ABMS

REPORT OF THE SPECIAL COMMITTEE ON PHYSICIAN-SCIENTISTS & CONTINUING CERTIFICATION

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American Board of Medical Specialties
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EXECUTIVE SUMMARY

In 2000, responding to public calls for better, safer care, the 24 Member Boards of the American Board of Medical Specialties (ABMS) transitioned their programs of periodic recertification to Programs for Maintenance of Certification (ABMS MOC®) – a continuing certification process characterized by ongoing assessment and demonstration of professionalism and professional standing; engagement in learning; assessment of knowledge, judgment, and skills; and improvement in practice.

The change from periodic recertification to continuing certification has significantly impacted ABMS, its medical specialty boards, and the physicians they certify. ABMS Member Boards are keenly aware of the need to understand how implementation of continuing certification has affected, and will continue to affect, physicians and other health professionals they certify and to use this information to improve the design and delivery of their programs. The Special Committee on Physician-Scientists and Continuing Certification* (the Committee, Appendix 1) is the second of three committees convened by ABMS to better understand issues facing Board Certified diplomates as they engage with the Boards' continuing certification programs.**

Several reports published during the past 35 years have chronicled the dwindling percentage of physician-scientists in the biomedical workforce.[1] In a June 2014 report, the National Institutes of Health Physician-Scientist Workforce Working Group (NIH PSWG) identified the Board Certification process as one of the factors thought to represent barriers to the stabilization and expansion of the physician-scientist workforce.[2]

Presented with the opportunity to respond to an important cohort of Board Certified medical specialists as well as to the NIH, Lois Margaret Nora, MD, JD, MBA, ABMS President and Chief Executive Officer, convened the Committee to explore the impact of certification on the physician-scientist workforce and to advise ABMS and its Member Boards on ways that ABMS Programs of Certification and Continuing Certification (also referred to as MOC) could be made more relevant to and valued by physician-scientists.

This report is a summary of the Committee's deliberations. It provides an overview of the physician-scientist workforce and practice characteristics, considers potential approaches to modifying the training time for physician-scientists, and offers policy insights that should be considered as Member Boards discuss how best to make MOC more relevant to and valued by physician-scientists. The report summarizes key aspects of the Committee's discussions and offers short- and long-term recommendations for consideration by ABMS and its Member Boards.

RECOMMENDATIONS

The Committee's discussions centered on two issues: the impact that ABMS Member Board training requirements for initial certification have on the length of time it takes to become a physician-scientist, and the value and relevance of MOC to the physician-scientist community.

Training and its impact on the length of time it takes to become a physician-scientist

- Member Boards should consider implementing alternate training pathways for physician-scientists that customize clinical rotations to those necessary to ensure competence based on careful individual assessments while maximizing time in research activities.

- ABMS should endorse a careful study of competency-based training and the potential it offers to shorten training for physician-scientists.

- ABMS should consider convening a multidisciplinary task force in collaboration with the Accreditation Council for Graduate Medical Education (ACGME) to design a competency-based training program rubric for physician-scientists in order to delineate common principles that could be used in such programs.

*The report of the Special Committee on Physician-Scientists and Continuing Certification provides guidance to the American Board of Medical Specialties (ABMS) and its Member Boards on opportunities to improve the relevance and value of Board Certification and Maintenance of Certification for the physician-scientist community. The recommendations contained herein do not represent the policy of ABMS or its Member Boards.

**Committees on Board Certified military physicians and Board Certified physician executives also have been constituted. The Report of the ABMS Special Committee on Military Physicians & Programs of Continuing Certification is available on ABMS' website. The Report of the ABMS Special Committee on Physician Executives/Administrative Leaders will be available in summer 2016.

Enhancing the value and relevance of MOC's four-part process for the physician-scientist:

Professionalism and Professional Standing (Part I)

- Member Boards should expect physician-scientists who provide direct patient care, however limited or focused, to have the same duty to the patient as a physician engaged in full-time clinical activities.

Lifelong Learning and Self-Assessment (Part II)

- Member Boards should allow diplomates to submit for MOC Part II credit any accredited continuing medical education (CME) activity that fits the learner's needs and meets the standards identified by the Board.

- ABMS should explore the possibility of CME accreditation organizations offering additional CME credits to the creators of learning materials. The credit should be over and above that offered to learners completing the CME activity. If CME accreditation organizations were to create such a mechanism, then Member Boards should consider awarding additional MOC Part II credit to creators of learning materials.

- ABMS should establish collaborative arrangements with national continuing education entities, such as the Collaborative Institutional Training Initiative (CITI), that serve the learning needs for physician-scientists, and facilitate Member Boards awarding credit for learning activities offered by these organizations to physician-scientists.

Assessment of Knowledge, Judgment and Skills (Part III)

- Member Boards are encouraged to continue developing modular examinations or practice profiles so that knowledge assessments can be weighted based on the diplomate's practice pattern without sacrificing some degree of assessment in core areas of the (sub) specialty reflected in the diplomate's certificate.

- ABMS should identify practical, cost-effective, and evidence-based tools for assessment of competencies other than medical knowledge that Member Boards could choose to use in assessment programs.

Improvement in Medical Practice (Part IV)

- Improvement in Medical Practice (IMP) should be reframed as Improvement in Professional Practice (IPP) to include Board Certified physicians who make professional contributions to improved health through mechanisms other than providing direct patient care.

- The MOC standards for IMP should be amended to allow credit for IPP, to include administrative, research, or professional activities that impact patient care, to be given at the discretion of the Member Board.

- Member Boards that allow physician-scientists who do not provide any direct patient care to opt out of the current IMP component of MOC should use the phrase *not active in direct patient care* to designate the diplomate's non-clinical status on the Member Board's website.

- ABMS and the Member Boards should align the quality improvement (QI) activities offered for MOC Part IV credit with the QI activities of other organizations that have physician accountability programs.

THE EVOLUTION OF ABMS MEMBER BOARD PROGRAMS OF CERTIFICATION

Medical specialty certification has changed significantly since its inception in the early 1900s. Originally conceived as a one-time verification of a physician's training and knowledge in a particular medical specialty, by the late 1980s specialty certification had evolved to include initial certification and recertification, the latter requiring physician specialists to undergo re-examination of knowledge every 10 years as a condition of retaining certification.

In 2000, responding to calls for regulatory bodies[3] to ensure the continuing competence of the health professions, the 24 ABMS Member Boards collectively committed to instituting MOC – a continuing certification process characterized by ongoing assessment and demonstration in four areas: professionalism and professional standing; engagement in learning; assessment of knowledge, judgment, and skills; and improvement in practice. The ABMS Program for MOC is designed to encourage continuous professional development in the six core competencies defined by ABMS and ACGME, i.e., patient care, medical knowledge, professionalism, interpersonal communication skills, practice-based learning and improvement, and systems-based practice. The Member Boards have adopted the 2015 Standards for the ABMS Program for MOC that provide an updated framework for developing their MOC programs.* The Standards are common across the Member Boards while permitting relevant distinctions based on the specific needs of individual specialties.

AN OVERVIEW OF THE PHYSICIAN-SCIENTIST WORKFORCE

Physician-scientists are licensed physicians who devote a substantial amount of their medical practice to the conduct of biomedical research. While their primary work is in research, most physician-scientists also teach residents and/or care for patients, striving to balance their clinical duties with one or more areas of research.

The degree to which the worlds of science and medicine overlap depends on the type of research a physician-scientist conducts. Physician-scientists who see patients and perform research play an essential role both in translating clinical observations to the laboratory to help identify the mechanisms of disease and applying the findings of basic science to patient care. Some physician-scientists abandon the dual clinical/research career path to pursue either research or patient care full time, a decision influenced by a variety of factors including pressure from their institutions to generate clinical revenues or sustain grant funding, or a desire to maintain a work/life balance.

Four categories loosely describe the types of biomedical research that most physician-scientists pursue:**

- Laboratory-based (basic) research, which seeks to identify basic molecular and cellular mechanisms of disease.
- Translational (bench to bedside) research, which spans the gap between basic science and actual clinical applications. Translational research can be further divided into various subcategories and may involve patients.
- Clinical research, which involves human subjects often enrolled in clinical trials of proposed new therapies.
- Population-based (health services) research, which focuses on improving the health of groups or populations of patients. The results of these investigations are frequently used to guide health care policy.

It is difficult to estimate the total size of the physician-scientist workforce because data are unavailable on those investigators whose research is funded by non-NIH sources, or those employed in the pharmaceutical or device manufacturing industries. Data from the

*The 2015 Standards for the ABMS Program for Maintenance of Certification are available on the ABMS website.

**This categorization framework is not intended to be exhaustive. Physician-scientists are engaged in many types of research (e.g., research on ethics, education, economics, etc.) that do not fit neatly in the continuum from molecule to population.

report of the PSWG indicate that the NIH-funded workforce from 2008 to 2012 totaled 27,674 individuals; approximately 9,000 were physician-scientists, including 4,192 with an MD and 4,086 with an MD/PhD. The report also noted the following:

- The number of physicians engaged in research as a proportion of the total physician population has declined during the past several decades. While the total number of funded investigators has increased, the increase has consisted almost entirely of investigators with PhDs. The absolute number of funded investigators with MDs and MD/PhDs has been relatively constant.

- The physician-scientist workforce is getting older. The average age of initial receipt of an NIH Research Project Grant has increased from 42.5 years in 1999 to 44 years in 2012.

- Women and most minority groups are underrepresented among NIH-funded physician-scientists with 71 percent of awardees being male and 75 percent being white.

The NIH PSWG report cited numerous challenges facing the physician-scientist workforce, including mounting debt, longer clinical and research training requirements, inadequate mentorship, maintaining clinical credentials, and maintaining a work/life balance. Most importantly, federal funding for research has been declining when adjusted for inflation. The report recommended several steps that NIH could take by itself to address the concerns about the physician-scientist workforce, and also suggested collaboration among the many organizations along the continuum of education, training, and practice – including ABMS and its Member Boards – to address these challenges. Specifically, PSWG recommended collaboration between the medical specialty certification and physician-scientist communities to address the impact of certification.

THE PHYSICIAN-SCIENTIST AND MEDICAL SPECIALTY CERTIFICATION

At the request of the Committee, ABMS conducted a data match with NIH to study characteristics of NIH-funded physician-scientists certified by one or more ABMS Member Boards. Records were matched on 22,235 Board Certified diplomates who had at least one NIH extramural grant award from 1990 to July 2015. Analysis of the matched files revealed the following:

- Specialties comprising the largest percentage of Board Certified physicians receiving NIH funding include Internal Medicine, Pediatrics, Psychiatry/Neurology, Pathology, Medical Genetics and Genomics, Obstetrics/Gynecology, Radiology, and Ophthalmology.

- Approximately 57 percent of physician-scientists receiving NIH funding (N=12,986) were participating in MOC. Of the remaining 43 percent of NIH funded physician-scientists' records matched, 35 percent had non-time limited certificates and were not required to participate in MOC to maintain certification. The remaining eight percent had time-limited certificates and were reported by their certifying boards as not participating in MOC.

- The last decade has seen a significant increase in the number of NIH-funded fellowship awardees who are Board Certified in Surgery.

- Overall, male awardees predominate. However, there has been a positive increase in Board Certified female awardees in recent years, particularly in Family Medicine, Emergency Medicine, Pediatrics, and Preventive Medicine.

THE PHYSICIAN-SCIENTIST IN TRAINING

The NIH PSWG report identified post-doctoral training as one of the challenges facing physicians who are considering a research career, noting that the prolongation of time spent in training could be discouraging physician residents from pursuing a research career.[4] Because most physician-scientists are specialists or subspecialists, post-doctoral training can take upwards of six to 10 years, depending on the specialty or subspecialty field chosen. The training necessary to become bilingual in both medicine and science often is distinct with little to no integration between the two disciplines.

ABMS Member Board requirements for initial certification impact this prolongation, in part, because the Boards expect all applicants for certification – including physician-scientists – to have mastered the core knowledge and skills embodied by a given medical specialty. Member Boards typically specify the number of months of post-graduate training to be completed in the chosen general specialty as well as in a subspecialty, if applicable. They also require program directors to attest to the trainee's competencies in the knowledge and skills relevant to his or her chosen specialty.

Currently, six Member Boards (the American Boards of Anesthesiology, Internal Medicine, Pathology, Pediatrics, Physical Medicine and Rehabilitation, and Radiology) provide research pathways to physicians who have chosen to pursue a research career, and the American Board of Allergy and Immunology is developing one. The requirements vary by Board, although all emphasize that residents pursuing a research career should acquire an appropriate level of clinical competency in their specialty and/or subspecialty. For most Boards, such pathways offer flexibility to physicians who have chosen a research career path by integrating the time for research training with the required clinical training, without necessarily increasing the overall amount of time spent in training.

The American Board of Internal Medicine compared initial certification examination scores of physicians who completed the Board's research pathways with applicants completing the traditional clinical pathway. Study results indicate that research pathway training did not adversely impact Internal Medicine certification status. Although the scores of physicians who followed the research pathway were slightly lower, the effect size was small.[5]

Appendix 2 provides an overview of the research pathways currently offered by Member Boards. NIH has indicated the variability in Board requirements for these alternative pathways makes it very difficult to design a funding mechanism to examine the impact of clinical training pathways on a physician-scientist's career (National Institutes of Health Deputy Director James Anderson, MD, personal communication, 2015 Aug 4).

Competency-based Medical Education and Training

One approach to accelerating training while ensuring clinical competency is to shift from the current time-based promotion model to a competency-based medical education model. The introduction of trainee learning and assessment based on Milestones and Entrustable Professional Activities reflects the first step toward such an approach.[6.]

Progression through a competency-based program is not based on the amount of time served on a particular clinical rotation or number of procedures performed, but rather on the individual's ability to demonstrate mastery of a particular competency being studied. Accelerated training would be based upon well-developed specialty-specific competency modules, and aspiring physician-scientists would be expected to demonstrate clinical competence in those modules prior to beginning training as a researcher.

While not a new concept,[7] competency-based education has been slow to gain traction in the United States' medical education system. A small group of post-graduate training programs across the country are actively pursuing its implementation, and such experimentation is likely to increase as ACGME develops a process to grant approved programs relief from some program requirements so that they may innovate with training and assessment models (ACGME Senior Vice President for Milestones Development and Evaluation Eric Holmboe, MD, personal communication, 2015 Aug 3).

The Committee considered both the potential benefits and risks of using a competency-based training approach to shorten physician-scientists' time in training. In such a scenario, the completion of post-graduate training by physician-scientists would be predicated upon achieving required milestones for both clinical care as well as research activities, rather than on a prescribed amount of time spent in training. Ideally, training would be structured to include an integrated emphasis on research with a stronger clinical base, resulting in more focused and potentially better-sustained research programs. The presumption, which has yet to be tested, is that most physician-scientist trainees would be able to complete their competency-based training in shorter amounts of time than is now required for standard post-graduate training. Alternatively, those trainees who struggle to meet the competency requirements in an accelerated timeframe might conclude that it would be better to focus on either a clinical or scientific career rather than trying to combine them.

The Committee generally agreed that a competency-based approach to training could help address Member Boards' concerns that Board Certified physician-scientists meet the same clinical competence requirements as other trainees. Committee members noted that some specialties, such as Surgery, could have concerns regarding such an approach on its program's ability to graduate competent surgeons, particularly given duty hour restrictions and other issues that have impinged on the amount of time available for training. However, it was also noted that several Orthopaedic Surgery programs are actively exploring how competency-based training will shorten the education and training required for that specialty.

Additionally, the Committee identified concerns about the potential impact on both training programs that would lose the mentoring contributions of senior residents due to early program completion and on the residents themselves who would lose the learning opportunities associated with such mentoring roles. Variables such as specialty type, case mix, and training site also could impact a resident's movement through these programs. Pilot studies on competency-based training for physician-scientists should evaluate the impact of such variables, as well as the reactions of patients under the care of trainees in the competency-based program compared to those in the standard time-based promotion program.

Recommendations:

- ABMS should endorse a careful study of competency-based training and the potential it offers to shorten training for all medical specialists, including physician-scientists.

- ABMS should consider convening a multidisciplinary task force in collaboration with ACGME to design a competency-based training program rubric for physician-scientists in order to delineate common principles that could be used in such programs.

- Member Boards should consider accepting alternate training pathways for physician-scientists that structure the training program to ensure clinical competence while maximizing time in research activities.

INCREASING MOC'S RELEVANCE TO PHYSICIAN-SCIENTISTS

The Committee used a modified Delphi approach to determine the degree of consensus on a series of questions concerning whether Board Certified physician-scientists should be held accountable for meeting the requirements of each of the four components of MOC. The resulting discussions identified the origins of differences of opinion and enabled the Committee to reach consensus regarding physician-scientists' participation in MOC.

Professionalism and Professional Standing

Committee members considered whether, from the standpoint of professionalism, ethics, and accountability, the clinical obligations of a physician-scientist differ from those of a full-time clinician. The Committee defined accountability as meaning duty to the patient–a commitment to providing care consistent with the level of training, skill, and competence of a doctor in the same or similar circumstances. Committee members were in agreement that physician-scientists who provide any degree of direct patient care have the same duty to the patient as full-time clinicians. Accordingly, these physician-scientists should be held to the same standards of professionalism and professional standing.

Recommendation:

- ABMS and its Member Boards should adopt an explicit statement that any physician engaged in clinical care, however limited or focused, has the same duty to the patient as a physician engaged in full-time clinical activities.

Lifelong Learning and Self-Assessment

The Committee considered whether the current ABMS standards for Lifelong Learning and Professional Development should be modified for physician-scientists and determined that the current standards are appropriate and applicable to physician-scientists. There are two ABMS Standards regarding Lifelong Learning and Self-Assessment (LLS):

LLS - 1. Each ABMS Member Board will establish requirements for LLS and document that diplomates are meeting the learning and self-assessment requirements. ABMS Member Boards' requirements should address currently relevant medical knowledge and other competencies in the specialty and ongoing advances relevant to the applicable specialty, and should include a requirement that LLS activities be free of commercial bias and control of a commercial interest. ABMS Member Boards should work to ensure that diplomates have access to tools for identifying and learning about advances relevant to the specialty and for identifying professional practice gaps in the specialty and in their own clinical practices. ABMS Member Boards should document that LLS activities are of high quality.

LLS - 2. Each ABMS Member Board will integrate Patient Safety principles into its Program for MOC requirements.

While the standards themselves are appropriate, the Committee believes that ABMS and its Member Boards have an opportunity to enhance physician-scientists'"access to tools for identifying and learning about advances relevant … for identifying professional practice gaps … in their own clinical practices." To increase the flexibility in how physician-scientists meet this requirement, the Committee believes Member Boards should take three factors into account when considering LLS for physician-scientists:

1. *Learning for the Highly Focused Clinical Practice:* Because physician-scientists often have highly specialized clinical practices, many lifelong learning activities designed for a typical subspecialist may not be relevant to the practice of a given physician-scientist with a very focused practice.

2. *Learning for the Creators of Learning Materials:* Physician-scientists are often the experts called upon to teach clinicians about the latest advances affecting the care of patients. Such teaching activities include:

    - Presenting in lectures and workshops
    - Writing book chapters and reviewing articles
    - Reviewing articles submitted to journals for publication

    Developing learning activities requires a review of the world's literature, which necessarily involves learning on the part of the expert. In the current CME system, the individual presenting or authoring the material cannot claim CME credit because they are not the learner as currently defined. Because ABMS Member Boards are not in a position to monitor every teaching event, the awarding of additional MOC Part II credit for creation of learning materials would have to be tied to an existing mechanism, such as CME credits.

3. *Learning for the Conduct of Research:* The funders and regulators of research require various learning activities on a host of topics, such as the responsible conduct of research, conflict of interest, and good clinical practice, among others. Most research institutions now subscribe to the research courses offered by CITI at the University of Miami, which also offers CME credits. In addition, NIH sponsors online training modules (e.g., reproducibility of scientific data) and certificate programs (e.g., NIH Stroke Scale or Neuropathy Score) that may be suitable for MOC Part II credit.

Recommendations:

- Member Boards should be encouraged to offer MOC credit for any accredited CME activity for MOC Part II credit that fits the learner's needs and meets the standards identified by the Board.

- ABMS should explore with CME accreditation organizations the possibility of offering additional CME credits to the creators of learning materials. This should be over and above the amount of credit offered to learners completing the CME activity. If CME accreditation organizations were to create such a mechanism, then Member Boards should consider awarding additional MOC Part II credit to creators of learning materials.

- ABMS should establish collaborative arrangements with national continuing education entities (e.g., CITI) that serve the learning needs for physician-scientists. The goal would be to facilitate Member Boards awarding MOC Part II credit for learning activities developed by these entities.

Assessment of Knowledge, Judgment, and Skills

Certification by an ABMS Member Board provides assurance to the public of a physician's competency – especially in the domain of medical knowledge. The public expects that physicians have the requisite knowledge to provide safe and effective care. The Committee believes that this expectation applies to all diplomates whenever they assume a clinical role independent of their other professional interests, such as research.

At the same time, sub-sub specialization, niching, and focused practice will continue as scientific knowledge grows inexorably. Many Member Boards have developed MOC knowledge assessments with modular components that allow diplomates to select the assessment domains most aligned with their practice patterns. A number of Boards also have expressed their intent to pilot a new longitudinal knowledge assessment platform that will include a practice profile component so that the content coverage of the knowledge assessment can be weighted based on the types of patients the diplomate sees. While the weighting process allows the examination to reflect a diplomate's actual practice more closely, the exam will still include questions that reflect the broader specialty and/or subspecialty in which the diplomate holds a certificate.

The Committee discussed the challenges associated with developing modules for the highly specialized physician who may be one of a handful of experts in the world conducting research on and providing care to patients with a specific, rare diagnosis. While Committee members still believe that such sub-sub specialists should be held accountable for demonstrating they have knowledge and skills to provide safe and effective care, they encouraged Member Boards to adopt flexible approaches to assessment of knowledge.

But medical knowledge is only one of the six competencies that ideally should be assessed. Currently, most Member Boards' MOC programs are inconsistent in the degree to which they effectively assess the other five competencies. The Committee believes that ABMS should continue to assist the Member Boards in identifying practical and cost-effective ways to assess competencies other than medical knowledge. Additionally, future assessments should focus more on judgment, patient management, and analytical skills.

Recommendations:

- Member Boards, especially those with recognized subspecialties, are encouraged to develop or continue developing modular exams or practice profiles as appropriate so that knowledge assessments can be weighted based on the diplomate's practice pattern without sacrificing some degree of assessment in core areas of the specialty or subspecialty reflected in the diplomate's certificate.

- ABMS should identify practical, cost-effective, and evidence-based tools for assessment of competencies other than medical knowledge that Member Boards could choose to use in assessment programs.

Improvement in Medical Practice

Physicians who practice in health care institutions are expected to participate in quality and process improvement activities aimed at increasing value in health care by improving patient care outcomes, operational efficiencies, and cost reductions. Similarly, the US biomedical and health research enterprise is encouraging the use of QI processes by investigators as a way to improve quality and efficiency across the research continuum. For example, NIH initiated the Clinical and Translational Science Award (CTSA) program in 2006 to make clinical and translational research more efficient and cost effective, enhance the quality of the research, and facilitate the successful adoption of biomedical research findings into practice.

MOC Part IV IMP is intended to foster ongoing improvements in the care of patients by Board Certified physicians and the health care system in which they work. Specifically, the 2015 Standards for MOC describe the purposes and anticipated outcomes of Part IV IMP as "… contribut(ing) to improved patient care through ongoing assessment and improvement in the quality of care provided by diplomates in their individual practices and/or in the larger hospital, health system, or community setting in which the diplomates practice medicine. Ongoing assessment and practice improvement may include activities that result in improved patient or population health outcomes, improved access to health care, improved patient experience (including patient satisfaction), and/or increased value in the health care system."

Consistent with efforts by ABMS Member Boards to increase the flexibility in how diplomates meet MOC Part IV IMP requirements, the Committee discussed the extent to which the physician-scientist's day-to-day research activities could be recognized for MOC Part IV credit. The discussion focused on three fundamental philosophical questions:

1. Should Part IV credit be awarded for research-related activities or is the board certificate exclusively designed as a marker of clinical competency?

2. Should ABMS and its Member Boards consider the research process itself, which often includes identification of a problem, statement of an aim, and repeated measures, as equivalent to the QI process for which Part IV credit is awarded?

3. Is QI in the research environment appropriate for MOC Part IV credit?

The following paragraphs lay out the risks and benefits of the various options to address each question. While the Committee was able to reach consensus on a number of recommendations, there was also strong recognition that research environments are very different among the various specialties. Therefore, it is important that the individual Member Boards have sufficient latitude to customize the recommendations to research environments in their specialty.

1. Should MOC Part IV credit be awarded for research-related activities or is the board certificate exclusively designed as a marker of clinical competency?

In today's health care environment, there are many Board Certified physicians who devote the bulk of their efforts to non-clinical activities intended to improve the delivery and quality of patient care. Examples of such activities include research, education, administrative medicine, and policy development. The Committee believes that improvement in the quality of non-patient care activity would support the goal of improving health care. There is surely some tension in acknowledging that a certificate focused on clinical competency (a) is still of value to individuals who spend little or no time at the bedside and (b) no longer reflects the environment in which these physicians are making their greatest contributions to improved health care for populations. The Committee recommends a number of steps to begin to reconcile this tension.

A new title of Improvement in Professional Practice for MOC Part IV would recognize those physicians who contribute to patient or population health through activities other than by providing direct patient care. Some Member Boards have already broadened the standards for MOC Part IV along these lines by defining clinical practice to include activities other than direct patient contact (e.g., public health practice, preventive medicine, etc.). In this scenario, Part IV activities could be directed toward improving the quality of the diplomate's professional activities as long as these activities fit within the causal pathway leading to improved health care. Activities would need to be measurable and have the potential to be broadly applicable to the health care system. For physician-scientists, examples could include efforts to streamline the translational research process by improving Institutional Review Board operations, increasing subject recruitment to clinical trials, quality and efficiencies of laboratory-based research, study design, results reporting, and related QI activities.

The Committee acknowledged that broadening the definition of clinical practice to include activities that directly or indirectly impact or influence populations of patients or systems of care could be controversial. Nevertheless, the Committee thought it incomplete to argue the importance of improving the application of a given best clinical practice and yet entirely discount the research process needed to arrive at that best practice.

The Committee considered the current practice of several Member Boards to offer physicians who are Board Certified, but not engaged in patient care, an exemption from meeting MOC Part IV requirements, and to designate such individuals as *not clinically active* on their websites. These Member Boards apply very clear definitions for the phrase *not clinically active* (typically no patient care responsibilities for one or more years). If Member Boards support expanding Part IV IMP to Part IV IPP, they will no longer need to offer exemptions to physicians who do not engage in patient care. Until such a policy change occurs, however, Member Boards that offer exemptions from Part IV IMP to physician-scientists who do not provide any direct patient care should consider using the phrase *not active in direct patient care* to designate the diplomate's non-clinical status on the Board's website. Diplomates who are exempt from MOC Part IV requirements should still be expected to meet the remaining MOC Parts I, II, and III requirements in order to maintain certification. Policies related to this designation should include clear pathways for the reactivation of standard certification when participation in active practice resumes.

2. Should ABMS and its Member Boards consider the research process itself as equivalent to the QI process for which Part IV credit is awarded?

Declaring equivalency between research and QI processes would mean that Part IV credit would have to be awarded based on a marker of completed research such as publications or grant awards. Conceptually, translational research (T1-T4) might be considered for Part IV credit because it links research with improving health and includes activities such as those encountered in Phase I trials (T1 – translation to humans), comparative effectiveness research (Phase II-III trials, T2 – translation to patients), dissemination and implementation research (Phase IV trials, T3 – translation to practice), or outcomes/population health research (T4 – translation to populations). Operationally, it would be necessary to define the research activities that have the potential to translate into improvements in medical practice.

While conceptually it might be possible to assign MOC Part IV IMP credit to translational research, there are significant practical problems in defining which specific research activity should qualify for such credit. Because certifying boards are not the appropriate organizations to evaluate the quality of research, they would have to rely on the peer review process for scientific publications or grant awards. However, each of these peer review processes has significant limitations from the standpoint of awarding credit for activities designed to improve quality of care. Even studies in prestigious journals are often never replicated.[8] Hence, there is a risk of awarding MOC Part IV credit based on published studies that subsequently prove not to have a sustained effect in improving health or, worse yet, might actually harm health. Conversely, grant awards are rare because of the low funding levels such that even highly meritorious research may not be funded. On balance, the majority of the Committee was unable to envision a way to fairly and efficiently award MOC Part IV credit strictly for translational research. However, ABMS and individual Member Boards should continue to explore ways to overcome the practical barriers in concert with subspecialty societies, journals, and funding agencies.

3. Is QI in the research environment appropriate for Part IV IMP credit?

Whereas offering Part IV credit for completed research would be problematic, the Committee was able to envision offering credit for improving the quality of research, which would be consistent with improving the quality of direct patient care or other professional activities that ultimately improve health care. QI for research requires the same elements as QI for patient care, namely an aim, identification of the quality gap, an intervention, a quality measure, and repeated measurements, although the Committee recognized the challenge of defining valid yet practical quality measures (for both research and clinical care). The Committee affirmed that any attempt to broaden MOC Part IV activities to include improvements in the research process should be based on a QI framework rather than compliance with predetermined standards (a quality assurance approach).

Some types of QI activities in the research environment that might be acceptable for MOC Part IV credit include those that lead to:

- Increased subject recruitment for clinical trials;
- Enhanced quality and efficiencies of laboratory-based research;
- Improved study design and accuracy of results;
- Better reproducibility of scientific data;
- Improved dissemination of research results;
- More effective and efficient Institutional Review Board operations that ensure safe and ethical engagement of patients and/or human subjects in research;
- More effective education of the lay public about research; and
- Enhanced research mentorship.

The Committee highlighted the opportunity for awarding MOC Part IV credit for activities to improve research mentorship noting that the NIH PSWG report underscored the need for improved mentorship if efforts to enhance the physician-scientist workforce are to be successful.

The Committee agreed that the key to increased flexibility for physician-scientists lies in aligning MOC Part IV requirements for physician-scientists with QI activities planned by NIH and other research funding agencies. For instance, the most recent NIH CTSA funding award announcement explicitly requires improvement in research processes.[9]

Recommendations:

- The MOC Part IV standard for Improvement in Medical Practice should be reframed as Improvement in Professional Practice in recognition of those Board Certified physicians who contribute to improving the care of patients or patient populations through mechanisms other than direct patient care.
- The MOC standard for Improvement in Medical Practice should be amended to allow credit for Improvement in Professional Practice, to include administrative, research, or professional activities that impact patient care, to be given at the discretion of the Member Board.
- A Member Board that allows physician-scientists who do not provide any direct patient care to opt out of MOC Part IV should use the phrase *not active in direct patient care* to designate the diplomate's non-clinical status on its website.
- ABMS and its Member Boards should align MOC Part IV activities for physician-scientists with QI activities planned by NIH and other research funding agencies.
- Policies that broaden MOC Part IV standards to include activities aimed at improving the research process should be based on a QI framework rather than compliance with predetermined standards (a quality assurance approach).

CONCLUSION

Understanding the complex and diverse environments in which Board Certified physicians practice is critical to the delivery of a high-quality, relevant, and meaningful continuing certification program. While the report and recommendations of the Committee on Physician-Scientists and Continuing Certification pertain to Board Certified physician-scientists, a number of the identified issues are applicable to a broader group of practicing physicians. In presenting this report, the Committee is mindful that the challenges to stabilizing and expanding the physician-scientist workforce are complex and nuanced, and solutions will require collaboration across many stakeholders along the continuum of education, training, and practice. The Committee believes that the Member Boards Community can contribute to this effort by maintaining flexibility in their program requirements for physician-scientists and engaging with other stakeholders in the development of solutions. The Committee appreciates the opportunity to contribute to efforts that more closely align ABMS' mission and its 2015 MOC standards with the physician-scientist's training and professional activities.

APPENDICES:

Appendix 1: Committee roster

Appendix 2: Overview of the research pathways currently offered by Member Boards

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APPENDIX 1

AMERICAN BOARD OF MEDICAL SPECIALTIES SPECIAL COMMITTEE ON PHYSICIAN-SCIENTISTS & CONTINUING CERTIFICATION ROSTER

Ann C. Bonham, PhD
Former Chief Scientific Officer
Association of American Medical Colleges

John G. Clarkson, MD
Executive Director
American Board of Ophthalmology

Terence R. Flotte, MD
Celia and Isaac Haidak Professor of Medical Education
Dean, Provost and Executive Deputy Chancellor
University of Massachusetts Medical School University Campus

David Ginsburg, M.D. (Consultant)
James V. Neel Distinguished University Professor
Departments of Internal Medicine, Human Genetics, and Pediatrics and Communicable Diseases
Howard Hughes Medical Institute
University of Michigan Medical School

Laurie Gutmann, MD
Professor, Vice Chair of Clinical Research
Department of Neurology
University of Iowa Carver College of Medicine

Mira Irons, MD (Co-Chair)
Senior Vice President, Academic Affairs
American Board of Medical Specialties

Karen Kaul, MD, PhD
Chair, Department of Pathology and Laboratory Medicine
Duckworth Family Chair
NorthShore University HealthSystem
Clinical Professor of Pathology
University of Chicago Pritzker School of Medicine

Monica Kraft, MD
Robert and Irene Flinn Professor of Medicine
Chair, Department of Medicine
University of Arizona Health Sciences Center

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Associate Provost for the Health Sciences
Senior Associate Dean for Faculty Affairs
Associate Dean for Public Health and Medical Education
Tulane University

Maximilian Muenke, MD, FACMG
Chief, Medical Genetics Branch
Director, Medical Genetics and Genomic Medicine Residency and Fellowship
National Human Genome Research Institute
National Institutes of Health

David Nichols, MD (Co-chair)
President and Chief Executive Officer
American Board of Pediatrics

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Senior Adviser, Center for Global Health
National Cancer Institute
Former Deputy Director
National Heart, Lung, and Blood Institute

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Michael E. Williams, MD, ScM
Byrd S. Leavell Professor of Medicine
Chief, Hematology/Oncology Division
University of Virginia Health System

ABMS Staff Support
Carol Clothier, Vice President, State Health Policy and Public Affairs
Hannah Williams, Manager, Policy Operations

Program	Clinical Training Requirements	Research Training Requirements	Supervision
American Board of Anesthesiology	Research Templates: 36 Months: 3 months in CA 1-2 years 6 months in CA-3 year 9 months, maximum total (25% of total time) 48 months: 2 months in CBY of anesthesiology-relevant research time 3 months in CA 1-2 years 6 months in CA-3 year 11 months, maximum total (23% of total time) 60 months: 2 months in CBY of anesthesiology-relevant research time 3 months in CA 1-2 years 6 months in CA-3 year 12 months in CA-4 year 23 months, maximum total (38% of total time)	Interested residents could spend approximately 25% of a 3- or 4-year training program, and more than 35% of a 5-year program, engaged in scholarly activities.	The program director must develop a plan with strict guidelines for research activity and "work product" oversight if a resident's research activities will be more than 6 months. Review of scholarly activity and the written work product will occur at the local level by a Scholarship Oversight Committee responsible for overseeing and assessing the trainee's progress and verifying to ABA that the requirement has been met.

Program	Clinical Training Requirements	Research Training Requirements	Supervision
American Board of Internal Medicine: Research Pathway	24 months of internal medicine training (at least 20 months must involve direct patient care responsibility). If subspecialty certification is also desired, training must include the clinical training requirements in the subspecialty area (12-24 months). During research training, 20% of each year must be spent in clinical experiences, including a half-day per week in continuity clinic. During subspecialty research training, at least one-half day per week must be spent in an ambulatory clinic. Time spent in continuity outpatient clinic during non-clinical training is in addition to the requirement for full-time clinical training. Ratings of satisfactory clinical performance must be maintained annually for each trainee in the ABIM Research Pathway.	At least 3 years of training at 80% commitment. Should include completion of work leading to a graduate degree (if not already acquired) or its equivalent. The last year of the Research Pathway must be undertaken in a full-time faculty position if the level of commitment to mentored research is maintained at 80%.	The internal medicine program director must be in support of a resident's request to pursue the ABIM Research Pathway. Ratings of satisfactory clinical performance must be maintained annually for each trainee in the Research Pathway.

Program	Clinical Training Requirements	Research Training Requirements	Supervision
American Board of Pathology: Physician-Scientist Research Pathway	The GME training requirements to apply for Board Certification are the same as for trainees who are not in the Physician-Scientist Research Pathway (see section III in the Booklet of Information). Trainees should apply to take the certification examination as soon as GME training requirements are completed. Trainees must become certified within 5 years of completion of GME requirements. The ABPA certification examination and ABPA certificates are the same for all candidates, whether they are in the research pathway or standard pathology training. A research year, like a fellowship year, will meet the MOC Part II and Part IV requirements (except for peer evaluations) for that period of the MOC cycle.	Current ABPA GME training requirements allow for up to 6 months of research during core training. Trainees in the Physician-Scientist Research Pathway must complete at least 1 additional year of research. ACGME program requirements must be followed during the 6 months of research that is part of the required core GME training; however, the additional research time is not subject to ACGME program requirements. All additional research time must occur in blocks of at least 6 months and should be protected by not being co-mingled with substantial clinical training.	The Program Director is responsible for the core GME training and must approve 6 months of research completed as part of the core. Supervision of the trainee's additional year(s) of research should be the responsibility of a faculty research mentor. Establishment of a research review committee that meets at least every 6 months to provide advice and feedback to the trainee is strongly encouraged.

Program	Clinical Training Requirements	Research Training Requirements	Supervision
American Board of Pediatrics: Accelerated Research Pathway	2 years of core pediatrics training must be completed for general pediatrics certification. The third year of general pediatrics is waived. There are specific general pediatrics experiences required to be completed within the required 24 months of general pediatrics training. These experiences are outlined in the policy. The usual clinical subspecialty training must be completed for subspecialty certification.	Trainees will be required to meet the same standards for scholarly achievement as defined for those in the standard 3-year subspecialty fellowship training programs. However, the fellowship is extended by 1 year in order to enhance research skills. A work product and a comprehensive personal statement must be submitted to ABP at the completion of fellowship. All subspecialty trainees will be expected to participate in a core curriculum in scholarly activity skills.	Verification of clinical competence and training will be required from both the general pediatrics program director and the subspecialty training program director. A Scholarship Oversight Committee must be formed within the first year of the fellow's subspecialty training. This committee should guide and oversee the fellow's scholarly activity and will "sign off" on the fellow's scholarly work product and personal statement at the end of fellowship.
Program	Clinical Training Requirements	Research Training Requirements	Supervision
American Board of Physical Medicine and Rehabilitation: Clinical Investigator Pathway	5-year residency program: PGY-1: Clinical skills required for PMR training program PGY-2,3,4,5: Combination of clinical and investigative training	12-24 months research required; training should include completion of work leading to a graduate degree (if not already acquired). During research training, 20% of each year must be spent in clinical experiences. Intermittent or blocks of clinical time will be considered.	Design training plan with residency program director and research mentor. Annually report progress.

Program	Clinical Training Requirements	Research Training Requirements	Supervision
American Board of Radiology: Holman Research Pathway	PGY-1: ≥9 months direct patient care PGY-2,3,4,5: 27 months full-time clinical radiology training + ACGME program requirements including: ≥3 months breast imaging ≥4 months nuclear radiology Satisfactorily complete at least 24 months of PMR training; 36 months recommended	18-21 months dedicated research time, 20% time devoted to clinical training.	Department chair, program director, and mentor must oversee trainee's clinical performance and attest to satisfactory progress via annual evaluation.

ABMS MEMBER BOARDS

American Board of Allergy and Immunology
American Board of Anesthesiology
American Board of Colon and Rectal Surgery
American Board of Dermatology
American Board of Emergency Medicine
American Board of Family Medicine
American Board of Internal Medicine
American Board of Medical Genetics and Genomics
American Board of Neurological Surgery
American Board of Nuclear Medicine
American Board of Obstetrics and Gynecology
American Board of Ophthalmology
American Board of Orthopaedic Surgery
American Board of Otolaryngology
American Board of Pathology
American Board of Pediatrics
American Board of Physical Medicine and Rehabilitation
American Board of Plastic Surgery
American Board of Preventive Medicine
American Board of Psychiatry and Neurology
American Board of Radiology
American Board of Surgery
American Board of Thoracic Surgery
American Board of Urology

The American Board of Medical Specialties (ABMS) is a leading not-for-profit organization overseeing physician certification in the United States. It assists its 24 Member Boards in their efforts to develop and implement educational and professional standards for the evaluation, assessment and certification of physician specialists. ABMS Member Boards provide certification and ongoing professional development programs for more than 840,000 physicians across 37 specialties and 85 subspecialties.

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