CHANGING
THE PARADIGM
A New Approach to Assessment in Maintenance of Certification

2015 MOC SUMMIT
THE EVOLUTION OF ASSESSMENT IN MOC

Using an intensive longitudinal assessment model to measure physicians’ knowledge without high-stakes standardized exams
AN IMPERATIVE SHIFT

“We are all very committed to getting this right because it can enable our physicians to take better care of our patients.”

- James P. Rathmell, M.D., Secretary, American Board of Anesthesiology Board of Directors; Chair, Department of Anesthesiology, Perioperative and Pain Medicine, Brigham and Women’s Hospital, Boston

The American Board of Medical Specialties’ Maintenance of Certification (ABMS MOC®) remains the essential key to assessing physician knowledge and performance over the course of one’s career. However, we have reached a critical juncture as advances in technology and science, and changes in regulation and delivery systems impact medical practice. With such pervasive and persistent change, we can no longer rely on the traditional recertification process to assure the public that board-certified physicians are maintaining their medical knowledge.

Instead, we must reimagine MOC to focus on continuous assessment and learning. We need to develop more effective learning platforms using the latest research in adult learning theory. And we must collaborate with our diplomates, education content providers and partners in the house of medicine to build meaningful programs that address the needs of physicians for the benefit of patients. Designed correctly, MOC has the potential to profoundly improve physician performance and uphold the trust the public places on the medical community to maintain the highest standards for board-certified physicians.

While the public at large does not understand MOC, patients do expect that healthcare organizations and oversight organizations require physicians to meet a high standard of competence in their specialties. MOC helps these institutions meet this obligation (ABMS, 2015).

It is our responsibility to constantly assess our programs and standards to ensure that they continue to evolve at the same pace that medicine does. If we evaluate our own programs with the same rigor we use to assess diplomates, we will prevail in fulfilling our promise to maintain the highest standard for board-certified physicians in medical practice.

It is through our own self-assessment that the American Board of Anesthesiology (ABA) came to the conclusion that an infrequent, high-stakes MOC exam is not the most effective way to help its board-certified physicians learn and retain medical knowledge. The exam served its purpose; however, we now believe an intensive longitudinal assessment model is a more valuable approach for the Board and for our diplomates participating in the Maintenance of Certification in Anesthesiology Program® (MOCA®) (The American Board of Anesthesiology, 2014). Continuous assessment can foster a culture of lifelong learning and has the potential to have a broader impact on the practice of anesthesia.

In collaboration with our diplomates, the ABMS and other key stakeholders, the ABA is reimagining MOC with significant focus on this new model, which we will use to link physicians to meaningful educational resources that can help them to learn new concepts and retain the knowledge they already have.

This is a pivotal moment in the brief history of MOC. Every Member Board has a unique approach to administering the program; however, we all share the common goal of assuring the public that our board-certified physicians are meeting the highest standard in the practice of their specialty.

To cultivate this sense of shared purpose, the ABA hosted a two-day summit in May 2015 to share its innovative approach to an MOC redesign, and hear other ideas about how the Member Board community could inspire change through collaboration. Held at the ABA offices in Raleigh, N.C., the Summit brought together more than 50 of the country’s leading anesthesiologists, experts in adult learning theory and leaders from a variety of medical specialties, regulatory bodies and other key stakeholder audiences.

The Summit marks the first time the ABA assembled such a diverse group to discuss new approaches to MOC. Our success as a Member Board community is predicated on us working together on a shared vision to keep MOC relevant to diplomates and impactful on improving patient care.

Reinventing MOC will not be easy. But we are convinced that our window of opportunity to drive such change is now, and that we must capitalize on it before it is too late.
TRUE LEARNING

“Knowing how to manage our own learning has never been more important. The opportunities to do so have never been more available.”

- Robert Bjork, Ph.D., Distinguished Research Professor, Department of Psychology, University of California, Los Angeles

Learning does not end after residency training. Advances in medical care and new healthcare delivery systems require physicians to constantly refresh and retool their skills. We know that cognitive knowledge and psychomotor skills for procedural knowledge decline over time, so these skills may need to be retaught and reinforced over the course of a physician’s career.

The decennial MOCA exam measures physicians’ knowledge base at a point in time every 10 years, but does little to help them retain or reinforce learning during the years prior to the exam. Diplomates often rely on study guides and cram for the exam just to pass it rather than engaging in meaningful learning (Bernstein, 2015). They are committed to maintaining their medical knowledge, but do not feel the exam affords them a meaningful way to do so.

With that said, shifting from a culture of summative, decennial examinations designed to measure learning to one of continuous assessment for learning is a sea change. But we are convinced it is the right path for our diplomates and our practice.

The most current learning science research, like that of Robert Bjork, Ph.D., Distinguished Research Professor in the Department of Psychology at the University of California, Los Angeles, tells us that retrieval practice, interleaving and spacing are the most effective tools for learning and retaining skills and knowledge (Bjork & Bjork, 2011). In fact, repeatedly asking physicians to demonstrate procedural skills that they are proficient in helps these skills to endure in their memories, according to Doug Larsen, M.D., M.Ed., medical education faculty and pediatric neurologist at St. Louis Children’s Hospital and Washington University School of Medicine, who along with Dr. Bjork presented at the MOC Summit (Larsen, 2015).

The use of multiple learning techniques that are tailored to produce specific learning yield the best retention. Boards and educational providers should collaborate to identify the most effective instructional tools and methods. If we are committed to keeping diplomates at peak performance, they need educational offerings and certification systems that set them up for optimal and ongoing self-paced learning that can be done anytime and anywhere.

Learning platforms need to give physicians the ability to gauge their progress because people often overestimate their own learning. Guiding physicians to learning opportunities, then testing to assess proficiency and providing feedback on correct and incorrect responses allows learners to assess what they know—and do not know—and rethink their learning strategies. These techniques contribute to meaningful learning that individuals will retain over time (Bjork, 2015).

Medical students, who often engage in online simulation and gaming, are far ahead of specialty boards and diplomates in using these processes that enhance retention and transfer. These innovative educational tools merit serious consideration as research has shown they are more effective for aiding knowledge retention and recall than summative testing alone (Bjork, 2011).

The ABA’s MOCA redesign, known as MOCA 2.0™, will incorporate these concepts, fostering a community of learners and promoting continuous, systematic learning (ABA, 2015). Using intensive longitudinal assessment, the ABA can assess diplomates’ knowledge, identify knowledge gaps and then steer them to relevant learning to fill these gaps. This continuous assessment over the course of diplomates’ careers will help individual doctors more strategically pursue continuing education (Rathmell, 2015). It will also provide the ABA with rich data about the knowledge and skills of the entire community of MOCA participants. This data can help the Board identify education and training opportunities designed to advance anesthesia practice across the spectrum of the specialty (Lien, 2015). If other Member Boards adapted the same approach, the ABMS community could collectively improve the quality of medical care across all of the medical specialties.
MOCA 2.0™: MOC REIMAGINED

“It is not exams that make patient care better—it is what people know. We are trying to marry those two things.”

- Andrew Patterson, M.D., Ph.D., Director, American Board of Anesthesiology; Executive Vice Chair, Department of Anesthesiology, University of Nebraska Medical Center, Omaha, Neb.

The ABA launched its MOCA program in 2004 to help diplomates maintain up-to-date medical knowledge, enhance quality clinical outcomes and promote patient safety (ABA, 2015). Data and diplomate feedback indicated the program needed enhancements. In 2011, the Board’s strategic planning discussions led to the consideration of a MOCA program redesign. In 2012, the ABA hosted a technology summit in San Diego to discuss new approaches to measuring proficiency and leveraging technology to enhance its assessment program.

Two years later, the ABA launched the MOCA Minute™ pilot, an interactive, online learning tool that would become a core component of MOCA 2.0 (ABA, 2015). Diplomate feedback about the new online tool was overwhelmingly positive and diplomates who actively participated in the pilot performed better on the subsequent MOCA exam than those who did not participate (ABA, 2015).

As a result of this initial success, the MOCA Minute pilot will expand in 2016 to include all diplomates with current certificates who are participating in MOCA. At that time, the ABA will allow its physicians to complete practice profiles that will ultimately drive the content of their MOCA Minute questions. Diplomates will be able to track their MOCA Minute progress on a dashboard and will be able to see how they are performing on questions in relation to their colleagues.

In 2017, the ABA will launch additional MOCA 2.0 portal features, including a dashboard that will display diplomates’ proficiency in key topic areas based on the MOCA Content Outline (ABA, 2014). When diplomates see their proficiency declining in a topic area, they may click on that topic to see links to relevant learning resources that will help them refresh their knowledge. Once they have completed the learning, they will be assessed to see that they retained what they learned. If they have, their dashboard will indicate that their knowledge on the topic has been restored.

The portal will also feature a Google-like search function that will allow diplomates to find learning resources by topic (ABA, 2015). The search results will eventually feature diplomate ratings as well as the time and cost associated with the learning. The portal will also feature a repository where diplomates can store their professional certifications, licenses and other documentation they maintain for regulatory purposes. This will allow them to easily access these documents and distribute them electronically to credentialing agencies and others who request them (ABA, 2015).

We are confident that providing this personalized approach to MOCA will also make the program more relevant, accessible and meaningful for our diplomates.

DIPLOMATE ENGAGEMENT

“We partnered with diplomates to redesign MOCA to make it relevant to individual physicians’ medical practice and enhance patient care.”

- James P. Rathmell, M.D., Secretary American Board of Anesthesiology Board of Directors; Chair, Department of Anesthesiology, Perioperative and Pain Medicine, Brigham and Women’s Hospital, Boston

Diplomate feedback and collaboration contributed greatly to the MOCA 2.0 development and design. The ABA used insight gleaned from more than 8,000 MOCA perception survey responses (ABA, 2015), a MOCA Redesign Task Force, a MOCA Feedback email box and input collected at various meetings and conferences. Once an initial design was developed, a MOCA 2.0 Users’ Group of 18 volunteer anesthesiologists was formed to assess the prototype and make recommendations for modifications. Ultimately, this group did a final evaluation of the prototype, giving it high marks, before it went to the ABA Board of Directors for review and approval (ABA, 2015).

The ABMS’ 2015 MOC Standards (ABMS, 2015) bolstered the ABA’s ability to incorporate into MOCA 2.0 the technology and learning science that the Users’ Group endorsed. These standards provided Member Boards with greater flexibility to tailor MOC programs to their specific discipline while calling for innovative MOC ideas.
The web-based MOCA 2.0 platform will provide accessibility and convenience for diplomates, who expressed concerns about spending money and time away from practice to complete MOCA requirements. Diplomates are already applauding the replacement of the MOCA exam with the MOCA Minute pilot, and other program changes that have been announced (Bernstein, 2015).

The ABMS and other Member Boards have expressed great interest in MOCA 2.0, and MOCA Minute in particular. Since the ABA announced the launch of its new assessment tool, the American Board of Pediatrics has committed to a similar pilot (American Board of Pediatrics, 2015) and the ABMS has launched its own intensive longitudinal assessment pilot to provide a MOCA Minute-like tool to other Member Boards.

**CENTER STAGE: MOCA MINUTE™**

“This gives us a much more impactful way to influence practice than we can with just assessing a group’s knowledge every 10 years.”

- Cynthia Lien, M.D., President, American Board of Anesthesiology; Vice Chair for Academic Affairs Department of Anesthesiology, Weill Cornell Medical College, New York

When the ABA launched the MOCA Minute pilot in 2014, it was initially designed to provide diplomates preparing to take the upcoming MOCA exam with a tool for exam preparation.

Diplomates who were eligible to take the July 2014 MOCA Exam were invited to participate in the pilot. The ABA sent diplomates who opted in a weekly email with a link to a question. Once diplomates clicked the link, they had one minute to answer the question and immediately received feedback about whether they answered correctly. Whether they answered correctly or not, they received the correct answer, a rationale and several links to educational resources about the concept being tested that week. Diplomates also had the option to offer the ABA feedback on the questions, which the Board used to review and modify questions, as appropriate.

The 2014 pilot was incredibly well received (ABA, 2015). Participants indicated that the program was very useful and some have called it “addictive.” Based on this feedback and evidence that the tool improved diplomates’ performance on subsequent exams, the Board felt MOCA Minute could serve as an assessment tool to measure physicians’ proficiency.

MOCA Minute will assess physician’s knowledge in key topic areas outlined in the MOCA Content Outline (ABA, 2014).

In contrast to encouraging feverish studying immediately preceding the decennial exam, MOCA Minute will promote continuous engagement in learning and self-assessment.

Physicians will be able to answer as many or as few questions as they wish in any given week, but will be required to answer 30 each calendar quarter or 120 annually (ABA, 2015). The ABA will send diplomates a weekly email with a link to their portal account, where they can access MOCA Minute questions. Diplomates will also be able to access questions by going directly to their portal accounts or by downloading a MOCA Minute mobile app.

The expanded pilot will work much the same way the initial pilot did. Once diplomates click on a question, they will have one minute to answer it and will receive immediate feedback, along with links to learning resources.

Linking diplomates to materials related to specific questions allows them to learn more about a specific topic and refresh their knowledge when needed. They will have access to archived questions that they may reference as needed. While the Board will assess diplomates’ MOCA Minute performance to ensure they are meeting the standard for certification, physicians will receive multiple questions on the same topic over time, thus giving them multiple opportunities to demonstrate that they have learned material they may not have initially known. The ultimate goal is to provide physicians with an accessible and interactive tool that will help them continuously refresh their medical knowledge in a meaningful way.

In 2016, confidence-based scoring will be added to help measure how certain physicians are about their answers before submitting them (Lien, 2015). Lucky guesses and instances where physicians give wrong answers with confidence will be flagged for additional learning and reassessment. Diplomates will also be asked how relevant questions are to track how germane question topics are to clinical practice.

While the MOCA Minute pilot will serve as a valuable learning tool for diplomates, it also provides a broader benefit to the Board. The ABA will track answers, and each answer will serve as a data point about physicians’ current knowledge. Potentially 48,000 data points can be collected over physicians’ careers, affording the opportunity to redirect study and point physicians to appropriate Continuing Medical Education (CME) and similar resources to refine knowledge (Lien, 2015). It will also provide valuable data about the knowledge of the entire MOCA participant community, which
will help the ABA identify gaps that require remediation for the entire diplomate corps. The ABA will be able to work with CME providers to identify educational tools to fill these gaps and will be able to see if they are filled over time. This data has the potential to provide real evidence that MOCA is increasing physicians’ base of knowledge, which has the potential to truly impact patient safety and clinical outcomes.

The beauty of MOCA Minute is that it is an agile tool that the ABA can continue to enhance based on diplomate feedback, and advances in technology and medicine. The ABA welcomes diplomate input and hopes that its work on the tool will be informed by similar pilots at other Member Boards. This kind of collaborative effort will not only result in a more relevant tool, but could provide us with a wealth of information about the most effective techniques for advancing learning across the medical specialties.

CASE STUDIES IN COOPERATIVE LEARNING

“None of us are as smart as all of us.”
- Japanese Proverb

The ABA is not the only organization taking advantage of technology and new research on learning. Various products currently on the market have adapted the latest in learning science to design tools that medical professionals are using to stay current.

Customized, convenient learning platforms take physicians out of sequestered study and compel “social” learning. Medical students and residents actively use this learning model where everyone in the group benefits through shared contributions.

MOC Summit speakers and attendees introduced some of these learning platforms during the May meeting. Here are two examples:

OSMOSIS.ORG

Widely introduced in fall 2013, Osmosis pushes quiz-style questions through mobile devices and the Web (Osmosis, 2015). Repetition helps users learn and prevents forgetting material after testing. Osmosis serves more than 30,000 medical school students and has official implementations at a dozen medical schools, though the delivery platform holds potential for broader audiences.

Osmosis meets the needs of tech-savvy students who want quick, convenient access to learning tools. The program customizes content to specific medical schools, even specific tests, with questions vetted by medical experts and publishers (Osmosis, 2015).

Social learning happens in several ways. Students can rate questions based on their usefulness and those deemed less useful can be eliminated. They can also ask a question and see how they stack up against their peers through an anonymous scoreboard. Images, videos and references are also supplied. The basic package is free, and the prime package starts at $10.40 per month (Osmosis, 2015).

By contributing input, students help each other learn and the entire group builds its knowledge base.

Osmosis was created by two M.D. candidates from the Johns Hopkins School of Medicine: Ryan Haynes, who holds a Ph.D. in neuroscience from the University of Cambridge, and Shiv Gaglani, who is also completing an M.B.A. at the Harvard Business School. They realized a mutual interest in helping students retain information long-term and had the entrepreneurial drive to start Osmosis (Osmosis, 2015).

OPENANESTHESIA™

“We can teach something that the [physicians] didn’t know that they didn’t know.”
- Edward Nemergut, M.D., Professor of Anesthesiology and Neurosurgery, Residency Program Director, University of Virginia School of Medicine, Charlottesville, Va.

OpenAnesthesia is a free website, offering an array of keywords and encyclopedic-style entries that unlock everything anesthesia. The media-rich service also offers “Ask the Expert” interviews with acclaimed anesthesiologists, “Article of the Month” interviews with authors and a transesophageal echocardiogram (TEE) forum for case-based instruction on intraoperative and cardiac anesthesia (OpenAnesthesia, 2015). Self-study programs and virtual grand rounds in different anesthesia subspecialties are also offered.

OpenAnesthesia also produces a learning system, SelfStudyPLUS. Targeting experienced anesthesia physicians and residents, SelfStudyPLUS breaks with traditional teaching methods that treat all learners the same. The program helps users identify strengths and weaknesses, and anticipates knowledge gaps before users realize their shortcomings (Nemergut, 2015).

OpenAnesthesia provides users with a unique advantage through the program’s predictive abilities. Based on users’ answers to questions, the program applies an algorithm and similar analytics to predict clinical topics where users are unlikely to perform well (Nemergut, 2015). Then, the program supplies individualized intervention by supplying
that information to the user and directing them to other sources. The concept resembles and somewhat modifies the goals of algorithms from Amazon® or Netflix, which predict products that viewers will like based on prior choices.

Residents pay anywhere from $150 to $240 to subscribe to SelfStudyPLUS (OpenAnesthesia, 2015). Physicians in practice pay anywhere from $250 to $600 for a CME version of SelfStudyPLUS.

All web content is free, but OpenAnesthesia has a “pay it forward” expectation. It urges physicians who benefit from the material and excel in the field to contribute content—a Wikipedia-like approach with peer-reviewed information that makes the program even better (Nemergut, 2015).

Edward Nemergut, M.D., professor of anesthesiology and neurological surgery, and Robert Thiele, M.D., assistant professor of anesthesiology, both at the University of Virginia School of Medicine, started OpenAnesthesia with the broad goal of advancing medical education in anesthesiology in 2008.

**MOMENTUM FOR CHANGE: WHAT’S THE URGENCY?**

“When are we as Boards going to take responsibility for the milestones that fit into our disciplines and the career years of our diplomates? Our failure to take this responsibility is inviting something else to come in and define these.”

- Lois Margaret Nora, M.D., J.D., M.B.A., President and Chief Executive Officer, American Board of Medical Specialties, Chicago

The call for more meaningful MOC assessment and education has reached critical mass with physicians across various specialties. Growing practices and institutional and regulatory requirements continue to stress diplomates’ time and resources, making MOC appear to be just another onerous requirement rather than a valuable process (Irons & Nora, 2015). Diplomates are putting MOC under a microscope, scrutinizing the assessment process and questioning its relevance to clinical practices (Nora, 2015).

Inaction is not an option if we want to remain relevant and continue contributing to the advancement of medical specialties. Resting on our laurels and relying on the same tools we have always used simply because we have always used them will not work. It will not benefit our diplomates or the patients they serve. It is time to consider a new approach.

The ABA’s mission of advancing the highest standards of the practice of anesthesiology has not changed. The way we go about meeting this mission must change.

Using intensive longitudinal assessment rather than a decennial exam will not preclude Member Boards from making summative decisions. As a matter of fact, the ABA would argue that these assessments can provide a more accurate appraisal of physicians’ medical knowledge and how it changes over time.

We as a Member Board community need to foster cooperative learning communities where inquiry and knowledge are shared. We need to partner with our diplomates to ensure that our programs meet their needs while also continuing to provide viable and defensible tools to assess their knowledge and skills.

The goal is not to eliminate testing. The objective is to continuously assess physicians for proficiency and learning. If we can align this objective with providing physicians with a more relevant and satisfying MOC experience, our diplomates, patients and the public will all win.

“We are moving forward. We will make this work. MOC is too important.”

- Andrew Patterson, M.D., Ph.D., Director, American Board of Anesthesiology; Executive Vice Chair, Department of Anesthesiology, University of Nebraska Medical Center, Omaha, Neb.
ACKNOWLEDGEMENTS

ABA gratefully acknowledges its 2015 MOC Summit presenters

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Dr. Bjork is a distinguished research professor in the Psychology Department at the University of California, Los Angeles. His research focuses on human learning and memory, and on the implications of the science of learning for instruction and training. He has received numerous awards and accolades, including the 2012 Society of Experimental Psychologists’ Norman Anderson Lifetime Achievement Award, and has been selected as a recipient of the 2016 James McKeen Cattell Award from the Association for Psychological Science.

Deborah J. Culley, M.D.
Dr. Culley is an attending physician at Brigham and Women’s Hospital in Boston and serves as an associate professor of anesthesiology at Harvard Medical School in Boston. She is a director of the American Board of Anesthesiology and serves as chair of its Maintenance of Certification and MOCA Minute Committees. Dr. Culley is a member of the Accreditation Council for Graduate Medical Education Anesthesiology Residency Review Committee and serves as vice chair of the Continuing Certification Committee of the American Board of Medical Specialties. She is president of the Society of Neuroscience in Anesthesiology and Critical Care, and serves as a member of the geriatrics-oriented committees for the American Geriatrics Society and the Foundation for Anesthesia Research and Education. Her research focuses on the long-term effects of general anesthesia on the aged brain.

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Dr. Larsen is a medical education researcher, teacher and practicing pediatric neurologist at St. Louis Children’s Hospital at Washington University School of Medicine. His research interests include the role of memory in education as well as experiential and self-regulated learning. The Josiah Macy Jr. Foundation funds his work on self-regulated learning in clinical education as a Macy Faculty Scholar.

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Dr. Lien is vice chair for Academic Affairs and a professor of anesthesiology at Weill Medical College of Cornell University in New York City. She is also an attending physician at New York Presbyterian Hospital. Dr. Lien is president of the American Board of Anesthesiology (ABA) and is a member of its Examinations Committee. She has served as an examiner for the ABA’s Part 2 (oral) Examination since 1994. Dr. Lien is chair of the Academic Anesthesiology Committee of the New York State Society of Anesthesiologists (NYSSA) and chair of the Section on Education and Research of the American Society of Anesthesiologists (ASA). She specializes in neuroanesthesia and the pharmacology of neuromuscular blocking agents.

Edward C. Nemergut, M.D.
Dr. Nemergut is a professor of anesthesiology and neurosurgery at the University of Virginia, where he serves as the residency program director. He is the founder and editor-in-chief of OpenAnesthesia and serves as the section editor for Graduate Medical Education of Anesthesia & Analgesia. He has a career-long interest in medical education, which led to his 1982 creation of a computer-based program, which has developed into the OpenAnesthesia Self-Study App. In 1997, he developed his first online medical simulation program with continuing medical education.

Lois Margaret Nora, M.D., J.D., M.B.A.
Dr. Nora is president and chief executive officer of the American Board of Medical Specialties (ABMS). Prior to joining the ABMS in 2012, she served as interim president and dean of The Commonwealth Medical College in Scranton, Pa., and as president and dean of medicine at Northeast Ohio Medical University. Her institutional accomplishments include the American Medical Women’s Association President’s Recognition Award, the AAMC Group on Educational Affairs Merrell Flair Award in Medical Education, the Phillips Medal of Public Service from the Ohio University College of Osteopathic Medicine and the 2010 Northeast Ohio Medical University College of Pharmacy Dean’s Leadership Award, among others.

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Dr. Patterson is the executive vice chair of the Department of Anesthesiology at the University of Nebraska in Omaha. He previously served as an associate professor of anesthesiology at Stanford University, where he was chief of the critical care medicine division and director of the anesthesiology critical care medicine fellowship program. Dr. Patterson currently serves as an attending physician in the Neurosciences, Medical, and Cardiothoracic and Vascular Intensive Care Units at the University of Nebraska Medical Center and works as an operating room anesthesiologist. He is also associate director of the Interprofessional Academy of Educators at the University of Nebraska. Dr. Patterson is a director of the American Board of Anesthesiology and serves as chair of the Part 2 Examination Committee. He is also a member of the Accreditation Council for Graduate Medical Education Anesthesiology Residency Review Committee.

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Dr. Price is a professor of family medicine at the University of Colorado Denver Health Sciences Center. He is the senior vice president of the ABMS Research and Education Foundation, and the director of the ABMS Multi-Specialty Maintenance of Certification Portfolio Approval Program. From 1988-2015, he was a member of the Colorado Permanente Medical Group (Kaiser Permanente Colorado), where he served in multiple roles, including department chair of family medicine and director of medical education. He served on the American Board of Family Medicine (ABFM) Board of Directors from 2003-08, where he chaired the R&D and Examination (Maintenance of Certification) Committees, and was ABFM board chair from 2007-08. He currently chairs...
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James P. Rathmell, M.D.
Dr. Rathmell is the chair of the department of anesthesiology, perioperative and pain medicine at Brigham and Women’s Hospital in Boston. He previously served as chief of the division of pain medicine and executive vice chair of the department of anesthesia, critical care and pain medicine at Massachusetts General Hospital (MGH). In 2012, he was appointed as the inaugural Henry Knowles Beecher Professor of Anesthesia at MGH. Dr. Rathmell is secretary of the American Board of Anesthesiology (ABA) and chair of its Pain Medicine Examination Committee. He is also a member of the ABA’s Credentials Committee. Dr. Rathmell’s current research interest focuses on examining the effectiveness of new and emerging treatments for pain.

David O. Warner, M.D.
Dr. Warner is a professor of anesthesiology, clinician investigator and consultant for the department of anesthesiology at the Mayo Clinic in Rochester, Minn. He serves as steering committee co-chair and co-director of the Mayo Clinic Office of Health Disparities Research, co-director of the Anesthesia Clinical Research Unit and associate director of the Mayo Clinic Center for Clinical and Translational Sciences. He is a director of the American Board of Anesthesiology and serves as chair of its Examinations and Research Committees. Dr. Warner’s research interests include respiratory physiology, outcomes of anesthesia and surgery, tobacco control, neurotoxicity of anesthetics and substance use disorders.

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REFERENCES


