arbor, PhD  
MU-COM

Graham M. Atkin, MA, MS, PhD  
MSUCOM

Robert Augustyniak, PhD  
VCOM-CC

Robert W. Baer, PhD  
ATSU-KCOM

Xiaoming Bi, MD, PhD  
WesternU/COMP

Tim Blumer, DO  
Samaritan Health Services

Michael W. Bradbury, PhD  
California Northstate University

Kristie G. Bridges, PhD  
WVSOM

Rani Bright, MBBS  
PCOM

Andrew Brittingham, PhD  
DMU-COM

Kenneth V. Brock, DVM, MS, PhD  
VCOM-Auburn

Joyce A. Brown, DO  
TouroCOM-Middletown

Joanne Calabrese, DO  
St. Luke’s Physician Group

Gerald B. Call, PhD  
AZCOM/MMU

Beth Ann Callihan Ricci, DO, MS  
Southeast Family Practice

Craig A. Canby, PhD  
DMU-COM

Raeann L. Carrier, PhD  
WVSOM

Neal R. Chamberlain, PhD  
ATSU-KCOM

Yingzi Chang, MD, PhD  
ATSU-KCOM

Andrea S. Clem, DO  
CCOM/MMU

Janis Coffin, DO  
KCU-COM

Maria S. Cole, MEdL, PhD  
University of Missouri Kansas City School of Medicine

Jasmine R. Constanzo, DO, MS  
TouroCOM-Harlem

James L. Cox, PhD  
ATSU-KCOM

Dosha Cummins, PharmD  
NYITCOM Arkansas State

Jay B. Danto, DO  
KCU-COM

Dana S. Devine, DO  
AZCOM/MMU
AN ASTERISK (*) DENOTES A COMMITTEE CHAIR. A GLOSSARY OF SCHOOL ACRONYMS CAN BE FOUND ON THE INSIDE BACK COVER.
<table>
<thead>
<tr>
<th>Name</th>
<th>Institution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kim Pfotenhauer, DO</td>
<td>TUCOM-CA</td>
</tr>
<tr>
<td>Pamela E. Potter, PhD</td>
<td>AZCOM/MMU</td>
</tr>
<tr>
<td>James E. Powers, DO</td>
<td>CUSOM</td>
</tr>
<tr>
<td>Randall K. Ricardi, DO</td>
<td>AZCOM/MMU</td>
</tr>
<tr>
<td>Damon A. Schranz, DO</td>
<td>UNTHSC/TCOM</td>
</tr>
<tr>
<td>Shannon C. Scott, DO</td>
<td>AZCOM/MMU</td>
</tr>
<tr>
<td>Travis Smith, DO</td>
<td>LECOM Bradenton</td>
</tr>
<tr>
<td>Ava C. Stanczak, DO</td>
<td>LMU-DCOM</td>
</tr>
<tr>
<td>Luigi Strizzi, MD, PhD</td>
<td>CCOM/MMU</td>
</tr>
<tr>
<td>John R. Sutton, DO</td>
<td>Carson Tahoe Endocrinology</td>
</tr>
<tr>
<td>Mark H. Thai, DO</td>
<td>OSU-COM</td>
</tr>
<tr>
<td>Heath D. White, DO, MS</td>
<td>Baylor Scott &amp; White Health</td>
</tr>
<tr>
<td>Stephanie L. Zeszutek, DO, RPh</td>
<td>TouroCOM-Middletown</td>
</tr>
<tr>
<td>Corinne Jedyak-Bell, DO, MBA, RN</td>
<td>UWSOM</td>
</tr>
<tr>
<td>Joyce M. Johnson, DO, MA</td>
<td>Georgetown University</td>
</tr>
<tr>
<td>Józie C. McGowan, DO</td>
<td>KCU-COM</td>
</tr>
<tr>
<td>Todd A. Moyerbrailean, DO</td>
<td>Alliance Obstetrics &amp; Gynecology</td>
</tr>
<tr>
<td>Stephanie Persondek, DO</td>
<td>Yakima Valley Farm Workers Clinic</td>
</tr>
<tr>
<td>Kim Pfotenhauer, DO</td>
<td>TUCOM-CA</td>
</tr>
<tr>
<td>Mireille Rizkalla, PhD</td>
<td>CCOM/MMU</td>
</tr>
<tr>
<td>Carol Rogala, DO</td>
<td>Apex Urgent Care, Inc</td>
</tr>
<tr>
<td>Patricia S. Sexton, DHEd</td>
<td>ATSU-KCOM</td>
</tr>
<tr>
<td>H. Eduardo Velasco, MD, PhD, MSc</td>
<td>TUCOM-CA</td>
</tr>
<tr>
<td>Charmaine S.Y. Chan, DO</td>
<td>PCOM</td>
</tr>
<tr>
<td>Danielle L. Cooley, DO</td>
<td>RowanSOM</td>
</tr>
<tr>
<td>Jay B. Danto, DO</td>
<td>KCU-COM</td>
</tr>
<tr>
<td>Guy A. DeFeo, DO</td>
<td>UNECOM</td>
</tr>
<tr>
<td>Gautam J. Desai, DO</td>
<td>KCU-COM</td>
</tr>
<tr>
<td>Lisa A. DeStefano, DO</td>
<td>MSUCOM</td>
</tr>
<tr>
<td>Lisa Drummond, DO</td>
<td>Consultant</td>
</tr>
<tr>
<td>David D. Dyck, Jr., DO</td>
<td>Midwest Sports Medicine Physicians</td>
</tr>
<tr>
<td>Robin Dyer, DO</td>
<td>OSU-COM</td>
</tr>
<tr>
<td>Heather P. Ferrill, DO, MS</td>
<td>RVUCOM</td>
</tr>
<tr>
<td>Robert W. Foster, DO</td>
<td>WVSOM</td>
</tr>
<tr>
<td>Rebecca E. Giusti, DO</td>
<td>WesternU/COMP</td>
</tr>
<tr>
<td>Sherman Gorbis, DO</td>
<td>MSUCOM</td>
</tr>
<tr>
<td>Laura E. Griffin, DO</td>
<td>UP-KYCOM</td>
</tr>
<tr>
<td>Ann L. Habenicht, DO</td>
<td>MU-COM</td>
</tr>
<tr>
<td>Kendi Hensel, DO, PhD</td>
<td>UNTHSC/TCOM</td>
</tr>
<tr>
<td>John G. Hohner, DO</td>
<td>Palos Medical Group</td>
</tr>
<tr>
<td>Shawn R. Kerger, DO</td>
<td>OU-HCOM</td>
</tr>
<tr>
<td>Randy G. Litman, DO</td>
<td>WellSpan Good Samaritan Hospital</td>
</tr>
<tr>
<td>David C. Mason, DO, MBA</td>
<td>UNTHSC/TCOM</td>
</tr>
<tr>
<td>Claudia McCarty, DO</td>
<td>Claadia L. McCarty, DO</td>
</tr>
<tr>
<td>Rance McClain, DO</td>
<td>WCUCOM</td>
</tr>
<tr>
<td>Alexander Nicholas, DO</td>
<td>PCOM</td>
</tr>
<tr>
<td>Steven T. O’Donnell, DO</td>
<td>LECOM</td>
</tr>
<tr>
<td>Harriet S. Shaw, DO</td>
<td>LUCOM</td>
</tr>
<tr>
<td>Michael J. Terzella, DO</td>
<td>NYIT-COM</td>
</tr>
<tr>
<td>Daniel E. Van Arsdale, DO</td>
<td>Southampton Hospital</td>
</tr>
<tr>
<td>Marcia Whalen, DO</td>
<td>Personalcare Physicians</td>
</tr>
</tbody>
</table>

**REFERENCING**

Noel Alonso, MD, MSc NSU-COM
Nancy A. Bono, DO NYIT-COM
Timothy Buffey, DO ARCOM
Vincent F. Carr, DO, MSA Delaware Department of Correction
Angela C. Cavanna, DO TouroCOM-Middletown
Denise S. Clark, DO Vitas Innovative Hospice Care
Robert C. Clark, DO, MS Robert C. Clark, DO, MS
Andrea S. Clem, DO CCOM/MMU
Alissa P. Craft, DO, MBA American Osteopathic Association
Eric Elliott, DO Parkview Medical Center
William J. Elliott, MD, PhD PNWUCOM
Marie R. Fleury, DO, MBA Silver Cross Hospital
Katherine Galluzzi, DO PCOM
Kevin P. Hubbard, DO CU-COM

**COMLEX-USA LEVEL 2-PE CASE DEVELOPMENT COMMITTEE**

Jonathan Auten, DO Naval Medical Center
Kathryn Brandt, DO, MS UNECOM
Kym Carpentieri, DO NYIT-COM
Robyn Dreibelbis, DO WesternU/COMP
David Kuo, DO* PCOM
Heather C. McCarthy, DO NSU-COM
Maurice W. Oelklaus, DO GTW Consultants
Steven M. Piper, DO Johnson Space Center
Terri L. Plundo, DO VCOM-Auburn
Damon A. Schranz, DO UNTHSC/TCOM

**OSTEOPATHIC MANIPULATIVE TREATMENT PHYSICIAN EXAMINERS**

Robert N. Agnello, DO IPMC Fort Bragg
Regina M. Asaro, DO Advantage Care Physicians
Beth Ann Callihan Ricci, DO, MS Southeast Family Practice

**ANNUAL REPORT 2017**
ITEM REVIEW

Ralph O. Boling, DO, MS Boling Obstetrics & Gynecology Care
Leslie Mae-Geen Ching, DO OSU-COM
Michelle F. DeVoe, DO Treasure Valley Pediatrics
Shawna R. Duncan, DO OSU-COM
Matthew F. Geromi, DO PsyCare, Inc.
Peter G. Gulick, DO MSUCOM
Kimberly A. Huntington-alfano, DO, MBA CCOM/MWU
Mollie M. James, DO, MPH Des Peres Hospital
Amy J. Keenum, DO, PharmD MSUCOM
Steven S. Lee, DO Kaiser Permanente
Regina M. Lewis, DO OSU-COM
James J. Lyons, MD ACOM
Heather C. McCarthy, DO NSU-COM
Robert D. McGarrigle, DO Robert D. McGarrigle, DO
Michael F. Oliverio, DO Michae F. Oliverio, DO, PC
Jeffrey S. Rabrich, DO Mount Sinai St. Luke’s
Narasinga Rao, DO St. Barnabas Hospital
Jaime M. Rawson, DO Gilbert Neurology
Wayne J. Reynolds, DO Sentara Medical Group
Brett S. Stecker, DO Tristan Medical

ITEM WRITING

Noel Alonso, MD, MSc NSU-COM
Regina M. Asaro, DO Advantage Care Physicians
Lourdes G. Bahamonde, DO Gastroenterology Associates of Southern California
Thomas Benzoni, DO DMU-COM
Peter F. Bidey, DO PCOM
Collin Blattner, DO Silver Falls Dermatology
Tim Blumber, DO Samaritan Health Services

Christina Brown, DO Providence Alaska
Joyce A. Brown, DO TouroCOM-Middletown
Carol S. Browne, DO UIW SOM
Richard C. Calderone, DO, MBS, MPH University of Mississippi Medical Center
Beth Ann Callihan-Ricci, DO, MS Southeast Family Practice
Craig D. Cameron, DO Dwight D. Eisenhower Army Medical Center
Vincent F. Carr, DO, MSA Delaware Department of Correction
Angela C. Cavanna, DO TouroCOM-Middletown
Leslie Mae-Geen Ching, DO OSU-COM
Samuel M. Cosmello, DO, RPh Veteran’s Affairs Medical Center
Lee Ann M. Cuny, DO, MA TUCOM-CA
William A. Delp, Jr., DO GA-PCOM
Mark A. DeMasi, DO Complete Care OB/GYN
Michelle F. DeVoe, DO Treasure Valley Pediatrics
Shawna R. Duncan, DO OSU-COM
Jason T. Eberl, PhD MU-COM
William J. Elliott, MD, PhD PNWU-COMP
Theodore B. Flium, DO  NYIT-COM
Thomas J. Fotopoulos, DO ICOM
Katherine Galluzzi, DO PCOM
John Gambino, MD, PhD Imaging Center of Idaho
Katharine M. Garnier, MD RowanSOM
Michael J. Geria, DO Inspira Health Network
Robert N. Gerstman, DO Geisinger Medical Center
Terrie B. Ginsberg, DO RowanSOM
Rebecca E. Giusti, DO WesternU/COMP
Bradley Gordan, DO Baystate Medical Center
ITEM WRITING

Lourdes G. Bahamonde, DO Gastroenterology Associates of Southern California

Janis Coffin, DO KCU-COM
William J. Elliott, MD, PhD PNWU-COM
James E. Foy, DO TUCOM-CA
Michael J. Geria, DO Inspira Health Network
Alan G. Glaros, PhD Consultant
Robert T. Hasty, DO ICOM
Weldon E. Havins, MD, JD TUCOM-CA
Kristine M. Healy, MPH, PA-C Northwestern University Feinberg School of Medicine

R. Andrew Kelso, PhD, MA WVSOM
Witold M. Migala, PhD, MPH UNTHCSC/TCOM
Ali Moradi, DrPH, MD, MPH GA-PCOM
Elizabeth M. Petsche, JD MSUCOM
Renay Scales, PhD UP-KYCOM
Kenneth W. Schor, DO, MPH VCOM-VC
Janice A. Schwartz, PhD MSUCOM
Mark R. Speicher, MHA, PhD AZCOM/MWU
H. Eduardo Velasco, MD, PhD, MSc TUCOM-CA

COMLEX-USA HEALTH PROMOTION DISEASE PREVENTION/HEALTH CARE DELIVERY

ITEM REVIEW

Michael A. Becker, DO, MS PCOM
William J. Elliott, MD, PhD PNWU-COM
James E. Foy, DO TUCOM-CA
Alan G. Glaros, PhD Consultant
Weldon E. Havins, MD, JD TUCOM

Yasmin Qureshi, DPT, MHS, MS NSU-COM
Alice Rupp, DO Premier Medical Associates, LLC
Deborah Schmidt, DO WVSOM
Kenneth W. Schor, DO, MPH VCOM-VC
Janice A. Schwartz, PhD MSUCOM
Jennifer Sepede, DO RowanSOM
Anita L. Showalter, DO PNWU-COM
Travis Smith, DO LECOM Bradenton
Karen T. Snider, DO ATSU-KCOM
Mark R. Speicher, PhD, MHA, AZCOM/MWU
Ava C. Stanczak, DO LMU-DCOM
Belinda A. Stillman, DO, MHSA Barber National Institute
Erika M. Sweet, DO Rutland Regional Med. Ctr.
Wayne G. Tamaska, DO Kennedy Health System
David L. Thomas, EdD, MD, JD NSU-COM
David L. Tolentino, DO CUSOM
H. Eduardo Velasco, MD, PhD, MSc TUCOM-CA
Meagan W. Vermeulen, MD RowanSOM
Jason E. Wells, PhD LECOM
A. Scott Winter, MD UNTHCSC/TCOM
Barbara Zajdel, DO BMS Integrated Health
Jenny Zamor, DO OU-HCOM

AN ASTERISK (*) DENOTES A COMMITTEE CHAIR. A GLOSSARY OF SCHOOL ACRONYMS CAN BE FOUND ON THE INSIDE BACK COVER.
ITEM REVIEW
David S. Abend, DO RowanSOM
Damian Bundschuh, DO Bundschuh Osteopathic PLLC
Jasmine R. Constanzo, DO, MS TouroCOM-Harlem
Lee Ann M. Cuny, DO, MA TUCOM-CA
Walter Ehrenfeuchter, DO GA-PCOM
Regina K. Fleming, DO GA-PCOM
Thomas J. Fotopoulos, DO ICOM
David B. Fuller, DO PCOM
Victor Nuño, DO TUCOM-CA
Mark E. Sandhouse, DO, MS NSU-COM

ITEM WRITING
Regina M. Asaro, DO Advantage Care Physicians
George Cheriyian, DO NYIT-COM
Jasmine R. Constanzo, DO, MS TouroCOM-Harlem
Lee Ann M. Cuny, DO, MA TUCOM-CA
Theodore B. Flaum, DO NYIT-COM
Regina K. Fleming, DO GA-PCOM
David G. Harden, DO VCOM-VC
Patricia S. Kooyman, DO NYIT-COM
Michael L. Kuchera, DO MU-COM
Kara C. Mintier, DO WesternU/COMP-NW
Lauren Noto-Bell, DO PCOM
Victor Nuño, DO TUCOM-CA
Kevin D. Treffier, DO KCU-COM
Bri anne L. Wehner Iadanza, DO Bri anne L. Wehner Iadanza, DO

ACRONYMS FOR COLLEGES OF OSTEOPATHIC MEDICINE
ACOM Alabama College of Osteopathic Medicine
ARCOM Arkansas College of Osteopathic Medicine
ATSU-KCOM A.T. Still University-Kirkville College of Osteopathic Medicine
ATSU-SOMA A.T. Still University-School of Osteopathic Medicine in Arizona
AZCOM/MWU Arizona College of Osteopathic Medicine of Midwestern University
BCOM Burrell College of Osteopathic Medicine
CCOM/MWU Chicago College of Osteopathic Medicine of Midwestern University
CUSOM Campbell University School of Osteopathic Medicine
DMU-COM Des Moines University College of Osteopathic Medicine
ICOM Idaho College of Osteopathic Medicine
GA-PCOM Georgia Campus-Philadelphia College of Osteopathic Medicine
KCU-COM Kansas City University of Medicine and Biosciences College of Osteopathic Medicine
LECOM Lake Erie College of Osteopathic Medicine
LECOM Bradenton Lake Erie College of Osteopathic Medicine—Bradenton Campus
LMU-DCOM Lincoln Memorial University-DeBusk College of Osteopathic Medicine
LUCOM Liberty University College of Osteopathic Medicine
MSUCOM Michigan State University College of Osteopathic Medicine
MU-COM Marian University College of Osteopathic Medicine
NSU-COM Nova Southeastern University College of Osteopathic Medicine
NYIT-COM New York College of Osteopathic Medicine of New York Institute of Technology
NYIT-COM Arkansas State New York College of Osteopathic Medicine of New York Institute of Technology – Arkansas State Campus
OSU-COM Oklahoma State University Center for Health Sciences College of Osteopathic Medicine
OU-HCOM Ohio University Heritage College of Osteopathic Medicine
PCOM Philadelphia College of Osteopathic Medicine
PNWU-COM Pacific Northwest University of Health Sciences College of Osteopathic Medicine
RowanSOM Rowan University School of Osteopathic Medicine
RVUCOM Rocky Vista University College of Osteopathic Medicine
TouroCOM-NY Touro College of Osteopathic Medicine—New York
TUCOM-CA Touro University College of Osteopathic Medicine—California
UNECOM University of New England College of Osteopathic Medicine
UIWSOM University of the Incarnate Word School of Osteopathic Medicine
UNTHSC/TCOM University of North Texas Health Science Center at Fort Worth Texas College of Osteopathic Medicine
UP-KYCOM University of Pikeville Kentucky College of Osteopathic Medicine
VCOM-Auburn Edward Via College of Osteopathic Medicine—Auburn Campus
VCOM-CC Edward Via College of Osteopathic Medicine—Carolinas Campus
VCOM-VC Edward Via College of Osteopathic Medicine—Virginia Campus
WCUCOM William Carey University College of Osteopathic Medicine
Western U/COMP Western University of Health Sciences/College of Osteopathic Medicine of the Pacific
WVSOM West Virginia School of Osteopathic Medicine

THE COMMITTEE LISTING IS BASED ON THE BEST AVAILABLE INFORMATION AT THE TIME OF PUBLICATION. WE APOLOGIZE FOR ANY OMISSIONS OR ERRORS.