NBOME

report
from the special commission on osteopathic medical licensure assessment

contents

2 Introduction

8 Recommendations from the Special Commission on Osteopathic Medical Licensure Assessment

9 **THEME 1**
Long-term solutions to assess clinical skills competencies for osteopathic medicine in the COMLEX-USA program: Class of 2024 and beyond

21 **THEME 2**
Diversity, Equity, and Inclusion (DEI)

24 **THEME 3**
Emerging competencies and new test content in COMLEX-USA

28 **THEME 4**
Technology and test delivery advances

NBOME Special Commission on Osteopathic Medical Licensure Assessment

INTRODUCTION

The importance of osteopathically distinctive assessment is a testament to the care and concern of the osteopathic medical profession for its learners, physicians, and patients. The NBOME continues to be committed to maintaining the excellence of the osteopathic medical profession through high-quality assessment and professional self-regulation.

The focus on COMLEX-USA includes input from stakeholders across the osteopathic medical profession to ensure its continued excellence for our patients. Given the unique circumstances presented by the pandemic, the NBOME took the opportunity to continue to evolve COMLEX-USA in a manner that meets the changing practice of osteopathic medicine and its physicians. Following a special session of the Board of Directors of the National Board of Osteopathic Medical Examiners, on February 11, 2021, the Board announced critical decisions related to the global pandemic and the COMLEX-USA examination program:

> *The COMLEX-USA Level 2-PE was postponed indefinitely.*
>
> *A Special Commission on Osteopathic Medical Licensure Assessment consisting of representatives from across the UME-GME-Licensure continuum, including student representatives, public members, and patient representatives, would be convened to conduct a full review of the COMLEX-USA program to ensure it continues to provide a defensible pathway to osteopathic medical practice and licensure.*

SPECIAL COMMISSION ON OSTEOPATHIC MEDICAL LICENSURE ASSESSMENT PREAMBLE

“The Commission” will be responsive to the needs, experiences, and input of learners and assure that osteopathically distinctive licensure assessment pathways, do not compromise:

- patient safety and high quality care through assessment of fundamental competencies integral to osteopathic medicine,
- the patient-centered approach to care, integral to patient expectations of DOs,
- the ability of DO students to graduate and efficiently progress into and complete residency training and,
- the ability of DOs to earn the privilege of licensure wherever they choose to practice.

The Commission is led by Richard J. LaBaere II, DO, MPH, as chair, with co-chairs David Kuo, DO and Brookshield Laurent, DO. Webpages were created for the Special Commission on the NBOME website. In conducting its work, the Commission solicited and considered input from all stakeholder groups, including students, educators, licensing authorities, professional organizations, and public members, and patient representatives.

THE COMMISSION'S WORK OCCURRED IN TWO PHASES

PHASE 1 addressed alternate pathways to provide verification for competencies currently assessed in the Level 2-PE for the classes of 2020 and 2021, as), solicitation of structured feedback from all stakeholder groups as described above, and planning and composition for the Commission's Phase 2 work.

Phase 1 Goals (February 22 - April 30, 2021)

1. Addressed NBOME's Clinical Skills Testing clinical skills assessment and COMLEX-USA Level 2-PE as it pertains to the graduating classes of 2020-2021.
2. Investigated options for assessment for licensure for the Class of 2022 and defensible pathways moving forward. (Note: Class of 2023 added December 2021).

PHASE 2 consisted of a comprehensive review of the COMLEX-USA examination program and with focus on long-term solutions to assess competencies for osteopathic medicine. New ways to evaluate fundamental competencies will be identified.

Phase 2 Goals (May 2021 - July 2022)

1. Align with current ongoing initiatives for COMLEX-USA related to innovations and delivery of assessments, and endeavor to assure that the COMLEX-USA program continues to evolve to protect the public and meet stakeholder needs as noted in the Commission preamble.
2. Include content evaluation to remain current with the rapidly evolving practice of osteopathic medicine (e.g., COVID-19, telemedicine competencies), and NBOME priority of assurance of attention to diversity, equity and inclusion throughout the program.

SPECIAL COMMISSION ON OSTEOPATHIC MEDICAL LICENSURE ASSESSMENT THEMES

The Special Commission, after 14 months of discussion and deliberations, made recommendations related to the following themes, included in this report:

1. Long-term solutions to assess clinical skills competencies for osteopathic medicine in the COMLEX-USA program: Class of 2024 and beyond
2. Ensuring diversity, equity, and inclusion in testing
3. Emerging competencies and new test content in COMLEX-USA
4. Technology and test delivery advances

SPECIAL COMMISSION ON OSTEOPATHIC MEDICAL LICENSURE ASSESSMENT: MEMBERSHIP

The Commission was structured to be representative of perspectives from across the UME-GME-Licensure continuum, including student representatives and public members/patient representatives.

COMMISSION REPRESENTATION [INVITED]	Accreditation Council on Graduate Medical Education (ACGME)	American Association of Colleges of Osteopathic Medicine (AACOM) Board of Deans
American Association of Osteopathic Examiners (AAOE) / licensure	American Osteopathic Association (AOA)	Assembly of Osteopathic Graduate Medical Educators (AOGME)
AOA-Bureau of Emerging Leaders (BEL) / Student Osteopathic Medical Association (SOMA) / student or resident	Commission on Osteopathic College Accreditation (COCA)	Council of Osteopathic Student Government Presidents (COSGP) / student
Educational Council on Osteopathic Principles (ECOP)	National Board of Osteopathic Medical Examiners (NBOME) Board of Directors & National Faculty	Organization of Program Director Associations (OPDA)

"We are very fortunate that those selected to serve on the Commission bring extraordinary wisdom, passion, and experience to this important task and extend our thanks to the medical education, accreditation, regulatory and practice communities for their strong support in assembling the Commission."

—Special Commission Chair, Richard J. LaBaere II, DO, MPH, FAODME

CHAIR

Richard J. LaBaere II, DO, MPH, FAODME

Associate Dean for Graduate Medical Education and Designated Institutional Official

A.T. Still University-Kirksville College of Osteopathic Medicine

Chair, NBOME Board of Directors

VICE-CHAIR
David Kuo, DO, FACOFP*
Associate Dean for Graduate Medical Education
ACGME Designated Institutional Official
Philadelphia College of Osteopathic Medicine
Board Member, NBOME

VICE-CHAIR
Brookshield Laurent, DO*
Chair and Associate Professor
Department of Clinical Medicine
NYIT – COM at Arkansas State University
Board Member, NBOME

OTHER MEMBERS APPOINTED TO THE SPECIAL COMMISSION

- Susan I. Belanger, PhD, MA, RN, NEA-BC (Patient/Public representative)
- Natasha N. Bray, DO, MSEd, FACOI, FACP (NBOME National Faculty, COM)*
- Alexios G. Carayannopoulos, DO, MPH, FAAPMR, FFSMB, FAAOE (AAOE)
- Jane E. Carreiro, DO (AACOM Board of Deans)
- Kristen J. Conrad-Schnetz, DO, FACOS, FACS (OPDA)
- David Forstein, DO (COCA)
- Gregory Harris, DO (AOA's Bureau of Emerging Leaders)
- Kurt P. Heinking, DO, FAAO (AACOM's ECOP)
- Joanne Kaiser Smith, DO, FACOI, FACP (AACOM's Assembly of Graduate Medical Educators)
- Brysen Keith, MS, Osteopathic Medical Student, Class of 2021 (AACOM's COSGP)
- Amir Khiabani, MHS, Osteopathic Medical Student, Class of 2022 (SOMA)
- Kevin M. Klauer, DO, EJD, FACEP, FACOEP (AOA)
- Janice A. Knebl, DO, MBA, MACOI, FACP (COCA)

- Sharon Obadia, DO, FNAOME (NBOME National Faculty, COM)*
- Barbara Walker, DO (Licensure/Practice)
- J. Michael Wieting, DO, MEd (AAOE)

Additional members named to the Commission for Phase 2:

- Dominic J. Gigliotti, Osteopathic Medical Student Class of 2023 (AACOM's COSGP)

**section editors for final report*

Consultant/guest contributors:

- Maureen Topps, MB ChB, FCFP, MBA, FRCPC (Hon)
  Exec. Director & CEO, Medical Council of Canada
- Alex Mechaber, MD FACP
  Asst. VP, Physician Licensure Programs, National Board of Medical Examiners
- Beau Braden, DO, MPH, MS, RDMS, FAAEM, FASAM
  Founder and CEO of BradenHealth Patient Safety Organization
- Blake J. Tobias, Jr.
  Administrative Fellow Tower Health Reading Hospital; Lead Incident Commander for the Reading Hospital COVID-19 taskforce; Board Chair of the Hospice and Palliative Nurses Foundation 501(c)(3)
- Maureen P. Barnes, ARM, CPHRM, CHC, CPPS
  Vice President, Risk Management & Patient Safety Cassatt RRG Holding Company
- Brian George, MD, MAEd
  Assistant Professor of Surgery; Director of the University of Michigan Department of Surgery's Center for Surgical Training and Research, Executive Director of SIMPL (Society for Improving Medical Professional Learning)
- Greg Wnuk
  Director of Operations, SIMPL Program Manager, Center for Surgical Training and Research, Michigan Medicine
- Soojin Jun, PharmD, BCGP, CPPS, CPHQ
  Ambassador & Co-chair of Health Literacy Patient Safety Movement Foundation
- Patricia Bake
  Pharmacist, national and world champion cyclist, Patient
- Marni Wilkoff, OMS-IV
  NYIT-COM | COSGP nominee to NBOME Student Experience Panel (SEP)
- Kaitlyn Thomas, OMS-IV
  LECOM-Seton Hill | SAAO nominee NBOME SEP
- William "Buddy" Naber II, OMS-IV
  OU-HCOM | At-large member NBOME SEP

Special thanks to COCA, who met regularly with the NBOME to provide input:

- Jed Brinton, JD, COCA secretary
- John Kauffman Jr., DO, current COCA chair
- Dave Forstein, DO, past COCA chair
- Janice Knebl, DO, COCA member
- Brian Kessler, DO, COCA member

Special thanks to AACOM, who met regularly with the NBOME to provide input:

- Robert Cain, DO, President and CEO
- Margaret Wilson, DO, Chair of the Board of Deans

NBOME staff:

- Jeanne M. Sandella, DO
- Jack Boulet, PhD
- Amy Lorion, MA
- John R. Gimpel, DO, MEd
- Dennis J. Dowling, DO, MA
- Melissa Turner, MS
- Marie Fleury, DO, MBA
- Mark Dawley, MBA
- Maya Johnson, MBA
- Gretta Gross, DO, MEd
- Alanna Witowski
- Joseph Schwartz
- Cara Glatfelter

Recommendations from the Special Commission on Osteopathic Medical Licensure Assessment

LONG-TERM SOLUTIONS TO ASSESS CLINICAL SKILLS COMPETENCIES FOR OSTEOPATHIC MEDICINE IN THE COMLEX-USA PROGRAM: CLASS OF 2024 AND BEYOND

01. Establish COM-based COMLEX-USA national standardized assessment which includes an in-person, hands-on evaluation of fundamental osteopathic clinical skills including interpersonal and communications skills and OMT, with quality assurance.

DIVERSITY, EQUITY, AND INCLUSION IN ASSESSMENT

02. Reflect diversity of skin tone within images and diversity of characteristics such as ethnicity, gender identity, and sexual orientation within patient descriptions.

03. Use person-centered language that is unbiased, non-discriminatory, and non-derogatory in examinations and publications.

04. Maintain examination item fairness.

05. Commit to a National Faculty that is broadly representative of population diversity and practicing DOs.

EMERGING COMPETENCIES AND NEW TEST CONTENT IN COMLEX-USA

06. Ensure the content and competencies assessed make the COMLEX-USA series align with the distinctive education and practice of osteopathic medicine.

07. Regular review of the COMLEX-USA series to ensure it continues to reflect current practice of osteopathic medicine.

08. Consider expansion of assessment content in the areas of public health, evidence based medicine, and social determinants of health in COMLEX-USA.

TECHNOLOGY AND TEST DELIVERY ADVANCES

09. Determine if new technology would expand or improve assessment of competencies required for the practice of osteopathic medicine.

10. Explore test delivery advances that may improve efficiency, convenience, or accuracy in testing without sacrificing security and rigor.

THEME 1

Long-term solutions to assess clinical skills competencies for osteopathic medicine in the COMLEX-USA program: Class of 2024 and beyond

RECOMMENDATION

01 **Establish COM-based COMLEX-USA national standardized assessment which includes an in-person, hands-on evaluation of fundamental osteopathic clinical skills including interpersonal and communications skills and OMT, with quality assurance.**

BACKGROUND

Phase 1:

TEMPORARY PATHWAYS FOR CLASSES OF 2020-2022

Position statements

On March 1, 2021, a request for position statements was sent to more than 250 organizations, including

- State medical boards
- State osteopathic associations
- Student groups
- AOA affiliate groups
- Patient advocacy organizations

The request asked them to address:

1. Which clinical skills remain important to assess for osteopathic physician licensure (in particular those which were previously assessed by the COMLEX-USA Level 2-PE).
2. Recommendations for assuring that graduates possess these skills in the absence of the Level 2-PE
3. Benefits and challenges of any recommendations

18 organizations responded. Their formal position statements are included as Appendix 1B.

The results are summarized here.

From the Licensing Boards (5):

- All 11 competencies are important
- Humanistic Domain is extremely important
- May not need a national standardized exam to assess these skills

- NBOME could partner with schools for standardized training of clinical skills education and assessment done at the COMs

From Educational Organizations (4):

- All 11 competencies are important
- Level 2-PE allowed for demonstration of osteopathic distinctiveness
- COMs may be able to assess these skills
- COM assessment raises concerns for conflict of interest, funding, staffing
- Concerns noted regarding travel, cost, and timing of the COMLEX-USA Level-2 PE as it was currently administered.

From Membership organizations (8):

- All 11 competencies are important
- National exam is ideal but challenging
- Consider options to allow testing at COMs

From Student organizations (1):

- Call for immediate discontinuation of a national standardized clinical skills exam
- Concerns include safety, travel, cost, redundancy of skills assessment, and having a different requirement than MD counterparts

In addition, an individual stakeholder survey was sent out on March 1, 2021 as a shareable link. It was sent directly to the NBOME Board of Directors, deans, NBOME National Faculty, COM liaisons, residency program directors, state medical and osteopathic board representatives, state osteopathic medical association representatives, media contacts, and students and residents registered in NBOME portal. It was also shared on social media. Results are located in Appendix 2C.

As a result of these surveys regarding clinical skills testing, the Special Commission drew three conclusions:

1. The assessment of osteopathic clinical skills (including communication and interpersonal skills and the performance of osteopathic manipulative medicine) is important to the practice of osteopathic medicine.
2. The colleges of osteopathic medicine (COMs) can play a role in this assessment.
3. It is important to have a standard to which each individual is held for the purposes of licensure.

PATHWAYS FOR THE CLASSES OF 2020-2023

The Commission started Phase 1 of the process in March 2021 with the goals of addressing alternate pathways to Level 3 eligibility for the Classes of 2020, 2021, and 2022, given the COVID-19 pandemic contributing to the indefinite suspension of the Level 2-PE and the need to provide documentation of competency of these skills. On March 11, 2021, pathways to Level 3 eligibility were announced by the NBOME Board of Directors for the Class of 2020 and 2021 as endorsed by the Commission. These pathways were published as follows:

I For the Class of 2020 and 2021 who have taken and passed Level 2-PE:

a) Passing both COMLEX-USA Level 2-CE and Level 2-PE
b) Attestation by COM dean that the candidate has graduated from an accredited college of osteopathic medicine (COM) with a DO degree
c) Attestation by the Residency Program Director of an ACGME accredited program that the candidate is in good academic and professional standing

d) 6 months of GME completion prior to taking COMLEX-USA Level 3 (Recommendation ONLY)

II For the Class of 2021 who have not taken Level 2-PE

a) Passing COMLEX-USA Level 2-CE
b) Attestation by COM Dean that the candidate has graduated from an accredited college of osteopathic medicine (COM) with a DO degree and has demonstrated the fundamental osteopathic clinical skills necessary for graduation
c) Attestation by the Residency Program Director of an ACGME accredited program that the candidate is in good academic and professional standing
d) 6 months of GME completion prior to taking COMLEX-USA Level 3 (Recommendation ONLY)

III For the Class of 2020 and 2021 who have unsuccessfully attempted Level 2-PE

a) Passing COMLEX-USA Level 2-CE
b) Attestation by COM Dean that the candidate has graduated from an accredited college of osteopathic medicine (COM) with a DO degree and has demonstrated the fundamental osteopathic clinical skills necessary for graduation
c) Attestation by the Residency Program Director of an ACGME accredited program that the candidate is in good academic and professional standing
d) 6 months of GME completion prior to taking COMLEX-USA Level 3 (Required)

Three options were debated related to the classes of 2022 and beyond, including an enhanced attestation option, a virtual performance evaluation, and an evaluation of osteopathic medical school programs. Following the June 2021 Medical Council of Canada virtual examination challenges, and also given the limitations on what could be assessed with that format, the Special Commission did not pursue further deliberation of the virtual option. The recommendation for evaluation of medical school programs was forwarded on to the American Osteopathic Association's Commission on Osteopathic College Accreditation (AOA COCA) during task force discussions.

With endorsement by the Special Commission and approval by the NBOME Board, on April 29, 2021, requirements for eligibility for COMLEX-USA Level 3 for the graduating DO Class of 2022 were announced as an enhanced attestation. This pathway was extended to the Class of 2023 in December 2021.

I For the Class of 2022-2023, candidates may earn eligibility for COMLEX-USA Level 3 through an enhanced attestation of fundamental osteopathic clinical skills by their Deans:

a) Passing COMLEX-USA Level 2-CE
b) Enhanced Attestation by COM Dean that the candidate has graduated from an accredited college of osteopathic medicine (COM) with a DO degree and has demonstrated the fundamental osteopathic clinical skills necessary for graduation
c) Attestation by the Residency Program Director of an ACGME accredited program that the candidate is in good academic and professional standing
d) 6 months of GME completion prior to taking COMLEX-USA Level 3 (Recommendation ONLY)

The enhanced attestation included, for participating COMs, the completion of the Evidence of Clinical Skills Activities Inventory (ECSA).

PHASE 2

ECSA INVENTORY

The creation of an Enhanced Attestation Pathway for the Class of 2022 included the development of the Evidence of Clinical Skills Activities Inventory (ECSA Inventory). A task force was charged with defining evidence for enhanced attestation:

David Kuo, DO
Dennis Dowling, DO
Kurt Heinking, DO
Michael Wieting, DO
Natasha Bray, DO
Sharon Obadia, DO

The completion of the inventory would allow the Special Commission to:

1. Learn about the current activities conducted at the COMs in each clinical skill formerly assessed by the COMLEX-USA Level 2-PE.
2. Share information about the state of the state in clinical skills activities in osteopathic medical education.
3. Help guide the profession in developing a standard for assessment of these clinical skills in the absence of a national clinical skills examination.
4. Identify how best to support COMs and licensure bodies.

The ECSA inventory is included as Appendix 3 and was created in Survey Monkey.

The COMs were introduced to and supported in completing the inventory:

- NBOME BOD Chair Geraldine O'Shea, DO, and staff member Jeanne Sandella, DO, attended the June AACOM Board of Deans meeting to answer questions about the inventory.
- The Deans were invited to a webinar on July 20, 2021 to introduce the inventory and answer additional questions.
- Following the release of the inventory, three webinars were conducted to support COMs as they completed it (August 10, August 31, and September 20, 2021).
- The original due date of September 30, 2021 was extended to allow for additional COMs to complete their inventories.

30/35 eligible COMs (main campus sites) completed the inventory; one additional main campus COM undertook the inventory after analysis was completed.

The final report on the ECSA inventory can be found as Appendix 3B.

LISTENING TO OUR STAKEHOLDERS

In addition to the call for position statements and individual stakeholder surveys described above, and the support during the completion of the ECSA inventory, the Special Commission also solicited additional testimony from external groups.

Maureen Topps MB ChB, FCFP, MBA, FRCPC (Hon), Executive Director & CEO of the Medical Council of Canada (MCC) presented on MCC's experience administering a virtual examination of clinical skills in the

Spring of 2021. The MCC found that virtual assessment of clinical skills was not scalable. Like the NBOME, the MCC firmly believes that independent assessment is critical. They continue to run their National Assessment Collaboration (NAC) Objective Structured Clinical Examination (OSCE), modified to include touchless physical examination (PE), for international medical graduates.

Alex Mechaber, MD FACP, Assistant VP, Physician Licensure Programs, National Board of Medical Examiners also presented to the Special Commission in July 2021. The NBME is exploring ways to evaluate clinical skills competencies (particularly communication & clinical reasoning skills), through schools or in other examinations in their licensure series.

In August and September, we heard from public members including an executive director of a patient safety organization, a hospital administrator, a risk management professional, a patient safety ambassador, the executive director of the Society for Improving Medical Professional Learning (SIMPL), and a patient. These individuals all spoke strongly in support of the importance of communication and relationship building for physician competency assessment. They supported the work of the Special Commission, noting that this work is meaningful in the care of patients.

We also heard from three students from the NBOME student experience panel on issues that are important to osteopathic medical students. The students spoke about clinical skills assessment, technology in assessment, and diversity, equity, and inclusion in assessment. Takeaways from their experiences with the Special Commission include:

- "I felt like before attending the Special Commission meeting and hearing this public testimony I was seeing our issues in a vacuum. Hearing public opinion is an opportunity to rethink our training."
- "Attending the Special Commission opened my eyes a lot. It was very positive to see what is going on in the outside world."
- "I see how important these things like clinical skills assessment are to others, and what hospitals think. We need a middle ground."

WORKING WITH THE OSTEOPATHIC COMMUNITY

Members of the Special Commission, NBOME staff, and AOA-COCA met multiple times as a task force in the summer/fall 2021 and into 2022 to discuss assessment issues pertaining to licensure/accreditation, including the profession's dedication to clinical skills assessment in some form. They also related feedback from the commissioners regarding the evaluation of clinical skills programs at the colleges of osteopathic medicine. These meetings were attended by AOA Vice President of Accreditation and COCA secretary Jed Brinton, JD; John Kauffman Jr., DO, current COCA chair; past chair Dave Forstein, DO; and COCA members Janice Knebl, DO; and Brian Kessler, DO. NBOME BOD members Geraldine O'Shea, DO, Richard J. LaBaere II, DO, MPH, (Special Commission Chair), and Brookshield Laurent, DO (Special Commission Co-vice chair) participated. The COCA commissioners were supportive of the Special Commission's work, including the fact-finding inventory.

The NBOME and COCA were also invited to the AACOM Board of Deans meeting on October 21, 2021, where Dr. LaBaere gave a brief presentation and answered questions from the Deans.

FINAL REVIEW AND DEVELOPMENT OF RECOMMENDATION

During the two-day meeting of the Special Commission in February, 2022, all of the evidence gathered in the past year was reviewed and deliberated by the commissioners. First, they completed a pre-meeting questionnaire to gauge support for various models going forward, ranging in scope from a continued attestation-only

model to reinstating a national clinical skills examination at limited sites (COMLEX-USA Level 2-PE model).

As the debates continued, it was clear that the answer lay somewhere in between the above mentioned extremes: the concept of just an attestation for these skills was determined to be insufficient for the intended purpose; the reinstatement of the COMLEX-USA Level 2-PE as previously delivered was perceived to be too burdensome for students and no longer necessary, particularly given the opportunities identified at COMs since the PE was first instituted in the early 2000s. So the question became: How can we have an assessment at the COMs that provides a reasonably equivalent evaluation of these fundamental osteopathic clinical skills (similar to what the PE provided) for every DO student?

The Special Commission discussed several models, but they deemed many to be inadequate for the stated purpose (e.g. replacement of the COMLEX-USA Level 2 PE). For instance, while a video communication assessment would be a plausible solution to include the evaluation of communication, especially with the increased use of telemedicine and virtual medicine, it was felt to be insufficient to address the subtleties of in-person communication and interpersonal skills, and would also not address other skills assessed with the PE such as physical and structural examination and performance of OMT.

Considerations identified included the importance of assessment of communication and interpersonal skills, inclusion of hands-on competencies, and the approach to remediation with follow up.

We learned from the inventory that most COMs have a comprehensive capstone exam in 3rd or 4th year. While the content, scoring, and remediation may differ and were not addressed fully in the inventory, COMs are currently assessing these skills, and could continue to have a role. So this option would not necessarily add additional structure, but would continue to move the profession forward with standardizing what already exists.

The final discussion focused around how to ensure that any DO student at any COM could complete an assessment at a COM that would result in a standardized measure of osteopathic clinical skills, such that one could assume they have achieved competency to a national standard.

The Special Commission recommends measuring the skills required for the practice of osteopathic medicine to demonstrate that competency is achieved, and to ensure that the public is being protected (the purpose of licensure assessment). There are distinctive differences in our profession related to osteopathic principles and practice; these are the skills/attitudes that patients look for when they seek care from DOs. Assessment of these competencies is not a new concept for our profession. This recommendation will result in a process that ensures that everyone in the profession is on the same level while providing an updated model from the national administration used from 2004-2020. This also addresses concerns about travel to limited centers for a nationally administered examination.

CONSIDERATIONS

Finally, the Special Commission discussed considerations that should be studied through the next phase:

- Faculty development
- Use of standardized content with some flexibility at a COM level
- Common scoring rubrics and/or national standardization of raters/rater training
- Standardization of remediation for these skills
- Considering using developmental milestones

The commissioners also recommended careful consideration of how achievement is reported, including whether competency may be reported only on successful completion of the assessment.

COMMENTARY

640 respondents submitted 2,779 comments regarding recommendation one. 96% of the respondents and 97% of the comments were from students or residents. Some of these student/resident responses were "form replies" that had been shared via various social media channels and submitted.

The top themes of student/resident feedback included reference to the burden on students (n – 469), the redundancy of assessing skills already assessed at colleges of osteopathic medicine (n – 407), and MD students not having a clinical skills requirement (N – 402). 447 of the students/residents commented that the Special Commission's recommendation meant a return of the COMLEX-USA Level 2-PE examination, while 264 commented that the competency of DOs who graduated either before 2004 or since 2020 proves that national clinical skills examinations are unnecessary.

The remaining 28 respondents to this recommendation were UME and GME faculty, DO and MD physicians in practice, and members of the public. Many of these respondents supported the recommendation. A few respondents cautioned against burdening students and against bringing back the COMLEX-USA Level 2 PE, while others commented on ways of operationalizing the recommendation.

Illustrative comments include:

- "…the high degree of variability within each COM's infrastructure and the high level of annual COM employee turnover creates challenges to consistency within the testing process. I recommend that NBOME be delegated the task of oversight to the extent required to create a reliable and defensible exam that is consistent across administrations." —*DO in practice, UME faculty*
- "I don't want to be looked at as inferior to an MD. Reinstating PE without MDs also doing the same will make every DO student feel exactly that. Inferior. Myself and many of my peers already have imposter syndrome before even getting to clinicals." —*Student*
- "The addition of a PE portion of the COMLEX level 2 places an unnecessary burden on osteopathic medical students. We already face a larger workload than our MD counterparts as it seems necessary to take both COMLEX USA and USMLE in order to have the best opportunity to match into residency." —*Student*
- "I strongly believe in the importance of clinical skill and demonstration of such skill as a function of licensure in any medical or professional field. 'Book learning' is important, even vital; however, demonstration of book learning alone is not sufficient for the demonstration of skills which are necessary for competent professional practice." —*Public member*

Of the student organizations that submitted feedback (n – 5), all referred to MD students not having the requirement, and all referenced logistical and financial burdens. Most also referred to curricular requirements at the COMs. One group, which requested to remain anonymous, noted that "establishment of any national standardized examination to assess clinical skills is not crucial or necessary." Another group, however, cautioned about delegating too much of the assessment to the COMs: "Having individual COM PE exams allows for extreme difference in grading of the exams."

The American Association of Colleges of Osteopathic Medicine submitted a lengthy reflection on the recommendation, considering its implications from a variety of perspectives. This is included as Appendix 4.

The COCA declined to offer commentary, and the AOA offered commentary in support of this recommendation with considerations. The ACOFP was not supportive of recommendation 1, citing comments from nationally-elected student and resident leaders.

In reviewing the public commentary, members of the commission remained supportive of the recommendation. Student and resident commissioners stated that in their presentations to various student groups, they were able to give students more detailed information and gain support for this recommendation, with the request from students that implementation be done in a "student-centered manner." Some individual commissioners offered the following commentary:

- *There was not enough detail in this recommendation for our organization to make a thoughtful response accordingly.*
- *Our organization supports the assessment of clinical skills and OMT.*
- *Short term pressures regarding assessment of clinical skills put the distinctive nature of our profession at risk if not managed appropriately.*
- *Program directors' lack of understanding about COMLEX is the larger issue.*
- *We must assess clinical skills in a meaningful way, patient care outcomes depend on it.*

The commissioners generally supported the notion that, as osteopathic physicians, it is appropriate that we expect more from our professional members; therefore, it is not necessary for us to "be the same as" MDs with respect to our licensing examination requirements. Our larger mission is what is in the best interest of patients, and aligning our assessments to the distinctive practice of osteopathic medicine. Short-term pressures on our students to succeed should not result in decisions that may have long-term consequences with respect to patient care.

Points of potential consequence from the discussion for the NBOME Board of Directors include:

1. DOs have distinctive education and practice, and our examination series should reflect this as an integral part of our self-regulation
2. consider timing for implementation of change
3. be sensitive to burdens (logistical and financial) on students and colleges of osteopathic medicine
4. be inclusive and transparent in the development process

RESOURCES

1. Katsufrakis PJ, Chaudhry HJ. Evolution of Clinical Skills Assessment in the USMLE: Looking to the Future After Step 2 CS Discontinuation. Acad Med. 2021 Sep 1;96(9):1236-1238. doi: 10.1097/ACM.0000000000004214. PMID: 34166234.
2. McConville JF and Woodriff JN. A shared evaluation platform for medical training. NEJM. 2021 Feb 11. 384; 6: 491-493. DOI: 10.1056/NEJMp2031317. Accessed February 6, 2021.
3. Chi J Hosamani P Verghese A Elder A. "Don't Clinical Skills Matter? We need a new Step 2 Exam Now!" Medscape March 04, 2021.
4. Gimpel J, Horber D, Sandella J, Knebl J, & Thornburg J . Evidence-Based Redesign of the COMLEX-USA Licensure Examination Program. J Am Osteopath Assoc. 2017; 117(4): 253- 261. doi: 10.7556/jaoa.2017.043.
5. Roberts, WL, Boulet JR, Sandella JM. Comparison Study of Judged Clinical Skills Competence from Standard Setting Ratings Generated Under Different Administration Conditions. Accepted for Publication in Advances in Health Science Education. Adv Health Sci Educ Theory Pract. 2017 Feb 21. doi: 10.1007/s10459-017-9766-1.

6. Smith LL, Xu W, Sandella JM, Dowling D. Osteopathic Manipulative Technique scores on the COMLEX-USA Level 2-PE Examination: An Analysis of the Skills Assessed. J Am Osteopath Assoc. 2016 Jun 1;116(6):392-7. doi: 10.7556/jaoa.2016.080.
7. Sandella JM, Peters A, Smith LL, Gimpel JR. Preparation strategies of osteopathic medical students for the COMLEX-USA Level 2-PE. J Am Osteopath Assoc. 2016;116(4):234-242. doi:10.7556/jaoa.2016.048.
8. Sandella JM, Smith LA, Gallagher LA, Langenau EE. Patterns of misrepresentation of clinical findings on patient notes during the COMLEX-USA Level 2-PE. The Journal of the American Osteopathic Association 2014;114:22-9.
9. Sandella JM, Smith LA, Dowling DJ. Consistency of interrater scoring of student performances of osteopathic manipulative treatment on COMLEX-USA Level 2-PE. The Journal of the American Osteopathic Association 2014;114:253-8.
10. Helstrom JM, Langenau EE, Sandella JM, Mote BL. Keyboard data entry use among osteopathic medical students and residents. The Journal of the American Osteopathic Association 2014;114:274-82.
11. Norcini JJ, Boulet JR, Opalek A, Dauphinee WD. The Relationship between licensing examination performance and the outcomes of care by international medical school graduates. Academic medicine: Journal of the Association of American Medical Colleges. 2014;89(8):1157–1162. doi:10.1097/acm.0000000000000310.10.
12. Zhang X, Roberts WL. Investigation of standardized patient ratings of humanistic competence on a medical licensure examination using Many-Facet Rasch Measurement and generalizability theory. Advances in health sciences education : theory and practice 2013;18:929-44.
13. Langenau E, Sandella J, Gimpel JR. Fairness to students top priority. Family medicine 2012;44:53-4; author reply 4.
14. Langenau EE, Dowling DJ, Dyer C, Roberts WL. Frequency of specific osteopathic manipulative treatment modalities used by candidates while taking COMLEX-USA Level 2-PE. The Journal of the American Osteopathic Association 2012;112:509-13.
15. Langenau EE, Zhang X, Roberts WL, DeChamplain AF, Boulet JR. Clinical skills assessment of procedural and advanced communication skills: performance expectations of residency program directors. Medical education online 2012;17.
16. Langenau EE, Pugliano G, Roberts WL. Relationships between high-stakes clinical skills exam scores and program director global competency ratings of first-year pediatric residents. Medical education online 2011;16:7362.
17. Sandella JM, Boulet JR, Langenau EE. An evaluation of cost and appropriateness of care as recommended by candidates on a national clinical skills examination. Teaching and learning in medicine 2012;24:303-8.
18. Roberts WL, Solomon M, Langenau E. An investigation of construct validity of humanistic clinical skills on a medical licensure examination. Patient education and counseling 2011;82:214-21.
19. Langenau EE, Dyer C, Roberts WL, De Champlain AF, Montrey DP, Sandella JM. Relationship between standardized patient checklist item accuracy and performing arts experience. Simulation in healthcare : journal of the Society for Simulation in Healthcare 2011;6:150-4.

20. Langenau EE, Sandella JM. Pass/fail patterns of candidates who failed COMLEX-USA level 2-PE because of misrepresentation of clinical findings on postencounter notes. The Journal of the American Osteopathic Association 2011;111:432-6.

21. Roberts WL, Pugliano G, Langenau E, Boulet JR. Modeling relationships between traditional preadmission measures and clinical skills performance on a medical licensure examination. Advances in health sciences education : theory and practice 2011.

22. Sandella JM, Roberts WL, Langenau EE. Relationship between encounter time and candidate performance on COMLEX-USA Level 2-PE. The Journal of the American Osteopathic Association 2011;111:38-43.

23. Langenau EE, Dyer C, Roberts WL, Wilson C, Gimpel J. Five-year summary of COMLEX-USA level 2-PE examinee performance and survey data. The Journal of the American Osteopathic Association 2010;110:114-25.

24. Roberts WL, McKinley DW, Boulet JR. Effect of first-encounter pretest on pass/fail rates of a clinical skills medical licensure examination. Advances in health sciences education : theory and practice 2010;15:219-27.

25. Weidner AC, Gimpel JR, Boulet JR, Solomon M. Using standardized patients to assess the communication skills of graduating physicians for the comprehensive osteopathic medical licensing examination (COMLEX) level 2-performance evaluation (level 2-PE). Teaching and learning in medicine 2010;22:8-15.

26. Boulet JR, Smee SM, Dillon GF, Gimpel JR. The use of standardized patient assessments for certification and licensure decisions. Simulation in healthcare : Journal of the Society for Simulation in Healthcare 2009;4:35-42.

27. Sandella JM, Roberts WL, Gallagher LA, Gimpel JR, Langenau EE, Boulet JR. Patient note fabrication and consequences of unprofessional behavior in a high-stakes clinical skills licensing examination. Academic medicine : journal of the Association of American Medical Colleges 2009;84:S70-3.

28. Boulet JR, van Zanten M, de Champlain A, Hawkins RE, Peitzman SJ. Checklist content on a standardized patient assessment: an ex post facto review. Advances in Health Sciences education: Theory and Practice. 2008;13:59-69. doi:10.1007/s10459-006-9024-4.

29. Gimpel JR, Weidner AC, Boulet JR, Wilson C, Errichetti AM. Standardized patients and mechanical simulators in teaching and assessment at colleges of osteopathic medicine. The Journal of the American Osteopathic Association 2007;107:557-61.

30. Cope MK, Baker HH, Foster RW, Boisvert CS. Relationships between clinical rotation subscores, COMLEX-USA examination results, and school-based performance measures. The Journal of the American Osteopathic Association. 2007;107:502-510.

31. van Zanten M, Boulet JR, McKinley DW, DeChamplain A, Jobe AC. Assessing the communication and interpersonal skills of graduates of international medical schools as part of the United States Medical Licensing Exam (USMLE) Step 2 Clinical Skills (CS) Exam. Academic medicine: Journal of the Association of American Medical Colleges. 2007;82:S65-S68. doi:10.1097/acm.0b013e318141f40a.

32. van Zanten M, Boulet JR, McKinley D. Using standardized patients to assess the interpersonal skills of physicians: six years' experience with a high-stakes certification examination. Health Communication. 2007;22:195-205. 1080/10410230701626562.

33. Tamblyn R, Abrahamowicz M, Dauphinee D, et al. Physician scores on a national clinical skills examination as predictors of complaints to medical regulatory authorities. The Journal of the American Medical Association. 2007;298:993-1001. doi:10.1001/jama.298.9.993.

34. Gimpel JR, Boulet JR, Weidner AC. Survey on the clinical skills of osteopathic medical students. The Journal of the American Osteopathic Association 2006;106:296-301.

35. McKinley DW, Boulet JR, Swanson DB, Swygert K, Scott C. Effects of case characteristics on encounter time in a high-stakes standardized patient examination. Academic Medicine: Journal of the Association of American Medical Colleges. 2006;81:S61-4. doi:10.1023/b:ahse.0000012214.40340.03.

36. Baker HH, Cope MK, Adelman MD, Schuler S, Foster RW, Gimpel JR. Relationships between scores on the COMLEX-USA Level 2-Performance Evaluation and selected school-based performance measures. The Journal of the American Osteopathic Association. 2006; 106:290-295.

37. McKinley DW, Boulet JR. Using factor analysis to evaluate checklist items. Academic medicine: Journal of the Association of American Medical Colleges. 2005;80: S102–S105. doi:10.1097/00001888-200510001-00027.

38. De Champlain AF, Schoeneberger J, Boulet JR. Assessing the impact of examinee and standardized patient ethnicity on test scores in a large-scale clinical skills examination: gathering evidence for the consequential aspect of validity. Academic Medicine: Journal of the Association of American Medical Colleges. 2004;79:S12-S14. doi:10.1097/00001888-200410001-00004.

39. Boulet JR, Rebbecchi TA, Denton EC, McKinley DW, Whelan GP. Assessing the written communication skills of medical school graduates. Advances in Health Sciences Education: Theory and Practice. 2004;9:47-60. doi:10.1023/b:ahse.0000012216.39378.15.

40. Boulet JR, Gimpel JR, Dowling DJ, Finley M. Assessing the ability of medical students to perform osteopathic manipulative treatment techniques. The Journal of the American Osteopathic Association 2004;104:203-11.

41. McKinley DW, Boulet JR. Detecting score drift in a high-stakes performance-based assessment. Advances in Health Sciences Education: Theory and Practice. 2004;9:29-38. doi:10.1023/b:ahse.0000012214.40340.03.

42. van Zanten M, Boulet JR, McKinley DW. The influence of ethnicity on patient satisfaction in a standardized patient assessment. Academic Medicine: Journal of the Association of American Medical Colleges. 2004;79:S15-S17. doi:10.1097/00001888-200410001-00005.

43. Gimpel JR, Boulet DO, Errichetti AM. Evaluating the clinical skills of osteopathic medical students. The Journal of the American Osteopathic Association 2003;103:267-79.

44. Boulet JR, Gimpel JR, Errichetti AM, Meoli FG. Using National Medical Care Survey data to validate examination content on a performance-based clinical skills assessment for osteopathic physicians. The Journal of the American Osteopathic Association 2003;103:225-31.

45. Heine N, Garman K, Wallace P, Bartos R, Richards A. An analysis of standardised patient checklist errors and their effect on student scores. Medical Education. 2003;37:99-104. doi:10.1046/j.1365-2923.2003.01416.x.

46. Errichetti AM, Gimpel JR, Boulet JR. State of the art in standardized patient programs: a survey of osteopathic medical schools. The Journal of the American Osteopathic Association 2002;102:627-31.

47. Ayers WR, Boulet JR. Establishing the validity of test score inferences: performance of 4th-year U.S. medical students on the ECFMG Clinical Skills Assessment. Teaching and Learning in Medicine. 2001;13:214-220. doi:10.1207/s15328015tlm1304_01.

48. Chambers KA, Boulet JR, Gary NE. The management of patient encounter time in a high-stakes assessment using standardized patients. Medical Education. 2000;34:813-817. doi:10.1046/j.1365-2923.2000.00752.x.

49. Gorter S, Rethans JJ, Scherpbier A, et al. Developing case-specific checklists for standardized-patient-based assessments in internal medicine: A review of the literature. Academic medicine: Journal of the Association of American Medical Colleges. 2000;75:1130-1137. doi:10.1097/00001888-200011000-00022.

THEME 2

Diversity, Equity, and Inclusion (DEI)

RECOMMENDATION

02 **Reflect diversity of skin tone within images and diversity of characteristics such as ethnicity, gender identity, and sexual orientation within patient descriptions.**

03 **Use person-centered language that is unbiased, non-discriminatory, and non-derogatory in examinations and publications.**

04 **Maintain examination item fairness.**

05 **Commit to a National Faculty that is broadly representative of population diversity and practicing DOs.**

BACKGROUND

NBOME staff reviewed NBOME examination programs in various areas related to diversity, equity, and inclusion in testing to identify potential bias in registration/administration (e.g., inclusive language), content (e.g., image review and non-biased questions), and scoring of assessments (e.g., fairness). NBOME staff shared their findings with the Special Commission and asked Commissioners to indicate their level of support with proposed initiative as well as to provide insight into the potential impact or other considerations.

The Commissioners support all DEI initiatives discussed and applaud steps the NBOME is taking in this area. The Special Commission's recommendations in this section reflect the DEI areas that the Commissioners hold to be the most vital at this time.

RECOMMENDATION: Reflect diversity of skin tone within images and diversity of characteristics such as ethnicity, gender identity, and sexual orientation within patient descriptions. The Commissioners recommend that depictions of patients within the COMLEX series be reviewed to ensure diversity and unbiased representation. This includes images in any and all media used within the examinations as well as written descriptions of patients. In addition to ensuring diversity in representation, they also recommend analyzing the content associated with these depicted patients, and protecting against implied bias through association with stereotyped patient presentation.

RECOMMENDATION: Use person-centered language that is unbiased, non-discriminatory, and non-derogatory in examinations and publications. The Special Commission recommends not only that the NBOME ensure inclusive language that is free of stereotypes or bias in test content, but that, moreover, the NBOME use language that is person-centered, such as "a woman with diabetes" rather than "a diabetic woman." The Commissioners hold that such an approach, by not allowing a diagnosis or other circumstance to be the patients defining characteristic, reflects osteopathic philosophy, putting the patient first and looking

at the whole person. Incorporating this approach throughout NBOME examinations will contribute to osteopathic distinctiveness.

RECOMMENDATION: Maintain examination item fairness. The Commissioners recommend that the NBOME continue to ensure item fairness through psychometric analysis, regularly undertaking differential analyses based on student demographics. They also recommend that the NBOME pair this with review of examination items to make sure that, not only do they not discriminate through student performance, but that they also do not discriminate by use of flawed race-based formulas. The Commissioners hold that this can be accomplished by ensuring that all items are evidence-based and by reviewing items as new evidence sheds light on previously-accepted formulas (e.g., GFR, PFT).

RECOMMENDATION: Commit to a National Faculty that is broadly representative of population diversity and practicing DOs. The Commissioners recognize that members of the National Faculty cannot be compelled to provide demographic information, but recommend that the NBOME update the demographic questionnaire to provide more inclusive options and customization as well as to expand the categories, including gender expression and sexual orientation. The Commissioners believe that a wide range of diversity demonstrates NBOME commitment to representation and DEI. The Commissioners recommend updating NBOME records by asking all National Faculty to complete the updated questionnaire, and that the NBOME use this information to determine populations to target for recruitment of new National Faculty.

CONSIDERATIONS

The Special Commission identified elements for the NBOME to consider when undertaking these recommendations.

- Communication will be key to acceptance of these measures and to their success. For instance, the NBOME will need to be transparent to students and National Faculty in why demographic information is being collected and the uses to which it will be put. Without such transparency and outreach, there could be a higher degree of resistance to requests for information, and the goals for its collection will be hampered with a high percentage of non-responses.
- When collecting demographic information, lists of underrepresented groups need to be written in a way that is in line with federal law.
- There needs to be a timeline for accountability.

COMMENTARY

39 respondents submitted 48 comments regarding the DEI recommendations. Most of these were supportive of the recommendations, with some noting that they will be meaningful in assessment and others providing suggestions for operationalization. There were a few comments about the need to be aligned with COM curriculum, and about supporting underrepresented students. Some respondents noted a need to be careful how these recommendations are operationalized so as not to be seen as a “Politically Correct move” or impact the quality of examinations.

Illustrative comments include:

- “I applaud these recommendations and the positive impact they will likely have on DO students' interactions with their patients. Doctors should learn to treat every patient to the best of their ability,

especially ones who are different from them. DOs can be at the forefront of these efforts for growth and change." Public member

- "The diversity and inclusion of faculty and student body is essential for ensuring best practices reach the patients from all background(s)." Student
- "Diversity should be a paramount concern and be reflected throughout all elements of the assessment including the faculty." DO in practice

Of the organizations that submitted feedback, the AOA and the COMs were supportive of the recommendations while the AAOE added a note emphasizing the importance of ensuring "that the perspectives of all DOs are accounted for." One student organization noted that the NBOME should reference students with disabilities in the recommendations, while the other student group stated that having DO students take a clinical skills exam is discriminatory: "Additional exams….goes against the commitment to diversity, equity and inclusion."

The commission reviewed this feedback and concluded that these recommendations are consistent with our healing and holistic profession, stressing that educational efforts are also geared toward these goals.

RESOURCES

1. Caruso Brown AE, Hobart TR, Botash AS, Germain LJ. Can a checklist ameliorate implicit bias in medical education?. Med Educ. 2019;53(5):510. doi:10.1111/medu.13840
2. Caruso Brown, A., 2022. The Upstate Bias Checklist: A Checklist for Assessing Bias in Health Professions Education Content. [online] Redcap.upstate.edu. Available at: <https://redcap.upstate.edu/surveys/?s=KADLRXK8WE> [Accessed 25 May 2021].
3. Diaz T, Navarro JR, Chen EH. An Institutional Approach to Fostering Inclusion and Addressing Racial Bias: Implications for Diversity in Academic Medicine. Teach Learn Med. 2020;32(1):110-116. doi:10.1080/10401334.2019.1670665
4. Fenton A, Elliott E, Shahbandi A, et al. Medical students' ability to diagnose common dermatologic conditions in skin of color. J Am Acad Dermatol. 2020;83(3):957-958. doi:10.1016/j.jaad.2019.12.078
5. Ijoma JN, Sahn M, Mack KN, et al. Visions by WIMIN: BIPOC Representation Matters [published online ahead of print, 2021 Oct 15]. Mol Imaging Biol. 2021;1-6. doi:10.1007/s11307-021-01663-4
6. Krishnan A, Rabinowitz M, Ziminsky A, Scott SM, Chretien KC. Addressing Race, Culture, and Structural Inequality in Medical Education: A Guide for Revising Teaching Cases. Acad Med. 2019;94(4):550-555. doi:10.1097/ACM.0000000000002589
7. Krishnan A, Rabinowitz M, Ziminsky A, Scott SM, Chretien KC., 2019. Supplemental Digital Appendix 1 Race and Culture Guide for Editors of Teaching Cases. Available at: <https://cdn-links.lww.com/permalink/acadmed/a/acadmed_2019_02_27_chretien_acadmed-d-18-00624_sdc1.pdf> [Accessed 25 May 2021].
8. Louie P, Wilkes R. Representations of race and skin tone in medical textbook imagery. Soc Sci Med. 2018;202:38-42. doi:10.1016/j.socscimed.2018.02.023
9. Massie JP, Cho DY, Kneib CJ, Sousa JD, Morrison SD, Friedrich JB. A Picture of Modern Medicine: Race and Visual Representation in Medical Literature. J Natl Med Assoc. 2021;113(1):88-94. doi:10.1016/j.jnma.2020.07.013

THEME 3

Emerging competencies and new test content in COMLEX-USA

RECOMMENDATION

06 **Ensure the content and competencies assessed make the COMLEX-USA series align with the distinctive education and practice of osteopathic medicine.**

07 **Regular review of the COMLEX-USA series to ensure it continues to reflect current practice of osteopathic medicine.**

08 **Consider expansion of assessment content in the areas of public health, evidence based medicine, and social determinants of health in COMLEX-USA.**

BACKGROUND

This theme emphasizes the importance of regular systematic review of the COMLEX-USA program in light of the changing practice of osteopathic medicine. The COVID-19 pandemic not only necessitated changes to the administration of NBOME assessments but also impacted how and why patients present to osteopathic physicians and how DOs care for patients, which should be reflected in COMLEX-USA.

The Special Commission on Osteopathic Medical Licensure Assessment considered organizational factors, such as the indefinite suspension of the COMLEX-USA Level 2-PE, to ensure that important competencies would still be measured. Structural factors discussed included blueprint review, job analysis tasks, and the assessment of clinical skills in computer-based examinations. As discussions progressed through Phase 2, the Special Commission called on multiple task forces to deliberate on some of these issues.

A. Assessing COVID-19 Topics task force

The task force determined strategies for both:

1. New COVID-19 item development
2. Revisions to existing items for examinations

Task force members followed the guiding principle of assessing COVID-19 basic concepts and foundational topics that are unlikely to change within the next few years. They discussed best practices in updating test content when the practice of medicine changes more rapidly than usual (e.g., during the COVID-19 pandemic). This approach will inform updates in the future. The Special Commission used these reports to inform recommendations 7 and 8.

B. Task force on assessing clinical skills in computer-based testing

The goal of this task force was to identify key gaps created by the suspension of the Level 2-PE, to evaluate best methods for assessment, and to develop recommendations to fill the void. They reviewed competency domains on the COMLEX-USA Master Blueprint, pointing out the dimensions that now have gaps due to the PE's suspension. Some of the gaps identified include general communication, cultural competency, physician-patient communication, and empathy. Some initial ideas to rectify this included telehealth scenarios, Artificial Intelligence, simulators, avatars, and video-based assessment. The task force offered some recommendations for future work and determined that the end-to-end assessment of osteopathic clinical skills cannot be recreated in a computer-based test alone.

C. Blueprint Subcommittee for COMLEX-USA

This subcommittee charge is to review the COMLEX-USA Blueprint [Competency Domains (CD) and Clinical Presentations] to ensure that the COMLEX-USA series reflects the current practice of osteopathic medicine and to provide recommendations to the COMLEX-USA Composite Examination Committee (CCEC). Subcommittee recommendations included expanding the CD measured outcomes to include both telehealth and areas of public health crises. Next, the subcommittee will review the recommendations from the task force on assessing clinical skills in computer-based testing and the minimum percentages of items in test specifications.

Emphasize the content and competencies that make the COMLEX-USA series osteopathically distinctive.

The NBOME does research regarding what patients DOs see and what they do in practice. This information was used to create the new blueprint in 2018 and is used in blueprint review.[1,2] The COMLEX-USA blueprint is reviewed every other year, and the blueprint subcommittee made recommendations to the Special Commission (see above).

The practice of osteopathic medicine is distinctive and, therefore, so are the content and competencies assessed in COMLEX-USA; with this, the NBOME has an opportunity to further distinguish COMLEX-USA from other similar assessments. The NBOME must consider the relationship of the licensure assessment with the curriculum at osteopathic medical schools and how COMLEX-USA will influence how graduate medical education programs will view DO students.

Regular review of the COMLEX-USA series to ensure it reflects current practice of osteopathic medicine.

Throughout the COVID-19 pandemic, several conversations have occurred regarding evolutionary transformations in the practice of osteopathic medicine, including the ways physicians have adapted. The need to continue assessment of documentation skills was emphasized, particularly by licensure representatives given the historic correlation of poor documentation with complaints to state medical and osteopathic medical boards. Since use of telemedicine increased during the pandemic and remains a crucial adjunct to practice, particularly in rural areas, communication skills assessments in this arena may be considered as a growing competency. Competencies related to motivational interviewing (e.g. overcoming vaccine hesitancy, understanding patient perspectives) were discussed, as was the need for osteopathic physicians to be assessed on their ability to ensure that their patients feel respected and understood. Some of these could/should be included in any operationalization of Recommendation 1 from the Special Commission, regarding assessment of osteopathic clinical skills.

Consider expansion of assessment content in the areas of public health, evidence-based medicine, and social determinants of health in COMLEX-USA.

The Special Commission believes that these three competencies and content areas warrant special attention in future blueprint review and therefore deserve their own recommendation (#8). The ongoing pandemic and the emphasis it placed on these areas (and deficiencies that came to light during the pandemic) impacted this decision. Using evidence-based medicine in medical decision making was viewed as important since medicine evolves quickly. It is also important to expand assessment of competencies around preventative medicine and public health, which became part of both problems and solutions during the pandemic. Finally, the Special Commission advocates for including more content in how social determinants of health contribute to wellness, illness, and health inequities. Physicians must address patient behaviors while also respecting patient autonomy. The various subcommittees discussed not only what is important to test, but also when and how, including expansion of Clinical Decision making into Level 2.

CONSIDERATIONS

Important considerations surrounding these themes include sharing documentation of blueprint review and updates with the osteopathic community to demonstrate the commitment to ensuring that COMLEX-USA continues to evolve.

The Special Commission understands that some of these content areas and competencies may be more difficult to assess due to geographical/legal variation in practice that makes a standard hard to establish. However, we want to emphasize the importance of maintaining alignment from education to assessment to practice of osteopathic medicine.

The Special Commission asks that the NBOME to consider the purpose of the assessment, the level at which assessment of that content or competency is appropriate, and what makes osteopathic assessment/education stand out at each level.

COMMENTARY

25 respondents submitted 29 comments regarding the emerging competencies and new test content recommendations. Most of these were supportive of the recommendations, with the few objections noting that because MD students do not have the clinical skills requirement, or because some DOs students won't use OMT, they should not be assessed on it. Some respondents remarked on the need for alignment with COM curriculum.

Illustrative comments include:

- "Evidence-based practice remains a significant barrier to public and MD perceptions of osteopathic medicine. Increasing the quality of evidence underlying recommendations would improve the impact we can have on the field." Student
- "DO and MD schools are not different enough to justify needing 2 different licensing exams…. it harms more than helps students to be assessed in a separate licensing exam sequence for the sake of osteopathic distinction, which is unjustified." Student
- "There is a very large gap in medical education when it comes to teaching students about social determinants of health and other public health aspects. I think increasing the level to which these

topics are tested in COMLEX exams is necessary to highlight the importance building knowledge in these topics." Student

- "Public health, EBM and social determinants of health likely deserve more prominent roles and assessment and may be amenable to new testing approaches." DO Emeritus professor

Of the organizations that submitted feedback, both the AOA and the AAOE supported the recommendations. The COMs were also supportive, cautioning only about communicating with COMs about new content. Neither the AACOM nor any of the student groups commented on these recommendations.

The commission reviewed the public commentary and feel that the commentary was supportive of these recommendations.

RESOURCES

1. Gimpel JR, Belanger SI, Knebl JA, LaBaere RJ, Shaffer DC, Shannon SC, Shears T, Steingard SA, Turner M, Williams DG. 2019 United States Osteopathic Medical Regulatory Summit: Consensus, Recommendations, and Next Steps in Defining Osteopathic Distinctiveness. Journal of Osteopathic Medicine. 2020;120(1):35-44. doi:10.7556/jaoa.2020.005
2. Horber DT, Gimpel JR. Enhancing COMLEX-USA: Evidence-based redesign of the osteopathic medical licensure examination program. Journal of Medical Regulation. 2018;104(3):11-18. doi:10.30770/2572-1852-104.3.11

OTHER RESOURCES

1. Craig B, Wang X, Sandella JM, Tsai T-H, Kuo D, Finch C. Examining concurrent validity between COMLEX-USA Level 2-Cognitive Evaluation and COMLEX-USA Level 2-Performance Evaluation. Journal of Osteopathic Medicine. 2021. doi:10.1515/jom-2021
2. Hudson KM, Tsai T-H, Finch C, Dickerman JL, Liu S, Shen L. A Validity Study of COMLEX-USA Level 2-CE and COMAT Clinical Subjects: Concurrent and Predictive Evidence. Journal of Graduate Medical Education. 2019;11(5):521-526. doi:10.4300/JGME-D-19-00157.10007.
3. Gimpel JR, Horber DT, Sandella JM, Knebl JA, Thornburg JE. Evidence-based redesign of the COMLEX-USA series. Journal of the American Osteopathic Association. 2017;117(4):253-261. doi:10.7556/jaoa.2017.043
4. Li F, Kalinowski K, Song H, Bates B. Relationships between the Comprehensive Osteopathic Medical Achievement Test (COMAT) subject examinations and the COMLEX-USA level 2-cognitive evaluation. Journal of Osteopathic Medicine. 2014;114(9):714-721. doi:10.7556/jaoa.2014.140

THEME 4

Technology and test delivery advances

RECOMMENDATION

09 **Determine if new technology would expand or improve assessment of competencies required for the practice of osteopathic medicine.**

10 **Explore test delivery advances that may improve efficiency, convenience, or accuracy in testing without sacrificing security and rigor.**

BACKGROUND

RECOMMENDATION 9

There are technologies that could improve the assessment of some competencies[1]. The use of natural language processing (NLP) to score written components of examinations (e.g., the Clinical Decision Making component of COMLEX-USA Level 3) may improve the accuracy and reliability of the scores[2,3]. The necessity of having human raters is diminished, if not eliminated. If computer-based scoring is effective, it could also reduce scoring costs. Employing automatic item generation (AIG) to develop multiple choice questions could expand the test bank, limiting item exposure, and minimizing some potential threats to validity[4,5]. Should some form of in-person clinical skills assessment be mandated, where audio and video capture is available, speech to text and computer vision analysis may be helpful in generating scores for history taking, physical examination, communication, and osteopathic manipulative treatment (OMT)[6]. The use of computer case simulations and virtual reality could be used to measure some clinical skill competencies. Gaming technology, albeit expensive to develop, could expand the measurement domain, allowing for a broader assessment of clinical reasoning, clinical decision making, and teamwork.

For computer-based assessments, technology can expand what is being measured by incorporating images, videos, and item types that do not center on picking a correct answer from a list of options (e.g., pointing to an area on an image, ordering tasks, drawing a picture, drag and drop). These touch screen modalities could further enhance the testing experience, combating arguments that multiple choice items do not sufficiently measure application and/or synthesis of knowledge.

Technology may also allow for the development of assessment tools that yield more valid scores. For computer-based assessments, both correct responses and item latency (time to answer an item) can be captured. Scoring assessment data that considers both accuracy and latency of responses may yield more meaningful estimates of ability[7].

RECOMMENDATION 10

At present, the COMLEX-USA Level series is offered on a fixed schedule at vendor-based centers throughout the United States. The fixed interval schedule is based on the need to have enough examination administrations in order to calibrate and equate the scores (put all scores on the same scale). Without increases in the overall testing volume, it is not possible to offer these assessments more frequently. At the beginning of the COVID-19 pandemic, with the closing of vendor sites, some COMs were able to offer test administrations of COMLEX, indicating that it is possible to make the administration of these assessments more convenient.

Many testing organizations, including the Medical Council of Canada (MCC), offer remote-proctoring for their assessments[8]. Here, the candidate can take examination at home as long as they meet environmental (closed room, no windows) and computer software/hardware requirements. At present, the Comprehensive Osteopathic Medical Achievement Tests (COMAT), offered by the NBOME, allows for a remote-proctored administration option.

The MCC offers remote proctoring for its Qualifying Examination Part I. Currently, over 1/3 of candidates take this examination via remote proctoring (both in Canada and around the world). The use of remote proctoring is not without problems, including delays, lags, interruptions, lack of familiarity with the administration protocols and, debatably, an increased likelihood of cheating. While the MCC has made remote proctoring work for its high-stakes licensure examination, additional studies of potential validity threats are warranted. Similar to comparisons between paper and pencil and computer-based examinations, questions concerning the comparability of center-based and remote proctored examinations remain. Likewise, systems to monitor students (audio/video recording) and detect academic dishonesty can be improved. Finally, given the relatively recent adoption of remote proctoring for high-stakes examinations, the security and scalability of competing online platforms needs to be investigated.

There are also some test administration options that could improve the accuracy of the scores. Computer Adaptive Testing (CAT), where examinees are administered items (or sets of items - testlets) that are more aligned with their ability, can allow for more reliable estimates of ability with fewer items[9].

CONSIDERATIONS

RECOMMENDATION 9

The Special Commission discussed how technology could expand and/or improve the assessment of competencies required for the practice of osteopathic medicine. Initial discussions centered on the use of simulation and the application of virtual platforms for the of delivery clinical skills assessments. While various simulation modalities have been employed for the assessment of clinical skills (e.g., electromechanical mannequins, part-task trainers), primarily at the Colleges of Osteopathic Medicine (COMs) and in residency programs, their use in high-stakes licensure examinations is limited due to scope (relevance of the measured constructs for osteopathic graduates), availability of testing sites, cost, and psychometric adequacy of the measures. With COVID-19, many organizations, including COMs and specialty certification boards, pivoted to virtual assessments of some clinical skills. The Special Commission investigated this possibility, discussing the challenges and opportunities of hosting a virtual assessment of fundamental osteopathic clinical skills. It concluded that some skills could be measured virtually (e.g., communication, interpersonal) while others (e.g., physical examination, osteopathic manipulative treatment), at least for now, could not. The “hands-on” nature of the osteopathic profession limits what can be measured in a virtual environment. The Special

Commission also noted that the Medical Council of Canada (MCC) attempted to move its Qualifying Examination Part II (multi-station Objective Structured Clinical Examination) to a virtual format and, due to logistical and psychometric constraints, was forced to abandon this effort. Scaling a virtual assessment for thousands of candidates proved to be impossible. While some sort of virtual assessment of clinical skills may be possible in the future, the cost/benefit of doing this needs to be studied. Likewise, as with all licensure examinations, regardless of the testing modality or technological innovation, the psychometric rigor of the scores needs to be established (i.e., is the communication with a patient virtually comparable to that that would occur "in person"?).

RECOMMENDATION 10

In addition to discussing how technology could make the administration of COMLEX-USA more convenient for students and graduates, the Special Commission also reviewed the applicability of progress testing for making competency decisions[10]. Technology could provide a platform for storing and aggregating student work and performance measures over time. There was general consensus, however, that this strategy would not likely yield results that were comparable to the current licensing examination series.

COMMENTARY

22 respondents submitted 29 comments regarding the technology and test delivery recommendations. Most of these were supportive of the recommendations, although some highlighted the need to ensure exam security while others cautioned about potential burden to students, either financial or related to the need to learn new technology. Some respondents suggested particular technologies for consideration, such as natural language processing, and options for longitudinal assessment.

Illustrative comments include:

- "Allowing a remote, self-proctored option for high stakes exams, especially an initial licensing exam, would decrease exam integrity and public trust in examinations. Require in-person proctoring with schools providing proctoring is an option." Student
- "Advances must be evidence based and tested. This can be an expensive proposition the cost of which should not be pushed on to the students. The cost of osteopathic education continues to increase. Likewise, the cost of the advanced testing should be monitored and contained." DO in practice

Of the organizations that submitted feedback, both the AOA and the AAOE supported the recommendations. The AACOM highlighted an "opportunity to evolve high-stakes barrier testing into a longitudinal model reflecting ongoing development of an individual while still protecting the public." The COMs were supportive, suggesting advanced communication with COMs about new technology and test delivery approaches. None of the student groups commented on these recommendations.

The commission reviewed the public commentary and support these recommendations and again advise caution in balancing security with convenience. They also suggest special consideration be given to access/availability when considering new advances in technology in testing, as these could vary for some testing populations, impacting fairness of assessments.

RESOURCES

1. Deeley SJ. Using technology to facilitate effective assessment for learning and feedback in higher education. Assess Eval High Educ. 2018;43(3):439-448. doi:10.1080/02602938.2017.1356906

2. Nadkarni PM, Ohno-Machado L, Chapman WW. Natural language processing: An introduction. J Am Med Informatics Assoc. 2011;18(5):544-551. doi:10.1136/amiajnl-2011-000464

3. Salt J, Harik P, Barone MA. Leveraging Natural Language Processing: Toward Computer-Assisted Scoring of Patient Notes in the USMLE Step 2 Clinical Skills Exam. Acad Med. 2019;94(3):314-316. doi:10.1097/ACM.0000000000002558

4. Pugh D, De Champlain A, Gierl M, Lai H, Touchie C. Can automated item generation be used to develop high quality MCQs that assess application of knowledge? Res Pract Technol Enhanc Learn. 2020;15(1). doi:10.1186/s41039-020-00134-8

5. Falcão F, Costa P, Pêgo JM. Feasibility assurance: a review of automatic item generation in medical assessment. Adv Heal Sci Educ. Published online 2022:1-21. doi:10.1007/s10459-022-10092-z

6. Debnath B, O'Brien M, Yamaguchi M, Behera A. A review of computer vision-based approaches for physical rehabilitation and assessment. Multimed Syst. 2022;28(1):209-239. doi:10.1007/s00530-021-00815-4

7. De Boeck P, Jeon M. An overview of models for response times and processes in cognitive tests. Front Psychol. 2019;10(FEB):102. doi:10.3389/fpsyg.2019.00102

8. Morin M, Alves C, Champlain A De. The Show Must Go On : Lessons Learned from using Remote Proctoring in a High-stakes Medical Licensing Exam Program in Response to Severe Disruption. J Appl Test Technol. 2021;22(2):1-21.

9. Collares CF, Cecilio-Fernandes D. When I say … computerised adaptive testing. Med Educ. 2019;53(2):115-116. doi:10.1111/MEDU.13648

10. Schuwirth LWT, van der Vleuten CPM. The use of progress testing. Perspect Med Educ. 2012;1(1):24-30. doi:10.1007/s40037-012-0007-2