

**Annual Report on the
United States Medical Licensing Examination®
to Medical Licensing Authorities in the United States**



Prepared by the Federation of State Medical Boards of the United States and the National Board of Medical Examiners®

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Executive Summary

The *Annual Report on the United States Medical Licensing Examination (USMLE) to Medical Licensing Authorities in the United States* provides state medical boards with an overview of the USMLE, a jointly owned program of the Federation of State Medical Boards (FSMB) and the National Board of Medical Examiners (NBME). In addition to general information about the examination, the report provides updates on topics of specific interest to the boards, including program news, enhancements to USMLE, performance data, an overview of the standard setting process, and a summary of state medical boards' interactions with the USMLE program. Links to key USMLE resources and articles, and a summary of USMLE-related research and publications are also provided.

USMLE is a three-step examination sequence for medical licensure in the United States – specifically, the USMLE is composed of three Steps: Step 1, Step 2 Clinical Knowledge (CK) and Step 3. (The Step 2 Clinical Skills examination, or Step 2 CS, was officially discontinued in January 2021.) The first USMLE administrations occurred in 1992. Today, the program administers approximately 100,000 Step examinations annually, with more than 3 million total tests administered since 1992. As of 2021, approximately 59% of this nation's 1,026,545 licensed physicians have taken all or part of the USMLE sequence; 54% have taken all Steps (1, 2 and 3).

State medical boards participate in USMLE in a variety of capacities, from writing and reviewing test items and serving on governing committees, to participating in standard-setting surveys and advisory panels

Introduction and Program Overview

The United States Medical Licensing Examination® (USMLE®) is a jointly owned program of the Federation of State Medical Boards of the United States, Inc., (FSMB) and the National Board of Medical Examiners® (NBME®). USMLE is a three-step examination sequence for medical licensure in the United States – specifically, the USMLE is composed of three Steps: Step 1, Step 2 Clinical Knowledge (CK) and Step 3. (Note: USMLE Step 2 Clinical Skills, or Step 2 CS, was officially discontinued in January 2021.)

Although the USMLE is typically completed over the course of several years in the career of a prospective physician, it constitutes a unitary examination program. Each of the three Steps complements the others; no Step can stand alone in the assessment of readiness for medical licensure, nor can other assessments be substituted to replace one of the Steps.

The first USMLE administrations occurred in 1992. Today, the program administers approximately 100,000 Step examinations annually, with more than 3 million total test administrations since 1992. As of 2021, approximately 59% of this nation's 1,026,545 licensed physicians have taken all or part of the USMLE sequence; 54% have taken all Steps (1, 2 and 3).

Mission

The stated mission of the USMLE is to support US medical licensing authorities through the development, delivery and continual improvement of high-quality assessments across the continuum of physicians' preparation for practice. The program's goal is to provide medical licensing authorities with meaningful information from assessments of physician characteristics – including medical knowledge, skills, values, and attitudes – that are important to the provision of safe and effective patient care.

The results of the USMLE are reported to medical licensing authorities for use in the decision to grant a provisional license to practice in a post-graduate training program and the decision to grant an initial license for the independent practice of medicine. The USMLE is recognized and utilized by all state medical boards for licensing allopathic physicians and graduates of international medical schools. Many of the osteopathic licensing boards also recognize USMLE for licensing graduates holding the DO degree.

Governance

The FSMB and NBME co-own the USMLE. However, much of the governance responsibility for the program resides with the USMLE Composite Committee. The committee consists of representatives from FSMB, NBME, the Educational Commission for Foreign Medical Graduates (ECFMG) and the public. The Composite Committee is responsible for overseeing and directing USMLE policies. Specific functions of the committee include establishing policies for scoring and standard setting; approving Step examination blueprints and test formats; setting policies for test administration, test security and program research. The membership of the Composite Committee routinely includes current or former members of state medical boards. Members from the Florida-

Medical, Hawaii, Iowa, North Carolina and Wisconsin boards currently serve on the USMLE Composite Committee.

The three USMLE Step examinations are overseen by a Management Committee composed of physicians and scientists from the licensing, practice and medical education communities and members of the public. Current and former members of the Arizona-Medical, District of Columbia, Iowa, Montana, North Carolina and Vermont-Medical boards served on the USMLE Management Committee in 2021.

Eligibility

USMLE is intended to be taken by students and graduates of medical school programs leading to the MD, DO, or equivalent degree (e.g., MBBS degree held by many IMGs).

To be eligible for Step 1 and Step 2 CK, the examinee must be in one of the following categories at the time of application and on test day:

- a medical student officially enrolled in, or a graduate of, a US or Canadian medical school program leading to the MD degree that is accredited by the Liaison Committee on Medical Education (LCME), OR
- a medical student officially enrolled in, or a graduate of, a US medical school leading to the DO degree that is accredited by the Commission on Osteopathic College Accreditation (COCA), OR
- a medical student officially enrolled in, or a graduate of, a medical school that is outside the US and Canada, listed in the *World Directory of Medical Schools* as meeting ECFMG eligibility requirements, and that meets other eligibility criteria of the ECFMG.

Step 3 applicants must meet the following eligibility requirements at the time of application:

- Passing scores on Step 1 and Step 2 Clinical Knowledge; AND
- An MD degree or DO degree from an LCME- or COCA-accredited U.S. or Canadian medical school, OR the equivalent of the MD degree from a medical school outside the U.S. and Canada that is listed in the *World Directory of Medical Schools* as meeting ECFMG eligibility requirements, and obtain ECFMG Certification; AND
- Meets all other eligibility criteria as listed in the *USMLE Bulletin of Information*.

The USMLE program recommends (but does not require) that, for Step 3 eligibility, applicants should have completed, or be near completion of, at least one postgraduate training (PGT) year in an accredited U.S. graduate medical education (GME) program that meets state board licensing requirements.

Other USMLE eligibility policies:

- Step 1 and Step 2 CK can be taken in any sequence. Step 3 can be taken only after passing Step 1 and Step 2 CK.
- Examinees may not take the same Step more than three times within a 12-month period. A fourth attempt on any Step must be at least 12 months after the first

attempt at that Step and at least six months after the most recent attempt at that Step. This includes incomplete attempts.

- The total number of attempts allowed per Step is four (4). Examinees who have attempted any USMLE Step four or more times and have not passed are ineligible to apply for any USMLE Steps. Attempts at the formerly administered Step 2 CS count toward the limit. All attempts at a Step are counted toward the limit, regardless of when the examinations were taken. The only exception to this policy identified by the USMLE Composite Committee (the governing body of the USMLE program) involves state medical boards. The policy includes a provision to allow examinees who have four or more attempts at a Step to have a single additional attempt if requested by a state medical board that is fully informed of the individual's prior examination history. To meet this requirement the examinee should request that the FSMB send an official USMLE transcript to the board. Examinees are required to pass the state board sponsored attempt at the exam to maintain eligibility to continue with the USMLE exam sequence. An official petition form was provided to all state medical boards upon implementation of the 4-attempt limit policy. If you need the form resent to your board, please email the Office of the USMLE Secretariat (usmlesec@nbme.org).
- Once an individual passes a USMLE Step, it may not be retaken, except to comply with a time limit imposed by a U.S. physician licensing authority for completion of all Steps or by another authority recognized by the USMLE program. Individuals who have not yet passed Step 3 and need to retake a previously passed Step 1 or Step 2 CK examination are informed that, that if they fail a retake, they will no longer be eligible to take Step 3. To meet the examination requirements for Step 3 eligibility, individuals must have achieved a passing performance on the *most recent administration* of Step 1 and Step 2 CK.
- Individuals who have already been granted a physician license by a US medical licensing authority based on other licensure examinations, such as the Federation Licensing Examination (FLEX), the Medical Council of Canada Qualifying Examination, NBME certifying examinations, or National Board of Osteopathic Medical Examiners COMLEX-USA, may not be eligible to take the USMLE.

Content and Structure

Content for the USMLE is developed by committees of medical educators and clinicians. Committee members broadly represent the teaching, practice and licensing communities across the United States. More detailed information about the committees is available at: <https://www.usmle.org/about-usmle>.

At least two of these committees critically appraise each test item or case before it is used as live (i.e., scored) material on the USMLE. These committees may revise or discard materials for any of several reasons, e.g., inadequate clinical relevance, outdated content, failure to meet acceptable statistical performance criteria, etc.

For a more detailed explanation of content development, contact FSMB for a copy of the 2009 *Journal of Medical Licensure and Discipline* article, "Developing Test Content for

the USMLE". State board members and staff are also invited to attend an annual USMLE Orientation session to learn more about how USMLE is developed.

Step 1 assesses whether a candidate understands and can apply important concepts of the sciences basic to the practice of medicine, with special emphasis on principles and mechanisms underlying health, disease and modes of therapy. It ensures mastery of not only the sciences that provide a foundation for the safe and competent practice of medicine in the present, but also the scientific principles required for maintenance of competence through lifelong learning. Step 1 is constructed according to an integrated content outline that organizes basic science material along two dimensions: system and process.

Step 2 CK assesses an examinee's ability to apply medical knowledge, skills, and understanding of clinical science essential for the provision of patient care under supervision and includes emphasis on health promotion and disease prevention. Step 2 CK ensures that due attention is devoted to principles of clinical sciences and basic patient-centered skills that provide the foundation for the safe and competent practice of medicine under supervision.

Step 3 assesses whether the candidate can apply medical knowledge and understanding of biomedical and clinical science essential for the unsupervised practice of medicine, with emphasis on patient management in ambulatory settings. Step 3 content reflects a data-based model of generalist medical practice in the United States. The test items and cases reflect the clinical situations that a general, as-yet undifferentiated, physician might encounter within the context of a specific setting. It is the final examination in the USMLE sequence leading to a license to practice medicine without supervision. As such, it provides a final assessment of physicians assuming independent responsibility for delivering general medical care.

Test Administration

Steps 1, 2 CK and 3 are administered by computer. Prometric provides scheduling and test centers for these computer-based components of the USMLE. Step 1 and Step 2 CK examinations are given around the world at Prometric Test Centers (PTCs). Step 3 is given at PTCs in the United States and its territories only.

All USMLE examinations are proctored and videotaped. Strict guidelines are followed for proper identification of examinees. Efforts are made to reduce the overlap of test content from examinee to examinee and from test administration to test administration when examinees need to retake a Step. Any significant breaches in security can result in the cancellation of scores/results, suspension of an individual from USMLE, and/or annotation of score reports and official USMLE transcripts.

Step 1 is a one-day examination. It is divided into seven 60-minute blocks and administered in one 8-hour testing session. The number of questions per block on a given examination form may vary but will not exceed 40. The total number of items on the overall examination form will not exceed 280.

Step 2 CK is a one-day examination. It is divided into eight 60-minute blocks and administered in one 9-hour testing session. The number of questions per block on a given examination will vary but will not exceed 40. The total number of items on the overall examination will not exceed 318.

Step 3 is a two-day examination. The first day of the Step 3 examination is referred to as Foundations of Independent Practice (FIP), and the second day is referred to as Advanced Clinical Medicine (ACM). The first day of testing includes 232 multiple-choice items divided into 6 blocks of 38-39 items; 60 minutes are allotted for completion of each block of test items. There are approximately 7 hours in the test session on the first day. There are approximately 9 hours in the test session on the second day. This day of testing includes multiple-choice questions and computer-based case simulations (CCS). There are 180 multiple-choice items, divided into 6 blocks of 30 items; 45 minutes are allotted for completion of each block of test items. These are followed by 13 CCS cases, each of which is allotted a maximum of 10 or 20 minutes of real time.

All Step exams include an optional survey at the end of the final exam day, which can be completed if time allows.

Test Accommodations

Reasonable and appropriate accommodations are provided in accordance with the Americans with Disabilities Act (ADA) for individuals with documented disabilities. The purpose of test accommodations is to provide access to the examination program. While presumably the use of accommodations will enable the individual to better demonstrate his/her knowledge or skill, accommodations are not a guarantee of improved performance, test completion, or a particular outcome. Examinees are informed of the availability of test accommodations via the *USMLE Bulletin of Information*, the USMLE website, and the individual Step applications.

Requests for test accommodations are reviewed by NBME staff trained in clinical and school psychology at the doctoral level. Further review of the request and supporting documentation may be provided by experts in the respective fields of disability with whom NBME consults regarding the presence of a disability and appropriate accommodations. NBME makes decisions regarding appropriate test accommodations for all USMLE Steps.

Examinees with disabilities may be provided with a variety of accommodations, including but not limited to assistance with keyboard tasks, audio rendition, extended testing time and additional break time. Efforts are made to match accommodations to the individual's functional limitations. For example, audio-recorded versions of the computer-based Step examinations are available for candidates with visual or visual processing disabilities. Special tactile versions of visual material for a Step examination may be provided for examinees with severely impaired vision. Items with an audio component may include a visual representation of the sound for hearing impaired examinees.

Score Reporting

When examinees take Step 1, Step 2 CK, or Step 3, the computer records their responses, which are then transmitted to NBME for scoring.

Results for Step 1 are reported as pass/fail only for exams taken on or after January 26, 2022.

Results for Step 1 (for exams taken prior to January 26, 2022), Step 2 CK and Step 3 are reported on a 3-digit scale; reported scores for range from 1 to 300. Most Step 1 scores fall between 160 and 270; most Step 2 CK scores fall between 190 and 270; and most Step 3 scores fall between 160 and 260. The means and standard deviations for recent (tested in calendar year 2021), first-time examinees from accredited medical school programs in the United States and Canada are: Step 1: 231 (19); Step 2 CK: 247 (15); and Step 3: 227 (15).

USMLE score reports and transcripts show scores (for Step 1 exams taken prior to January 26, 2022, Step 2 CK, and Step 3) and an indication of whether an examinee passed or failed (for all examinations, including the previously-administered Step 2 CS).

If an examinee is found to have engaged in irregular behavior, an annotation to that effect is recorded on the score report on transcript, as well as a copy of the letter to the examinee regarding the finding of irregular behavior. Upon examinee authorization for release of an official USMLE transcript, the same information (i.e., annotation on the transcript, determination letter regarding a finding of irregular behavior, and a report from the FSMB Physician Data Center if applicable) is sent to medical licensing authorities for use in making licensure decisions.

Under most circumstances, to receive a score on Step 1, Step 2 CK, and Step 3, an examinee must begin every block of the test. If an examinee does not begin every block and no results are reported, an "incomplete" annotation may appear on the USMLE transcript. If an examinee registers for but does not begin an examination, no record of the test will appear on the examinee's transcript.

Some unscored items and cases may also be included in the Step examinations for research purposes.

Annual performance data for all Step examinations are available on the USMLE website at <https://www.usmle.org/usmle-updates-research>

Score Interpretation Guidelines are also available at:
[USMLE Step Examination Score Interpretation Guidelines 5 24 22 0.pdf](#)

Minimum Passing Scores

The USMLE program provides a recommended pass or fail outcome for all Step examinations. Recommended performance standards for the USMLE are based on a specified level of proficiency. As a result, no predetermined percentage of examinees will pass or fail the examination. The recommended minimum passing level is reviewed periodically and may be adjusted at any time. Notice of such review and any adjustments are posted on the USMLE website.

A statistical procedure ensures that the performance required to pass each test form is equivalent to that needed to pass other forms; this process also places scores from different forms on a common scale.

Current minimum passing scores for each Step are as follows (mean scores are provided in the Score Interpretation Guidelines on the USMLE website – see link in preceding section):

Step 1: Reported as pass/fail only for exams taken on or after January 26, 2022.

The passing standard changed from 194 to 196 effective for exams taken on or after January 26, 2022. Future reviews of the Step 1 passing standard will not be reported in terms of a three-digit score.

Step 2 CK: 214 (changed from 209, effective for examinees testing on or after July 1, 2022)

Step 3: 198

Although 2-digit scores are not reported, test results reported as passing would represent an exam score of 75 or higher if a two-digit score had been reported.

Score Reliability

All standardized examinations include some degree of measurement imprecision. Like all high-quality assessments, USMLE utilizes several psychometric measures to monitor and minimize such imprecision. Reliability refers to a score's expected consistency. Candidates' test scores are reliable to the extent that an administration of a different random sample of items from the same content domain would result in little or no change in each candidate's rank order among a group of candidates. In general, long examinations of very similar items administered to a diverse group of examinees yield high reliabilities.

One of the ways that reliability is measured is through the standard error of measurement (SEM). The SEM provides a general indication of how much a score might vary across repeated testing using different sets of items covering similar content. As a general rule of thumb, chances are about two out of three that the reported score is within one SEM, plus or minus, of the score that truly reflects the examinee's ability (i.e., of the score that would be obtained if the examination were perfectly reliable). Currently, the SEM is approximately 6 points for Step 1 and Step 2 CK, and 5 points for Step 3.

The standard error of difference (SED) in scores is an index used to assess whether the difference between two scores is statistically meaningful. If the scores received by two examinees differ by two or more SEDs, it is likely that the examinees are different in their proficiency. Currently, the SED is approximately 9 points for Step 1, and 8 points for Step 2 CK and Step 3.

The standard error of the estimate (SEE) is an additional index of the amount of uncertainty in the scores used to gauge the likelihood of performing similarly on a repeat

attempt. If an examinee tested repeatedly on a different set of items covering the same content, without learning or forgetting, their score would fall within one SEE of their current score two-thirds of the time. Currently, the SEE is approximately 9 points for Step 1, 8 points for Step 2 CK and Step 7 points for Step 3.

Decision Consistency

Decision consistency reflects the probability an examinee would be classified in the same category (e.g., pass or fail) on a repeat administration without change in their underlying knowledge. In the context of USMLE, the index quantifies how consistently the respective Step examination categorizes examinees as passing or failing. The index ranges from 0 to 1, where higher values indicate the assessment yields more stable classifications. Decision consistency is generally higher with longer exams – because of the increased reliability – and when most students score far from the minimum passing standard. The most recent decision consistency value is .98 for Step 1, .99 for Step 2 CK, and .97 for Step 3. The high values indicate examinees would almost assuredly receive the same outcome if taking an administration of a different random sample of items from the same content domain without a change in content knowledge.

Score Validity

Score validity refers to the extent to which existing evidence supports the appropriateness of the interpretation of test outcomes. The public and state medical boards can reliably conclude that an individual who has passed all examinations in the USMLE sequence has demonstrated the fundamental knowledge and skills for safe and effective patient care.

The best way to support a proposed score interpretation is through accumulation of developmental documentation and research on all components of the test design, delivery, and scoring processes, and through tracking the relationship of examination outcomes with later measures of the individual's ability. The USMLE program has a fairly extensive history of such activity. A list of research citations as well as descriptions of many of the USMLE processes is available on the USMLE website at <https://www.usmle.org/usmle-updates-research>

Program News, 2021-2022

News items and announcements posted on the USMLE website (www.usmle.org/announcements/) from 2021-2022 are provided in **Appendix A**.

Strategic Communication Outreach

Below is a summary of communication work undertaken by the USMLE program in 2021, including directly to and with examinees, medical regulators and medical educators and, indirectly, to the public.

Quarterly Electronic Update to State Boards

In March 2020, the FSMB launched a quarterly electronic update on USMLE to state medical and osteopathic boards. This has been well-received as a concise update on key USMLE developments, ideal for inclusion in the report of executive directors to their boards. Copies of the 2022 updates are provided as **Appendix B**.

Examinee Input – USMLE Medical Student and Resident Advisory Panel

The USMLE program implemented a Medical Student & Resident Advisory Panel in 2018 to provide a consultative role to the USMLE program. The panel is charged to 1) assist staff in working through operational issues directly impacting the examinee experience of the exam, 2) serve as an additional voice and resource to inform more substantive policy questions from or before the USMLE Management and Composite Committees and (3) serve as informal ambassadors of the USMLE program. The panel consists of 15 members: 14 medical students (MD, DO, MD/PhD and IMG) and residents drawn from all regions of the country, and 1 public member. Tammy McGee, a public member of the Minnesota Board of Medical Practice, serves as the public representative on the panel.

The panel met virtually in June 2022, and in-person at FSMB offices in Texas on November 2, 2022. During the meetings, the panel discussed and received updates on the impact of recent USMLE changes (i.e., discontinuation of Step 2 CS, shift to pass/fail only reporting for Step 1, attempt limit change); testing accommodations provided by the USMLE program; recommendations from the Coalition for Physician Accountability regarding use of USMLE and COMLEX-USA scores for residency selection purposes; and other topics of relevance to the panel as medical students and residents.

Exam Security

In April 2021, a formal tip line/security incident reporting tool – called STOPit – was implemented to detect, report and deter irregular behavior in connection with USMLE. Information about the tool was announced on the USMLE website and was added to examinee scheduling permit emails and end-of-exam materials. The STOPit tool is available for free as an app via the Apple and Google Play app stores. Reports of irregular behavior and other security concerns can also be made online via <https://appweb.stopitsolutions.com/login/usmle-tip>.

Podcasts

Podcasts about USMLE and significant program changes are available on the USMLE website at: <https://www.usmle.org/podcasts>

Social Media

USMLE continues to focus on social media to more directly, efficiently and quickly communicate with applicants and examinees. The USMLE program currently uses

Facebook, Twitter and LinkedIn and posts each week to each platform. Followers for each platform have grown significantly since they were first implemented.

USMLE Facebook: <https://www.facebook.com/usmle/>

USMLE LinkedIn: <https://www.linkedin.com/company/usmle/>

USMLE Twitter: <https://twitter.com/TheUSMLE>

Medical Licensing Authorities and the USMLE

USMLE Services to State Medical Boards

In 2021, the FSMB registered over 34,000 applicants for the USMLE Step 3. Step 1 and Step 2 registration services are provided by NBME (for students and graduates in US medical and osteopathic schools) and by ECFMG (for students and graduates of international medical schools) under eligibility requirements established by the USMLE Composite Committee.

The FSMB also produced and delivered over 102,000 USMLE transcripts, including nearly 49,000 transcripts produced as part of the Federation Credentials Verification System (FCVS) profile sent to state medical boards for physicians seeking licensure.

The USMLE makes a wide range of informational materials on the program available to medical licensing authorities. In March 2020, the FSMB launched a quarterly electronic update on USMLE to state medical and osteopathic boards. This has been well-received as a concise update on key USMLE developments, ideal for inclusion in the report of executive directors to their boards. Additionally, research and informational articles on USMLE have appeared in the FSMB's *Journal of Medical Regulation* (<https://meridian.allenpress.com/jmr>).

The FSMB also regularly hosts web seminars on USMLE-related topics, such as USMLE attempt, time limit, and retake policies; challenges and changes to the Step 2 CS; USMLE scoring (such as the transition to pass/fail reporting for Step 1); and USMLE transcripts and irregular behavior. Copies of these presentations are available upon request from the FSMB.

State Medical Boards' Participation in USMLE

State medical board members and staff have a long history of involvement with the USMLE program. Since implementation of the USMLE in 1992, 329 members and staff from state medical boards have participated in the USMLE program in some capacity. These individuals represent 65 different medical and osteopathic licensing boards throughout the United States.

Since 2007, the FSMB and NBME have hosted an annual USMLE Orientation workshop for current and former state board members, as well as current staff, with an interest in learning about and/or participating in the program. The 2022 workshop was held October 3, 2022 at the FSMB offices in Euless, Texas. A total of 16 individuals – 10 board members and 6 board staff – from 11 different boards attended the Orientation. To date, 200 individuals from 59 medical and osteopathic boards have participated, including attendees at the orientations held virtually in 2020 and 2021 due to the COVID-19 pandemic. Fifty-seven (57) past workshop participants (representing 35 boards) have served subsequently with the USMLE program. This includes participation on standard setting panels and advisory panels, as well as serving on the USMLE Management Committee, the USMLE Composite Committee, and/or item writing and item review committees. Physician and public members of state medical and osteopathic boards interested in attending this workshop should contact the FSMB for more information.

In 2011, the USMLE program established an advisory panel composed of members and staff from state medical boards to provide firsthand feedback on timely issues and major initiatives from the primary intended user of USMLE scores – state medical boards. The panel met in person on September 28, 2022 at the FSMB offices in Euless, Texas. During the meeting, the panel discussed recent and ongoing USMLE program updates and work, provided input to USMLE program staff about how the program can better communicate with state boards, and provided updates about issues occurring in their states. The panel also approved the *2022 Annual Report on the USMLE to Medical Licensing Authorities in the United States*, which is distributed to all state boards.

Current panel members include staff and board members from the Illinois, Maine-Medical, Nevada-Medical, New York-Licensure, Pennsylvania-Medical, Texas, Vermont-Medical and West Virginia-Medical boards.

2021-2022 provided another unique opportunity for state boards to participate, in the form of standard setting surveys and panels. The USMLE program conducts a review of minimum passing standards for each Step examination approximately every 3-4 years, and a critical part of this process includes convening content-based standard setting panels to review test content and provide feedback about examinee performance. Physician members from 13 state boards volunteered to participate in standard setting panels that took place from fall 2021 through spring 2022. Additionally, standard setting surveys were sent out to all state boards in April 2021. Data from the panels and surveys are analyzed and provided to the Management Committee as part of the information they consider when determining whether or not the current recommended minimum passing score for a Step examination should be changed.

USMLE Policies

The USMLE recommends that state medical boards require the dates of passing Step 1, Step 2, and Step 3 to occur within a seven-year period. The program, however, also recommends that state medical boards consider additional time for individuals completing a dual degree program (MD/PhD; DO/PhD). The full recommendations for dual degree individuals are available on the USMLE website at <https://www.usmle.org/common-questions/general>.

Additionally, the USMLE program imposes a limit of no more than four attempts to pass each of the Step or Step Components. One additional attempt is allowed only at the written request of a state medical board.

Most state medical boards impose both time and attempt limits on the USMLE as part of their requirements for obtaining an initial medical license. Currently, 42 state boards impose some limit on the number of attempts at the USMLE, while 47 state boards impose a time limitation for the completion of the USMLE sequence.

More information is available on the FSMB website at:

<http://www.fsmb.org/step-3/state-licensure/> and <https://www.fsmb.org/u.s.-medical-regulatory-trends-and-actions/state-medical-board-data/>

Data and Research

Aggregate Performance Data

The USMLE program publishes aggregate performance data for all Steps since the program's inception. These data include examinee volume and passing percentages categorized by first-taker and repeater examinees; US/Canadian and international students/graduates; allopathic and osteopathic examinees. These performance data are available at the USMLE website at www.usmle.org/performance-data/.

Passing rates and examinee counts for 2020-2021 for each Step are provided in **Appendix C**.

Research Agenda

Each year, the USMLE Composite Committee reviews and endorses a research agenda for the program. The committee endorsed the following research themes and/or topics for the program for 2019-2020: enhancements to the USMLE; relating scores and pass/fail outcomes to external measures; determining strategies for providing meaningful performance feedback to examinees and stakeholders; and USMLE security procedures.

Publications

A listing of recent (2019-2022) USMLE-related publications is available as **Appendix D**.

Additional research listings are available on the USMLE and NBME websites at: <https://www.usmle.org/usmle-updates-research>
<https://www.nbme.org/research-library>.

Standard Setting

USMLE General Procedures for Standard Setting

The USMLE system for setting standards is established by the USMLE Composite Committee, which includes representatives of the ECFMG, FSMB, NBME and the public. The system specifies the kinds of data to be gathered and how the data are to be gathered, the frequency of reviewing the standards and adjusting them, and assigns the judgment task to the Management Committee. The Management Committee, jointly appointed by the FSMB and NBME, must use the procedures defined by the Composite Committee, but is free to set the standard and revise the standard as it deems necessary. The decision of the Management Committee is final; no superior governing committee is authorized to alter its decision. The Management Committee includes those with educational, licensing, and clinical practice perspectives, as well as a representative from the public.

Current policy requires that the Management Committee review the effectiveness of Step standards at least annually. A comprehensive review and possible adjustment of the standard must be undertaken approximately every four years. In addition, when there are any major changes to the design or format of the Step examination, the Management Committee is asked to establish new passing requirements for the redesigned components. USMLE believes that there must be an opportunity for review and adjustment of standards in order to reflect the realities of change in the content of medicine, the nature of the test, the characteristics of examinees, and the expectations of stakeholders. Such review of the standard is essential to assure that the judgment inherent in defining the standard reflects current conditions, not those that were pertinent in the past.

Mandated Data Sources Informing the Judgment Process

USMLE policy mandates the use of four categories of data in making judgments about standards. These are:

- Content-referenced judgments of experts. Content experts provide their opinions, based upon review of content and examinee performance, on the appropriate requirements for passing the examination.
- Survey of stakeholders. Expectations of stakeholders for the percent of examinees that should pass the examination.
- Cohort performance trends. Trends in examinee performance over a long period of time and the effect of repeated attempts at the examinations on the failure rate in a defined cohort of examinees.
- Confidence intervals in the region of the cut-score. Estimates of numbers of misclassified examinees based on historical distributions of examinee performance and the measurement error in the scale area under consideration for the cut-score.

Setting the Standard

The Management Committee meets to consider the collected data. As part of this process the committee reviews all of the data collection processes and considers the combined

data. Typically, the question posed of the committee is whether the externally collected data, performance trends, and score reliability data suggest that the current standard for a particular Step exam needs to be changed. The committee can allow the standard to remain the same or can vote to make a change. If the latter occurs, the committee identifies the new performance requirements.

Standards are typically implemented on the first day of the month following the Management Committee's decision. Information regarding the timing of the standard setting process and final decisions are posted on the USMLE website.

Resources

Websites

Multiple avenues for obtaining additional information on the USMLE exist:

- USMLE website (www.usmle.org) provides the most current information on the program.
- FSMB website (www.fsmb.org) contains information specific to USMLE Step 3.
- NBME website (www.nbme.org) contains information specific to registering for USMLE Step 1 and Step 2 CK for students and graduates of U.S. and Canadian medical schools.
- ECFMG, a Member of Intealth, website at (www.ecfm.org) provides information on ECFMG certification and registering for USMLE Step 1 and Step 2 CK for students and graduates of international medical schools seeking information.

Written materials

- *USMLE Bulletin of Information* – provides USMLE policies and procedures and can be accessed from the main page of the USMLE website (www.usmle.org).
- *NBME Examiner* – the official newsletter of NBME & provides additional information on USMLE; the current and archived issues can be found under the Publications tab at www.nbme.org.
- *Journal of Medical Regulation* (previously the *Journal of Medical Licensure and Discipline*) – published by the FSMB, the *Journal* occasionally provides informational articles summarizing major aspects of the USMLE program. Topics covered include Step 2 Clinical Skills, the development of multiple-choice questions for test content, research, and processes for maintaining program security (see citations below). Past issues are available on the JMR website at <https://meridian.allenpress.com/jmr> or upon request from the FSMB:
 - “Characteristics and Outcomes of Individuals Engaging in USMLE Irregular Behavior, 2006–2015.” *Journal of Medical Regulation*. Vol. 106, No. 4, 2020.
 - “Implementing Strategic Changes to the USMLE.” *Journal of Medical Regulation*. Vol. 100, No. 3, 2014.
 - “An Assessment of USMLE Examinees Found to Have Engaged in Irregular Behavior, 1992-2006.” *Journal of Medical Regulation*. Vol. 95, No. 4, 2010.
 - “Developing Content for the United States Medical Licensing Examination.” *Journal of Medical Licensure and Discipline*. Vol. 95, No. 2, 2009.
 - “Maintaining the Integrity of the United States Medical Licensing Examination.” *Journal of Medical Licensure and Discipline*. Vol. 92, No. 3, 2006.
 - “The Introduction of Clinical Skills Assessment into the United States Medical Licensing Examination (USMLE): A Description of the USMLE Step 2 Clinical Skills (CS).” *Journal of Medical Licensure and Discipline*. Vol. 91, No. 3, 2005.
 - “The United States Licensing Examination.” *The Journal of Medical Licensure and Discipline*. Vol. 91, No. 1, 2005.

Key contacts

The following individuals are key contacts for state medical boards on matters involving the USMLE.

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APPENDIX A

USMLE Program News 2021 – 2022

USMLE program announces upcoming policy changes (posted February 2020; updated October 2021)

Today, the Federation of State Medical Boards (FSMB) and the National Board of Medical Examiners® (NBME®), co-sponsors of the United States Medical Licensing Examination® (USMLE®), announced upcoming policy changes to the USMLE program.

- [Changing Step 1 score reporting from a three-digit numeric score to reporting only pass/fail;](#)
- [Reducing the allowable number of exam attempts on each Step or Step Component from six to four;](#) and
- Requiring all examinees to successfully pass Step 1 as a prerequisite for taking Step 2 Clinical Skills

These new policies will continue to enable the USMLE program to provide high-quality assessments for the primary user of exam results (state medical boards) while also addressing other considerations, such as exam security and unintended consequences of secondary score uses. The secondary uses of Step 1 scores for residency screening, in particular, have been the focus of extensive discussion over the past year at the FSMB and NBME, within the USMLE program, and with multiple stakeholders within the broader medical education and regulatory communities.

“These new policies strengthen the integrity of the USMLE and address concerns about Step 1 scores impacting student well-being and medical education,” said Humayun Chaudhry, DO, MACP, President and CEO of the FSMB. “Although the primary purpose of the exam is to assess the knowledge and skills essential to safe patient care, it is important that we improve the transition from undergraduate to graduate medical education.”

“The USMLE program governance carefully considered input from multiple sources in coming to these decisions. Recognizing the complexity of the environment and the desire for improvement, continuation of the status quo was not the best way forward,” reported Peter Katsufakis, MD, MBA, President and CEO of NBME. “Both program governance and staff believe these changes represent improvements to the USMLE program and create the environment for improved student experiences in their education and their transition to residency.”

These policy changes are currently planned to be phased in over the next 11-24 months. For specific information on each policy, consult the links above to the detailed statements accompanying each policy change. A podcast supplementing the information contained in this announcement is below. [Three Decisions to Result in Future Changes to USMLE](#)

Step 1 pass/fail score reporting implementation date (posted April 2021)

United States Medical Licensing Examination® (USMLE®) Step 1 score reporting will transition to pass/fail outcomes only for administrations on or after January 26, 2022.

Outcomes for Step 1 administrations occurring before January 26, 2022 will continue to include a three-digit score and pass/fail. Step 2 Clinical Knowledge and Step 3 examinations will continue to be reported as a three-digit score and pass/fail.

On February 12, 2020, the USMLE Program announced it would change Step 1 score reporting to a pass/fail outcome no earlier than January 1, 2022. In taking this action, the USMLE's co-sponsors—the Federation of State Medical Boards (FSMB) and NBME®—considered the broad range of input received from the Invitational Conference on USMLE Scoring (InCUS), the subsequent InCUS report and its preliminary recommendations, and the extensive feedback and national conversation that preceded and followed the conference.

Additional information regarding the change to reporting Step 1 outcomes as pass/fail can be found here: <https://www.usmle.org/incus/#decision>.

USMLE Step 1 updates on score reporting and standard setting (posted June 2021)

Two United States Medical Licensing Examination® (USMLE®) Step 1 changes may coincide in early 2022. First, Step 1 score reporting will transition to pass/fail only for administrations on or after January 26, 2022. Second, as part of best practices for licensing and certification examinations, the USMLE program reviews the minimum passing score of each Step exam every three to four years. The standard review process for the Step 1 minimum passing score is currently underway, which includes substantial input from licensing authorities, medical educators, and subject matter experts. If any change to the minimum passing score is determined appropriate by the USMLE Management Committee, it will become effective for examinees who take Step 1 on or after January 26, 2022. While the timing may overlap, the standard review process is unrelated to the upcoming transition to pass/fail score reporting.

Pass/Fail Score Reporting:

The pass/fail reporting change is in alignment with the [Invitational Conference on USMLE Scoring \(InCUS\)](#) recommendations, which were based on a broad range of input from state medical board members, physicians, medical educators and examinees. To support this transition, USMLE Step 1 score reports for administrations on or after January 26, 2022 will be updated in the following ways:

- Passing outcome reports will only display the notification of “Pass.” This change is intended to reduce the overemphasis of USMLE Step 1 scores on secondary uses while retaining the ability to use the exam for its primary purpose of medical licensure eligibility.
- Failing outcome reports will display “Fail” and have 1) a visual illustration showing the distance between the examinee’s overall score and the minimum passing standard and 2) content area feedback that shows whether the examinee scored lower, about the same, or higher than examinees with a low pass (ie, above but

near the passing standard) for each [content category](#). This additional information is intended to guide study plans for future exam attempts.

Sample score reports for USMLE Step 1 examinations taken on or after January 26, 2022 are [available here](#). USMLE transcripts will be similarly revised to display only a “Pass” or “Fail” for Step 1 exams taken on or after January 26, 2022. USMLE transcripts for Step 1 exams taken January 25, 2022 or earlier will continue to report a numeric score along with a “Pass” or “Fail” outcome.

Minimum Passing Score Review:

The USMLE program reviews the minimum passing score for each Step examination every three to four years with extensive input from faculty and subject matter experts. This ensures that the standard is aligned with the potentially changing expectations within medicine.

Based on its routine schedule, the review of the Step 1 minimum passing score was originally scheduled to occur in December 2020 but was postponed as a result of the COVID-19 pandemic. Instead, the review will occur in December 2021, and any change to the minimum passing score will be made effective with Step 1 administrations beginning on or after January 26, 2022. This review is consistent with USMLE’s standard operating procedures and is not connected to the upcoming transition to pass/fail score reporting. For reference, the last reviews of the minimum passing scores for Steps 1, 2 CK and 3 resulted in changes that ranged between 0 and 2 points.

Four types of data are considered:

- Results of content-based standard-setting exercises conducted with three independent groups of physicians;
- Results of surveys of various stakeholders (e.g., samples of examinees, state licensing representatives, medical school faculty) concerning the appropriateness of current pass/fail standards for Step examinations;
- Trends in examinee performance;
- Score precision and its effect on the pass/fail outcome.

Changes to the minimum passing score, if any, are determined by the USMLE Management Committee. This committee is comprised of a diverse national group of medical professionals from undergraduate and graduate medical education as well as state medical boards. Two public members and a resident member also serve on the committee.

An additional announcement that reports the outcome of the minimum passing standard review, whether there is a change or not, will be made on December 9, 2021.

USMLE policy updates following Step 2 CS discontinuation (posted July 2021)

Step 3 Eligibility Requirements Reinstated; New Information Added to USMLE Transcripts; Attempt Limits Set at Four

The United States Medical Licensing Examination® (USMLE®) Composite Committee, the governing body of USMLE comprised of medical educators, regulators, and members of the public, recently met to determine how the [discontinuation of the Step 2 Clinical Skills examination \(Step 2 CS\)](#) will impact certain USMLE policies. The Composite Committee's role is to ensure that the program fulfills its mission to support medical licensing authorities in the United States by providing them with meaningful information from assessments of physician competencies—including medical knowledge and skills—that are important to the provision of safe and effective patient care. The decisions surrounding these policies reflect that mission.

The policy decisions made regarding Step 3 eligibility requirements, reporting Step 2 CS results, and attempt limits are described below.

Step 3 Eligibility Requirements:

During the Step 2 CS suspension, the USMLE program announced [temporary Step 3 eligibility requirements](#). Since the Step 2 CS exam has been discontinued, these temporary requirements are no longer needed.

Step 3 eligibility requirements will conform with criteria established before Step 2 CS became part of the USMLE. The requirements, [which can be found here](#), are:

- Passing scores on Step 1 and Step 2 Clinical Knowledge, and
- An MD degree or DO degree from an LCME- or COCA-accredited U.S. or Canadian medical school, or
- The equivalent of the MD degree from a medical school outside the U.S. and Canada that is listed in the [World Directory of Medical Schools](#) as meeting ECFMG eligibility requirements, and obtain [ECFMG Certification](#).
- Meets all other eligibility criteria as listed in the *USMLE Bulletin of Information*.

Reporting Step 2 CS Results:

As a medical licensing examination, the USMLE program has the responsibility to produce transcripts that report to state medical boards a complete exam history for each examinee. Accordingly, all Step 2 CS results will continue to be reported on the USMLE transcript.

To facilitate the interpretation of transcripts with either Step 2 CS fails or no Step 2 CS attempts, the following statement will be included on all transcripts:

“The USMLE Step 2 CS examination was last administered on March 16, 2020. Examinees with a failing outcome may not have had an opportunity to retest. The USMLE defines successful completion of its examination sequence as passing Step 1, Step 2 CK, and Step 3.”

Attempt Limits:

Beginning with applications submitted on or after July 1, 2021, examinees will be limited to four attempts per Step exam rather than the six allowed under the current policy. This policy decision is designed to protect the integrity of the exam and more closely match the attempt limits imposed by state medical boards for USMLE in the majority of states.

Once the change to the attempt limit policy is effective, examinees who have attempted a USMLE Step four or more times and have not passed will be ineligible for other USMLE Steps.

If you have any questions about these policies, please contact the USMLE program by using the form available [here](#).

Want to Know More About the Decision to Discontinue Step 2 CS?

Listen to a New Podcast: In the [March 4, 2021 episode](#) of USMLE® Connection, David Johnson, the Chief Assessment Officer at the Federation of State Medical Boards, and Chris Feddock, Executive Director for the Clinical Skills Evaluation Collaboration, discuss the discontinuation of the Step 2 CS exam, the reasons behind the decision, and next steps.

New USMLE app for reporting potential exam security violations (posted August 2021)

USMLE exam security helps promote a testing environment where no examinee has an unfair advantage. It also helps to control increases in exam fees by minimizing the number of items removed from USMLE due to potential exposure. Our security program's goal is to protect the integrity of USMLE, which aims to ensure safe and effective patient care.

To further minimize potential violations, the USMLE program is now offering an app called STOPit, which enables examinees to anonymously report suspected security violations.

You may visit [Apple](#) or [Google Play Store](#) to download the free mobile app. Use access code: USMLE-TIP. A [browser-enabled reporting tool](#) is also available.

The STOPit mobile app allows users to:

- Anonymously report incidents in real time
- Submit documents, photos, and video evidence
- Engage in two-way anonymous communication in follow-up to a report
- Connect with USMLE staff regarding exam security incidents

Please help maintain the integrity of USMLE by downloading the new app. We encourage anyone with knowledge of any activities that may compromise USMLE test items to submit this information through the STOPit app.

If you have questions about the STOPit app, please contact the Office of the USMLE Secretariat at webmail@nbme.org.

USMLE Step 1 Transition to Pass/Fail Only Score Reporting (posted September 2021)

USMLE Step 1 score reporting will transition from a numeric score and pass/fail outcome to pass/fail only for exams taken on or after January 26, 2022. The USMLE program views this change as an important first step toward facilitating broader, system-wide changes to improve the transition from undergraduate to graduate medical education.

Dates for USMLE Step 1 Transition to Pass/Fail Only Transition Begins with Exams Taken on or after January 26, 2022 To receive a numeric score, examinees must take their exam on or before January 25, 2022*		
Step 1 Exams	Test on or before Jan. 25, 2022 (Please schedule your appointment with Prometric well in advance of your desired test date)	Test on or after Jan. 26, 2022 (Schedule your exam date for on or after Jan. 26, 2022)
Score Reports	Numeric score <i>and</i> pass/fail outcome	Pass/fail outcome only
Transcripts**	Numeric score <i>and</i> pass/fail outcome	Pass/fail outcome only

*For multi-day exams, the date of the first day of testing will determine score reporting.

**Includes transcripts produced by NBME, ECFMG, FSMB and through Electronic Residency Application Service® (ERAS®).

View Example January 26, 2022 Score Reports:

- [Step 1 Score Report – Pass Outcome](#) Examinees who pass will not receive content-based feedback.
- [Step 1 Score Report – Fail Outcome](#) Examinees who fail Step 1 will receive information about how far they were from passing, as well as content-based feedback to guide the study plan for their next attempt.

[View common questions](#)

Step 3 Practice Resources Expanded with Enhanced Experience (posted November 2021)

To expand the availability of USMLE test materials for Step 3 examinees, Computer-based Case Simulations (CCS) practice materials can now be accessed on both PCs and Macs. The materials are web-based and no longer require downloading software.

This web-based format offers a more user-friendly experience, including the ability to navigate more easily through the case simulations. Feedback from pilot users described this option as faster, with smoother screen transitions and easier to launch cases.

[View the new option now.](#)

Change to Step 1 Passing Standard begins January 26, 2022 (posted December 2021)

At its December 2021 meeting, the [USMLE Management Committee](#) conducted a review of the USMLE Step 1 passing standard and decided that **a two-point increase**

in the passing standard - used to determine a Pass or Fail outcome - will apply to Step 1 examinees testing on or after January 26, 2022. On the current three-digit score scale, the 2022 passing standard will change from 194 to 196.

As part of the USMLE program's operational procedures and in alignment with best practices for licensing and certification exams, a comprehensive review and analysis of the passing standard for each Step exam typically occurs every three to four years. This ensures that the passing score is consistent with expectations of the level of content mastery of the knowledge and skills needed to support effective medical practice and licensure.

This minor adjustment to the passing standard was determined through the thorough and careful consideration of information from multiple sources, including:

1. Recommendations from independent groups of physicians unaffiliated with the USMLE who participated in content-based standard-setting panels in October 2021;
2. Results of surveys of various groups (e.g., residency program directors, medical school faculty, state licensing representatives, examinees) concerning the appropriateness of the current passing standard for the Step 1 examination;
3. Data on trends in examinee performance; and
4. Score precision and its effect on the pass/fail outcome.

Because all USMLE Step 1 scores reported on or after January 26, 2022 will be reported as Pass or Fail only, **future reviews of the Step 1 passing standard will not be reported in terms of a three-digit score.**

The USMLE program provides advanced notice of [Step exam reviews](#) and any adjustments on the USMLE website. The review process also appears in the [USMLE Bulletin of Information](#).

As more information becomes available, updates will appear on the USMLE website.

Scheduled Review of USMLE Step 2 CK Passing Standard (posted January 2022)

The [USMLE Management Committee](#) is scheduled to conduct a review of the passing standard for USMLE Step 2 Clinical Knowledge (CK) at its April 2022 meeting.

As part of the USMLE program's operational procedures and in alignment with best practices for licensing and certification exams, a comprehensive review and analysis of the passing standard for each Step exam typically occurs every three to four years. This ensures that the passing standard is consistent with expectations of the level of content mastery of the knowledge and skills needed to support effective medical practice and licensure.

For the 2022 Step 2 CK review, information from multiple sources will be considered, including:

- Recommendations from independent groups of physicians unaffiliated with the USMLE participating in content-based standard-setting panels in February 2022;

- Results of surveys of various groups (e.g., state licensing representatives, residency program directors, medical school faculty, examinees) concerning the appropriateness of current passing standards for the Step 2 CK examination;
- Data on trends in examinee performance; and
- Score precision and its effect on the pass/fail outcome.

The USMLE program provides advanced notice of Step exam reviews and any adjustments on the USMLE website. The review process also appears in the [USMLE Bulletin of Information](#).

If the Committee determines that a change to the passing standard is appropriate, the new recommended passing standard will become effective for all examinees who take the Step 2 CK examination on or after **July 1, 2022**.

As more information becomes available, updates and the final decision will appear on the USMLE website.

Change to Step 2 CK Passing Standard Begins July 1, 2022 (posted April 2022)

At its April 2022 meeting, the [USMLE Management Committee](#) conducted a review of the USMLE Step 2 Clinical Knowledge (CK) passing standard and decided that a five-point increase in the passing standard – used to determine a Pass or Fail outcome – will apply to Step 2 CK examinees testing on or after July 1, 2022. **On the three-digit score scale, the passing standard will change from 209 to 214.**

As part of the USMLE program's operational procedures and in alignment with best practices for licensing and certification exams, a scheduled comprehensive review and analysis of the passing standard for each Step exam typically occurs every three to four years. This ensures that the passing score reflects current expectations concerning knowledge and skills needed to support effective medical practice and patient care. The current passing standard has remained unchanged since 2014.

This adjustment to the passing standard was determined through the thorough and careful consideration of information from multiple sources, including:

- Recommendations from independent groups of physicians unaffiliated with the USMLE who participated in content-based standard-setting panels in February 2022;
- Results of surveys of various groups (e.g., residency program directors, medical school faculty, state licensing representatives, examinees) concerning the appropriateness of the current passing standard for the Step 2 CK examination;
- Data on trends in examinee performance; and
- Score precision and its effect on the pass/fail outcome.

The USMLE program provides advanced notice of [Step exam passing standard reviews](#) and any adjustments on the USMLE website. Details about the review process also appear in the [USMLE Bulletin of Information](#).

APPENDIX B

Quarterly FSMB Update on USMLE

Copies of the Quarterly FSMB Update on USMLE as distributed to state medical boards in 2022 are provided on the following pages.

Quarterly FSMB Update on USMLE

March 2022, Vol. 3, No. 1



USMLE Transcripts – Important Reminders!

Only delivered via FSMB Member Portal

Official USMLE transcripts are only made available to state boards via the FSMB Member Portal on the FSMB [website](#). Any USMLE transcripts received in hard copy format via mail or via email should automatically be considered suspect. Should you receive a transcript by any means other than the FSMB board portal, please contact FSMB staff immediately so that we can verify the authenticity of the transcript and the accuracy of the data provided therein.

Only available for 6 months on FSMB Member Portal

Official USMLE transcripts are only available on the portal for 6 months from the date of posting. If you or your staff have not downloaded the transcript within 6 months, you can contact Debbie Cusson at the FSMB (dcusson@fsmb.org or 817-868-4025) and she will be happy to repost it for you. Doing this saves the physician the time and money of requesting and paying for another transcript to be sent to the board.

FSMB Annual Meeting, April 28-30, New Orleans

We're excited to see everyone and to reconnect after a long time apart. Please take advantage of these opportunities to catch up, chat with the USMLE team & get your questions answered!

Friday (7:00-7:45 am)

Sunrise Session - USMLE update
(continental breakfast provided)

Thursday/Friday/Saturday (All Day)

FSMB/USMLE Information Table

We look forward to seeing you soon!

USMLE SPOTLIGHT:

Andrea A. Anderson, MD, FAAFP

The current chairperson of the District of Columbia Board of Medicine, Dr. Anderson is a Family Medicine physician in DC. In addition to her many roles and years of service on other state and national medical organizations and initiatives, she has served as a volunteer committee member with USMLE since 2018, when she was appointed as an item writer on the USMLE Introduction to Clinical Medicine, Physical Diagnosis, and Communication Test Material Development Committee. She also currently serves on the USMLE Management Committee; the Step 3 CCS Internal Review Committee; and the Step 1, 2 CK Forms Review Committee. Dr. Anderson also serves as a member on the Patient Characteristics in USMLE Task Force, which is charged, in part, to review the current use of patient characteristics in USMLE and identify instances of unintended patient stereotypes and promotion of behaviors that might result in healthcare disparities (and inappropriate care), and draft principles to guide the inclusion versus exclusion of patient characteristics going forward. Did we mention that she also serves on the FSMB Board of Directors? Yes, the FSMB House of Delegates elected her to her first, full 3-year term last year (2021)!

With such a wealth of experience, we asked Dr. Anderson to reflect on her experiences as a state board member and a member of the USMLE. She said, "I can honestly say accepting my appointment to the DC Board of Medicine and subsequent election to the FSMB BOD rank among some of my best career decisions. In addition to working with amazing colleagues, I am grateful for the opportunity to grapple with the triumphs and challenges of licensing a competent, empathetic workforce. Early on in my DC board service, I participated in the USMLE Orientation at NBME offices, and I was hooked. As an academician, health policy educator, and medical regulator, working with the USMLE program



Resources

Website: www.usmle.org

Bulletin of Information: <https://www.usmle.org/bulletin-information>

FAQs: <https://www.usmle.org/common-questions>

Social Media



facebook.com/usmle/



twitter.com/TheUSMLE



linkedin.com/company/usmle

has been an excellent synthesis of my interests. It is a great honor to be able to shape the next generation of physicians through assessment, especially in the areas of professionalism, ethics, health equity, communication, and a host of other relevant and meaningful subject areas.”

We sincerely thank Dr. Anderson for her service to USMLE, FSMB and the DC Board of Medicine. We are grateful for your continued support, enthusiasm and participation, and we look forward to many more years of working with you!

A Canary in a Coal Mine for Medicine? Oregon Explores Alternatives to the Bar Exam for Licensure of Lawyers

Staff note: The issues and themes that underpin these discussions in Oregon – assessment of minimal competence for licensure, consideration of consumer protection and equity in the minds of lawmakers and regulatory staff in setting policy, and desire for more professionals to ease workforce shortages – are heard in discussions about medicine and physician licensure. We share this to inform readers of ideas and discussions occurring within another licensed profession.

In January 2022, Reuters reported on a decision by the Oregon Supreme Court to “approve in concept”¹ a state bar proposal that would allow law school graduates to become licensed without passing the bar. While similar to the alternate license pathway in Wisconsin that allows students who graduated from Wisconsin law schools in to be licensed without passing the bar, the Oregon proposal would apply to graduates of schools both within and outside Oregon.

Recommendations from the Oregon State Board of Bar Examiners’ Alternatives to the Exam Task Force propose two alternative pathways to licensure for attorneys in Oregon – an experiential learning pathway and a supervised practice pathway. Both pathways are intended to supplement the traditional pathway of taking and passing the bar exam. The Task Force report² indicates that two principles guided its mission – consumer protection and equity. Specifically, the Task Force asked two questions: 1) Will this model provide adequate consumer protection by ensuring applicants to the practice of law demonstrate the minimum competence to practice law prior to licensure; and (2) Will this model increase accessibility to and

equity in the profession by removing unnecessary barriers to entry.

Brian Gallini, dean of Willamette University’s College of Law in Oregon, who served on the Task Force, spoke with Oregon Public Broadcasting (OPB) about the Oregon Supreme Court’s unanimous decision. Gallini stated that conversations about alternatives to passage of the bar exam for attorney licensure in Oregon grew “in part from the idea that the skills to pass a multiple-choice test don’t always match up with what employers are looking for” and as a way to “bridge the gap” or the misalignment between the efforts law schools undertake to prepare students to practice and the efforts they undertake to help them pass the bar exam. Gallini also indicated that these licensing alternatives could help ease understaffing issues in Oregon’s legal system.³

The same issues and themes that underpin these discussions in Oregon – a multiple-choice examination for assessment of minimal competence for licensure, consideration of consumer protection and equity in the minds of lawmakers and regulatory staff in setting policy, and the need for more professionals to help ease workforce shortages – have long echoed in discussions about medicine and physician licensure. While it’s difficult to imagine going back to an apprenticeship model for physician practice and licensure, it is perhaps not that far-fetched to imagine the ideas and discussions currently occurring within the legal profession making their way into the medical education and regulation environment. The USMLE program and its parents – the FSMB and the NBME – will continue to monitor these discussions and to keep the state medical boards apprised of significant updates.

References

¹ <https://www.reuters.com/legal/litigation/oregon-moves-closer-bar-exam-alternative-2022-01-12/>

² <https://taskforces.osbar.org/files/Bar-Exam-Alternatives-TFReport.pdf>

³ <https://www.opb.org/article/2022/01/17/oregon-advances-alternative-routes-to-becoming-a-licensed-lawyer/#:~:text=The%20Oregon%20Supreme%20Court%20unanimously,a%20postgraduate%20supervised%20practice%20pathway>

Quarterly FSMB Update on USMLE

June 2022, Vol. 3, No. 2



USMLE Orientation for State Board Members – October 3, 2022

The USMLE program is hosting its annual orientation for state medical board members and staff on October 3 at the FSMB offices in Euless, Texas. The orientation provides attendees with a better understanding of the USMLE program and is a no-commitment way for board members to learn about how they might be able to participate in the program, should they wish to do so. Interested individuals should contact Frances Cain at fcain@fsmb.org.

In 2021, 25 representatives from 18 boards participated in USMLE. Since implementation of the USMLE in 1992, 311 individuals from 63 boards have participated.

More information about USMLE committees and task forces, along with a listing of current members for these committees, are available on the [USMLE website](#).

USMLE Medical Student and Resident Advisory Panel Meets

USMLE Medical Student and Resident Advisory Panel met virtually on June 8 and 16 to discuss recent USMLE changes. Specifically, the panel discussed recent and ongoing research and work on assessment of clinical skills in the USMLE following discontinuation of the Step 2 CS exam; the January 2022 implementation of pass/fail only score reporting for Step 1 and the resultant impact on testing; and the recommendation from the Coalition for Physician Accountability to “normalize” USMLE and COMLEX-USA scores for purposes of UME to GME transition. The panel, which consists of 14 domestic and international medical students and residents meets twice a year, both virtually and in person, to discuss and provide input on USMLE matters. **Tammy McGee (Minnesota)** serves as the public member on the panel.

USMLE Attempt Limit – Updated State Board Petition Form

Effective July 1, 2021, the USMLE Attempt Limit was reduced to four (4) attempts, including incomplete attempts, per Step. The **sole exception to the 4-attempt limit is sponsorship by a state board for one additional attempt** at the Step for which the examinee has 4 or more attempts. If this additional attempt is passed, the individual will be able to resume the USMLE sequence. If this additional attempt is not passed, the individual will be locked out of USMLE permanently.

The Petition form that state boards must complete in order to sponsor an individual to have an additional attempt at a USMLE Step was recently **updated to address concerns expressed by several boards about language on the form regarding eligibility for licensure**. Specifically, this language (underlined) at the end of the third paragraph on the form: “Therefore, the program will accept a request from a medical licensing authority to allow one additional attempt for an individual who would be eligible for licensure in that jurisdiction if they passed that Step after more than four attempts.”

Was updated to read:

“Therefore, the program will accept a request from a medical licensing authority to allow one additional attempt for an individual who would be eligible to become licensed in that jurisdiction if they passed that Step after more than four attempts and go on to meet all other licensure requirements.”

The updated Petition form was emailed to all state board executives in May.

Change to Step 2 CK Passing Standard

At its April 2022 meeting, the USMLE Management Committee conducted a review of the USMLE Step 2 Clinical Knowledge (CK) passing standard and decided that a five-point increase in the passing standard – used to determine a Pass or Fail outcome – will apply to Step 2 CK examinees testing on or after July 1, 2022. **On the three-digit score scale, the passing standard will change from 209 to 214.**

As part of the USMLE program's operational procedures and in alignment with best practices for licensing and certification exams, a scheduled comprehensive review and analysis of the passing standard for each Step exam typically occurs every three to four years. This ensures that the passing score reflects current expectations concerning knowledge and skills needed to support effective medical practice and patient care. The current passing standard has remained unchanged since 2014.

This adjustment to the passing standard was determined through thorough and careful consideration of information from multiple sources, including:

- Recommendations from independent groups of physicians unaffiliated with the USMLE (including **state licensing representatives**) who participated in content-based standard-setting panels in February 2022;
- Results of surveys of various groups (e.g., residency program directors, medical school faculty, **state licensing representatives**, examinees) concerning the appropriateness of the current passing standard for the Step 2 CK examination;
- Data on trends in examinee performance; and
- Score precision and its effect on the pass/fail outcome.

The USMLE program staff wish to thank all state board members who participated in the Step 2 CK standard setting panels and surveys! Input from the licensing and practicing physician community is integral to the committee's review and decision-making.

Step 3 Enhancements

New Step 3 Site:

In early April 2022, the FSMB consolidated all Step 3-related processes into one site for an easier, quicker, more seamless experience for Step 3 applicants and examinees. The new site allows applicants and examinees to apply for Step 3; monitor the status of their application, scheduling permit and score report; access and download their scheduling permit; access and download their score report; update their name and contact information. Prior to implementation of this site, examinees had to go to two different websites to complete and track their full Step 3 experience.

Expanded & Enhanced Step 3 Practice Resources:

To expand the availability of USMLE test materials for Step 3 examinees, Computer-based Case Simulations (CCS) **practice materials are now web-based and accessible on both PCs and Macs**. Previously, the materials were only accessible on PCs and required users to download software directly onto their computers. The new web-based format offers a more user-friendly experience, including the ability to navigate more easily through the case simulations, which will hopefully help ease applicants experience and facility with the CCS case software ahead of their actual exam. Feedback has been solicited from users and will be used to further enhance the materials for an even **more user-friendly experience**. The materials are free and accessible to anyone – even the public – on the [USMLE website](#).

USMLE UPDATE AT ANNUAL MEETING

The April 2022 FSMB Annual Meeting featured a USMLE update from David Johnson, FSMB's Chief Assessment Officer, and Michael Jodoin, PhD, Senior Vice President at NBME.

In case you were not able to attend, you can watch a recording of the session on the [FSMB website](#).

Resources

Website: www.usmle.org

Bulletin of Information: <https://www.usmle.org/bulletin/>

FAQs: <https://www.usmle.org/frequently-asked-questions/>

Social Media



facebook.com/usmle/



twitter.com/TheUSMLE



linkedin.com/company/usmle

Assessment of Clinical Skills in USMLE

In January 2021, the FSMB and the NBME, co-sponsors of the USMLE, announced the discontinuation of the USMLE Step 2 Clinical Skills (CS) exam. While there are no plans to bring back Step 2 CS [in the prior format], the USMLE program recognizes that independent standardized assessments of medical knowledge and clinical skills are important inputs for state medical licensure decisions. In the absence of Step 2 CS, elements of clinical reasoning and communication will continue to be assessed on other Steps in the USMLE sequence. For instance, computer case simulations on Step 3 and communication content recently bolstered on Step 1 are examples of these efforts that will continue. While not a replacement for the insights gained through performance-based assessments, these formats continue to contribute positively, e.g., measuring critical knowledge of medical communication.

Additionally, in light of the discontinuation of Step 2 CS, communication skills and clinical reasoning skills have been identified and prioritized by the USMLE governance committees as two areas to explore enhanced assessment in future USMLE exams. Work on enhancing assessment of *communication skills* is currently in progress and to date has included an exploratory NBME pilot with a small number of fourth-year medical students using a video-based communication assessment. Work on enhancing the assessment of clinical reasoning skills thus far has explored the feasibility of using short answer and rationale provision items in initial pilots with fourth-year medical students. Larger scale pilots for both of these initiatives will be forthcoming.

Exam-related Resolutions Presented at June 2022 AMA Meeting

At the June 2022 Annual Meeting of the American Medical Association (AMA) House of Delegates, the AMA heard resolutions specific to USMLE and COMLEX-USA. Resolutions included those touching on exam fees and overall licensure costs, discontinuing COMLEX-USA Level 2-PE and a proposal for a single examination for medical licensure with an osteopathic component. The resolution around the latter comes on the heels of a similar resolution in 2021 by the Student Osteopathic Medical Association (SOMA). FSMB provided testimony in response to several of these resolutions and expressed its willingness to engage in conversation on the broader examination topic.

SIDEBAR

In the March 2022 update, we provided an overview of discussions within the legal profession to allow law school graduates in some states to practice without taking and passing the bar exam. It recently came to our attention that the recent work in Oregon on this topic will be featured in a July 2022 webinar by the Council on Licensure, Enforcement and Regulation (CLEAR). Additional details and registration are available on the CLEAR website.

Quarterly FSMB Update on USMLE

September 2022, Vol. 3, No. 3



USMLE Orientation for State Board Members

The FSMB and the NBME wish to thank everyone who attended the 16th annual USMLE Orientation for State Board Members and Staff, which was held October 3, 2022 at the FSMB offices in Texas. This year's meeting was attended by 10 state board members and 6 staff from 11 different state boards:

- Alabama Board of Medical Examiners
- Medical Licensure Commission of Alabama
- District of Columbia Board of Medicine
- Guam Board of Medical Examiners
- Idaho Board of Medicine
- Michigan Board of Medicine
- Montana Board of Medical Examiners
- Nevada State Board of Medical Examiners
- New York State Office of Professional Medical Conduct
- Virgin Islands Board of Medical Examiners
- Washington Board of Osteopathic Medicine and Surgery



The orientation provides an opportunity for board members and staff to learn about the USMLE program (e.g., how test items and exam content are developed) and how they might be able to participate in the program if interested.

To date, 200 individuals from 59 medical and osteopathic boards have participated in an orientation. Fifty-seven (57) past workshop participants (representing 35 boards) have served subsequently with the USMLE program. This includes participation on standard setting panels and advisory panels, as well as serving on the USMLE Management Committee, the USMLE Composite Committee, and/or item writing and item review committees.

State board members and staff who are interested in participating in a future Orientation or serving on a USMLE committee, panel or taskforce should contact Frances Cain (fcain@fsmb.org).

State Board Advisory Panel to USMLE

In 2011, the USMLE program established an advisory panel composed of members and staff from state medical boards to provide firsthand feedback on USMLE-related issues and initiatives from the perspective of the primary intended user of USMLE scores – i.e., state medical boards. This year the panel met in person on September 28, 2022 at the FSMB offices in Texas. During the meeting, the panel discussed recent and ongoing USMLE program updates and work, provided input to USMLE program staff about how the program can better communicate with state boards, and provided updates about issues occurring in their states.

Current panel members include:

- Maria Laporta, MD, Illinois State Medical Board
- Shami Goyal, MD, Illinois State Medical Board
- Maroulla Gleaton, MD, Maine Board of Licensure in Medicine

Resources

Website: www.usmle.org

Bulletin of Information: <https://www.usmle.org/bulletin/>

FAQs: <https://www.usmle.org/frequently-asked-questions/>

Social Media



facebook.com/usmle/



twitter.com/TheUSMLE



linkedin.com/company/usmle

- Lynnette Daniels, Nevada State Board of Medical Examiners
- Stephen Boese, MSW, New York State Board for Medicine
- Gerard Dillon, PhD, Pennsylvania State Board of Medicine
- Stephen “Brint” Carlton, JD, Texas Medical Board
- David Herlihy, Esq, Vermont Board of Medical Practice
- Mark Spangler, MA, LPC, West Virginia Board of Medicine



The FSMB and NBME wish to sincerely thank all of the panel members for their participation and thoughtful contributions during the meeting. We would like to extend an extra special thank you to Lynnette Daniels, who has served on the panel since 2014, for her commitment and service to the USMLE program during her tenure.

Annual USMLE Report

The 2022 Annual Report on the United States Medical Licensing Examination® to Medical Licensing Authorities in the United States is now available. The report is being distributed to all state board executive directors in conjunction with this edition of the Quarterly FSMB Update on USMLE.

In addition to providing a technical overview of the USMLE program, the annual report also provides a summary of

program activities over the past year, key updates and/or policy changes, examinee performance data and research conducted by program staff. The report also highlights the various ways in which state medical boards play a key role in the USMLE program.

A few highlights from the report include:

- **As of 2021, approximately 59% of the 1,026,545 licensed physicians in the United States have taken all or part of the USMLE sequence. Approximately 54% of licensed physicians in the U.S. have taken all Steps (1, 2 and 3).**
- In 2022, 42 members and staff from 24 state medical boards participated in the USMLE program through service on a governing committee, advisory panel, standard setting panel, item writing or review committee, or other capacity. Since implementation of the USMLE in 1992, a total of 329 state board representatives from 65 different medical and osteopathic licensing boards have participated in USMLE.
- USMLE Step 1 score reporting transitioned from a numeric score and pass/fail outcome to pass/fail only for exams taken on or after January 26, 2022. The USMLE program views this change as an important first step toward facilitating broader, system-wide changes to improve the transition from undergraduate to graduate medical education.

USMLE MEETINGS CALENDAR

- **October**
Composite Committee
- **November**
Medical Student and Resident Advisory Panel
Management Committee
- **December**
Committee for Individualized Review

APPENDIX C

USMLE Aggregate Performance Data 2020-2021

The data tables below are extracted from the performance data provided on the USMLE website at <http://www.usmle.org/performance-data/>. Performance data for USMLE administrations dating back to 2012 are also available on the website.

Table 1

2021 STEP 1 ADMINISTRATIONS * Number Tested and Percent Passing		
	# Tested	% Passing
Examinees from US/Canadian Schools that Grant:		
MD Degree	23,078	95%
1 st Takers	22,280	96%
Repeaters**	798	66%
DO Degree	5,365	94%
1 st Takers	5,309	94%
Repeaters**	56	75%
Total US/Canadian	28,443	95%
Examinees from Non-US/Canadian Schools		
1 st Takers	16,952	82%
Repeaters**	2,258	45%
Total non-US/Canadian	19,210	77%

*Represents data for examinees tested in 2021 whose scores were reported through February 2, 2022.

**Repeaters represents examinations given, not number of examinees.

Table 2

2020-2021 STEP 2 CK ADMINISTRATIONS *
Number Tested and Percent Passing

	# Tested	% Passing
Examinees from US/Canadian Schools that Grant:		
MD Degree	24,019	98%
1 st Takers	23,607	99%
Repeaters**	412	75%
DO Degree	4,499	98%
1 st Takers	4,475	98%
Repeaters**	24	71%
Total US/Canadian	28,518	98%
Examinees from Non-US/Canadian Schools		
1 st Takers	12,431	91%
Repeaters**	1,368	62%
Total non-US/Canadian	13,799	88%

*Data for Step 2 CK are provided for examinees tested during the period of July 1 to June 30 whose scores were reported through February 2, 2022.

**Repeaters represents examinations given, not number of examinees.

Table 3

2021 STEP 3 ADMINISTRATIONS *
Number Tested and Percent Passing

	# Tested	% Passing
Examinees from US/Canadian Schools that Grant:		
MD Degree	22,225	97%
1 st Takers	21,568	98%
Repeaters**	657	73%
DO Degree	62	97%
1 st Takers	61	97%
Repeaters**	1	†
Total US/Canadian	22,287	97%
Examinees from Non-US/Canadian Schools		
1 st Takers	9,891	91%
Repeaters**	1,311	62%
Total non-US/Canadian	11,202	87%

*Represents data for examinees tested in 2021 whose scores were reported through February 2, 2022.

**Repeaters represents examinations given, not number of examinees.

†Performance data not reported for categories containing fewer than 5 examinees.

APPENDIX D

Program-related Publications by USMLE Staff in 2019-2022

- Arnhart K, Cuddy MM, Johnson D, Barone MA, Young A. Multiple United States medical licensing examination attempts and the estimated risk of disciplinary actions among graduates of US and Canadian medical schools. *Academic Medicine*. 2021;96(9):1319-1323.
- Baldwin P, Yaneva V, Mee J, Clauser BE, Ha LA. Using natural language processing to predict item response times and improve test construction. *Journal of Educational Measurement*. 2021;58(1):4-30.
- Bezirhan U, von Davier M, Grabovsky I. Modeling item revisit behavior: the hierarchical speed–accuracy–revisits model. *Educational and Psychological Measurement*. 2021;81(2):363-387.
- Cain FE, Arnhart K, Young A, Johnson D. Characteristics and outcomes of individuals engaging in USMLE irregular behavior, 2006–2015. *Journal of Medical Regulation*. 2020;106(4):8-16.
- Chaudhry HJ, Katsufakis PJ, Tallia AF. The USMLE Step 1 decision: an opportunity for medical education and training. *JAMA*. 2020;323(20):2017-2018.
- Chaudhry HJ, Kirch DG, Nasca TJ, et al. Navigating tumultuous change in the medical profession: the coalition for physician accountability. *Academic Medicine*. 2019;94(8):1103-1107.
- Cuddy, M. M., Liu, C., Ouyang, W., Barone, M. A., Young, A., & Johnson, D. A. An Examination of the Associations Among USMLE Step 3 Scores and Likelihood of Disciplinary Action in Practice. *Academic Medicine*. Published Ahead of Print.

- Feinberg RA. Estimating classification decisions for incomplete tests. *Educational Measurement: Issues and Practice*. 2021;40(2):96-105.
- Hammoud M, Foster L, Cuddy MM, Swanson D, Wallach P. Electronic health record use during the obstetrics and gynecology clerkship by medical student graduates between 2012 and 2016. *Obstetrics & Gynecology*. 2019;134(1):46S.
- Hamstra SJ, Cuddy MM, Jurich D, et al. Exploring the association between USMLE scores and ACGME milestone ratings: a validity study using national data from emergency medicine. *Academic Medicine*. Published online June 15, 2021. doi:10.1097/ACM.00000000000004207
- Harik P, Feinberg RA, Clauser BE. How examinees use time: examples from a medical licensing examination. In: Margolis MJ, Feinberg RA, eds. *Integrating timing considerations to improve testing practices*. Routledge; 2020:73-89.
- Jodoin MG, Rubright JD. When examinees cannot test: the pandemic's assault on certification and licensure. *Educational Measurement, Issues and Practice*. 2020; doi:10.1111/emip.12361
- Jurich DP, Daniel M, Paniagua M, et al. Moving the United States Medical Licensing Examination Step 1 after core clerkships: an outcomes analysis. *Academic Medicine*. 2019;94(3):371-377.
- Jurich DP, Liu C, Clauser A. To the Editor: Limitations and alternative solutions to a USMLE COMLEX-USA concordance. *Journal of Graduate Medical Education*. 2022;353-354.
- Jurich DP, Santen SA, Paniagua M, et al. Effects of moving the United States medical licensing examination Step 1 after core clerkships on Step 2 clinical knowledge performance. *Academic Medicine*. 2020;95(1):111.

- Katsuftrakis P, Paniagua MA. The National Board of Medical Examiners: testing and evaluation in the United States and internationally. *Investigación en Educación Médica*. 2020;8(29):9-12.
- Katsuftrakis PJ, Chaudhry HJ. Evolution of clinical skills assessment in the USMLE: looking to the future after Step 2 CS discontinuation. *Academic Medicine*. Published online June 22, 2021. doi:10.1097/acm.0000000000004214
- Katsuftrakis PJ, Chaudhry HJ. Improving residency selection requires close study and better understanding of stakeholder needs. *Academic Medicine*. 2019;94(3):305-308.
- Margolis MJ, Clauser BE. Automated scoring in medical licensing. In: Yan D, Rupp AA, Folz PW, eds. *Handbook of Automated Scoring*. Chapman and Hall/CRC; 2020:445-468.
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- Morrison C, Barone M, Baker G, Ross L, Pak S. Investigating the relationship between a clinical science composite score and USMLE Step 2 clinical knowledge and Step 3 performance. *Medical Science Educator*. 2020;30(1):263-269.
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Salt J, Harik P, Barone MA. Leveraging natural language processing: toward computer-

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Proceedings of the Fifteenth Workshop on Innovative Use of NLP for Building

Educational Applications; July, 2020; Online.

Yaneva V, Baldwin P, Mee J. Predicting item survival for multiple choice questions in a

high-stakes medical exam. Paper presented at: Proceedings of the 12th

Language Resources and Evaluation Conference; May, 2020; Marseille, France.

Yaneva V, Baldwin P, Mee J. Predicting the difficulty of multiple choice questions in a

high-stakes medical exam. Paper presented at: Proceedings of the Fourteenth

Workshop on Innovative Use of NLP for Building Educational Applications;
August, 2019; Florence, Italy.

Yaneva V, Jurich D, Baldwin P. Using linguistic features to predict the response process complexity associated with answering clinical MCQs. Paper presented at: Proceedings of the 16th Workshop on Innovative Use of NLP for Building Educational Applications; April, 2021; Online.

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