Report of the Special Committee on Physician Scientists
and Continuing Certification

This report is intended to provide input 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 put forth by the Special Committee on Physician Scientists and Continuing Certification do not represent the policy of ABMS or its Member Boards.

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 Maintenance of Certification (MOC) – a continuing certification process characterized by ongoing assessment and demonstration of professionalism and professional standing, engagement in learning, assessment of knowledge and judgment, 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 others 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.¹

Several reports published during the past 35 years have chronicled the dwindling percentage of physician-scientists in the biomedical workforce.² 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.³

Presented with the opportunity to respond to an important cohort of Board Certified physician diplomates as well as to 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 Maintenance of Certification, or 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 the ABMS Member Boards Community.

Key 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 implement alternate training pathways for physician-scientists that customize clinical rotations to those that are 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 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.

- Enhancing the value and relevance of MOC’s four-part process to the Physician-Scientist
Professionalism and Professional Standing (Part I)

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

Life-long 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 with CME accreditation organizations the possibility of those organizations 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., the Collaborative Institutional Training Initiative, or 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 exams 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 should be reframed as Improvement in Professional Practice to include those Board Certified physicians who make professional contributions to improved health through mechanisms other than providing direct patient care.

The MOC standards 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.

Member Boards that allow physician-scientists who do not provide any direct patient care to opt out of the current Improvement in Medical Practice 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 to ensure the continuing competence of the health professions, the 24 ABMS Member Boards collectively committed to instituting Maintenance of Certification (MOC) – a continuing certification process characterized by ongoing assessment and demonstration in four areas: professionalism and professional standing, engagement in learning, assessment of knowledge and judgment, and improvement in practice. The ABMS Program of MOC is designed to encourage continuous professional development of the six core competencies, including 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 of MOC that provide an updated framework for developing their MOC programs (Appendix 2). The Standards for ABMS Programs for MOC are common across the ABMS 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 in both translating clinical observations to the laboratory to help identify the mechanisms of disease, as well as 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 research, which spans the gap between basic science and actual clinical applications (i.e., “bench to bedside” research). 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 not available on those investigators whose research is funded by non-NIH sources, or those employed in the pharmaceutical or device manufacturing industries. Data from the 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 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 between ABMS/Member Boards and the physician-scientist community 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 who are certified by one or more ABMS Member Board. 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, 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, and 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. 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 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, and require program directors to attest to the trainee’s competencies in the knowledge and skills relevant to his or her chosen specialty.
At the time of the writing of this report, six ABMS 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 place a heavy emphasis on ensuring residents pursuing a research career 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 indicated 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. Appendix 3 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 the physician-scientist career.

**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. Progression through a competency-based program is not based on the amount of time served on a particular clinical rotation, 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\textsuperscript{10}, 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 the Accreditation Council on Graduate Medical Education develops a process to grant approved programs relief from program requirements so that they may innovate with training and assessment models.\textsuperscript{11}

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 physician-scientist’s completion of post-graduate training would be predicated upon achievement of 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 time frame might conclude that it would be better to focus either on a clinical career or a 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 diplomates. However, concern was expressed 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. Pilot studies on competency-based training for physician scientists should also determine 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 physician-scientists.
• ABMS should consider convening a multidisciplinary task force in collaboration with the 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.

• ABMS 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.
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 - 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 the Member Boards have an opportunity to enhance the physician-scientists' “access to tools for identifying and learning about advances relevant … for identifying professional practice gaps … in their own clinical practices.” The Committee believes Member Boards should take three factors into account when considering life-long learning and self-assessment for physician-scientists:

1. **Learning for the Highly Focused Clinical Practice:** Because physician-scientists often have highly specialized clinical practices, many life-long 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 or workshops
   - Writing book chapters or review 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 system the individual presenting or authoring the material cannot claim CME credit because they are not the “learner” as currently defined. Because 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 the Collaborative Institutional Training Initiative (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 those organizations 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., the Collaborative Institutional Training Initiative, or 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 a diplomate has the requisite knowledge to provide safe and effective care, and 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 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 the 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.

But medical knowledge is only one of 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 (i.e., patient care, professionalism, interpersonal communication skills, practice-based learning and improvement, and systems-based practice. 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 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 healthcare institutions increasingly 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 quality improvement processes by investigators as a way to improve quality and efficiency across the research continuum. For example, the 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 to facilitate the successful adoption of biomedical research findings into practice.

MOC Part IV Improvement in Medical Practice is intended to foster ongoing improvements in the care of patients by certified physicians and the health care system in which they work. Specifically, the 2015 MOC Standards describe the purposes and anticipated outcomes of Part IV Improvement in Medical Practice 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 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 is awarded?

3. Is quality improvement (QI) in the research environment appropriate for 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 a 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 Part IV credit be awarded for research-related activities or is the board certificate exclusively designed as a marker of clinical competency?

The Committee recognizes that in today’s healthcare environment, many physicians devote the bulk of their efforts to non-clinical activities (e.g., research, education, policy development, etc.) that are intended to improve the delivery and quality of patient care. Improvement in the quality of the non-clinical activity would support the goal of improving healthcare. 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 healthcare for populations. The Committee recommends a number of steps to begin to reconcile this tension.

A new title of Improvement in Professional Practice for 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 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 IRB 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 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 Improvement in Medical Practice to Part IV Improvement in Professional Practice, 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 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 Member Boards consider the research process itself as equivalent to the QI process for which Part IV is awarded?
Declaring equivalency between the research process and the QI process 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 IMP Part IV credit to translational research, there are significant practical problems in defining which specific research activity should qualify for IMP Part IV 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 the quality of care. Even publications in prestigious journals are often never replicated.\textsuperscript{11} Hence there is the risk of awarding IMP Part IV credit based on a publication that subsequently proves 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 IMP 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 quality improvement in the research environment appropriate for IMP Part IV 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. Quality improvement 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 IMP 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
Part IV credit include those that lead to:

- Increased subject recruitment to 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 (IRB) operations that
  ensure safe and ethical engagement of patients and/or human subjects in
  research;
- More effective education of the lay public about research;
- Enhanced research mentorship.

The Committee highlighted the opportunity for awarding IMP 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 quality improvement activities
planned by the NIH and other research funding agencies. For instance, the most recent NIH
CTSA funding award announcement explicitly requires improvement in research processes.\textsuperscript{13}

**Recommendations:**

- The MOC Part IV standard for *Improvement in Medical Practice* should be reframed as
  *Improvement in Professional Practice* in recognition of those certified physicians who
contribute to improving the care of patients or patient populations through mechanisms other than direct patient care.

- The MOC standards 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.
- Member Boards that allow physician-scientists who do not provide any direct patient care to opt out of the current *Improvement In Medical Practice* 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 its Member Boards should align MOC Part IV activities for physician-scientists with quality improvement activities planned by the NIH and other research funding agencies.
- Policies that broaden 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 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. The Committee appreciates the opportunity to contribute to efforts that more closely align the ABMS mission and the 2015 MOC standards with the physician-scientist’s training and professional activities.
Appendices:

Appendix 1: Committee roster
Appendix 2: Standards for the ABMS Program for Maintenance of Certification
Appendix 3: Overview of the research pathways currently offered by Member Boards.

References

1 Committees on Board Certified military physicians and Board Certified physician executives have also been constituted. The Report of the ABMS Special Committee on Military Physicians and Programs of Continuing Certification is available on ABMS' website; the Report of the ABMS Special Committee on Physician Executives will be available in spring 2016.
5 This categorization framework is not intended to be exhaustive. Physician-scientists are engaged in many types of research (such as research on ethics, education, economics, etc.) that do not fit neatly in the continuum from molecule to population.
8 Personal communication, Dr. James Anderson, NIH Deputy Director.
11 Personal communication, Eric Holmboe.
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Special Committee on Physician Scientists and Continuing Certification

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Standards for the ABMS Program for Maintenance of Certification (MOC)

For Implementation in January 2015

Approved by the Board of Directors of the American Board of Medical Specialties (ABMS)

January 15, 2014
Preface

The ABMS Program for Maintenance of Certification (Program for MOC) serves the patients, families, and communities of the United States (the Public) and improves patient care by establishing high standards for ongoing learning, practice improvement, and assessment activities of diplomates who have achieved initial certification from one or more of the 24 ABMS Member Boards. The Program for MOC, developed in accordance with the standards included in this document, is integral to the ABMS’ mission to maintain and improve the quality of medical care by assisting the ABMS Member Boards in their development and use of professional and educational standards for the certification of physician specialists in the United States and internationally. This document presents the standards and annotations for the ABMS Program for MOC. Standards are requirements for each ABMS Member Board’s Program for MOC; it is expected that each Member Board will meet these requirements in a manner consistent with the letter and spirit of the standards and consistent with the specifics of the relevant specialty. Annotations do not outline additional requirements; however, the annotations provide additional detail, offer potential pathways to meet the requirements, and emphasize important aspects of the standards.

The Program for MOC incorporates the six ABMS/ACGME Core Competencies of Practice-based Learning & Improvement; Patient Care & Procedural Skills; Systems-based Practice; Medical Knowledge; Interpersonal & Communication Skills; and Professionalism. The Program for MOC has an integrated four-part framework that addresses 1) Professional Standing and Professionalism; 2) Lifelong Learning and Self-Assessment; 3) Assessment of Knowledge, Skills, and Judgment; and 4) Improvement in Medical Practice. The standards for ABMS Programs for MOC are common across the ABMS Member Boards while permitting relevant distinctions in programs among the specialties.

Initial board certification by one or more ABMS Member Boards demonstrates that a diplomate has 1) completed an extended period of rigorous training in, and assessment of, the knowledge, skills, and professionalism required to practice in a particular specialty or subspecialty, usually via an ACGME residency program; and 2) passed additional evaluations of knowledge, skills, and professionalism. For all ABMS Member Boards, this assessment includes a secure, comprehensive examination of knowledge; other commonly used evaluations include oral examinations and simulation exercises as well as reviews of patient cases, operative records, and patient outcomes.

Consistent with rapid changes in medicine and societal expectations, the ABMS Member Boards gradually adopted the concept of time-limited board certification. In 2000, the ABMS Member Boards Community adopted the Program for MOC through which diplomates maintain continuing certification. In 2009, ABMS and its Member Boards approved MOC standards that formalized program elements and timelines for ongoing MOC implementation among the Member Boards.

In 2012 and 2013, the ABMS and the Member Boards reviewed the Program for MOC and developed the standards outlined in this document. The program review and standards development process included gaining input from multiple constituencies such as the Public; diplomates; specialty societies; ABMS Board of Directors; ABMS Member Boards; Associate Member organizations; multiple ABMS Committees, including the Committee on Certification, Subcertification, and Maintenance of Certification (COCERT), Committee on Oversight and Monitoring of Maintenance of Certification

1 The Accreditation Council for Continuing Medical Education, Accreditation Council for Graduate Medical Education, American Hospital Association, American Medical Association, Association of American Medical Colleges, Council of Medical Specialty Societies, Education Commission for Foreign Medical Graduates, Federation of State Medical Boards, and National Board of Medical Examiners.
(COMMOC), Maintenance of Certification Committee (MOC), Ethics and Professionalism Committee (EPCOM), and Health and Public Policy Committee (HPPC); and the ABMS Staff, among other stakeholders.

Because the Program for MOC has transformed certification from an early career event to an ongoing program of continuing learning and assessment, it can help diplomates remain current in an increasingly complex practice environment. Furthermore, the program improves patient care through practice improvement activities. MOC requirements align with other quality improvement, educational, and regulatory activities in which diplomates engage. Thus, these standards outline a relevant and meaningful mechanism for continuing professional development for diplomates while helping support the social compact between the Public and the profession.
General Standards

Purposes and Anticipated Outcomes

The General Standards of the Program for MOC provide the broad structure for ABMS Member Boards’ Programs for MOC. These standards contribute to improved patient care through the development of rigorous and relevant Programs for MOC that continuously improve and assess the knowledge, skills, and professionalism of diplomates who care for the patients, families, and communities of the United States. The standards are intended to improve diplomates’ professional satisfaction by providing a relevant, user-friendly, and meaningful process of ongoing professional development and assessment that is aligned with other professional expectations and requirements and is recognized broadly as a mark of quality medical practice.

GS-1. Each ABMS Member Board’s Program for MOC will incorporate all six ABMS/ACGME Core Competencies: Practice-Based Learning & Improvement; Patient Care & Procedural Skills; Systems-based Practice; Medical Knowledge; Interpersonal & Communication Skills; and Professionalism.

Annotation

The Six Core Competencies, adopted by ABMS and ACGME in 1999, are recognized as integral to quality patient care. The following are brief descriptions of the competencies.

The competency Practice-based Learning & Improvement refers to the diplomate’s ability to investigate and evaluate patient care practices, appraise and assimilate scientific evidence, and improve the diplomate’s own practice of medicine, the collaborative practice of medicine, or both.

The competency Patient Care & Procedural Skills refers to the diplomate’s use of clinical skills and ability to provide care and promote health in an appropriate manner that incorporates evidence-based medical practice, demonstrates good clinical judgment, and fosters patient-centered decision-making.

The competency Systems-based Practice refers to the diplomate’s awareness of, and responsibility to, population health and systems of health care. The diplomate should be able to use system resources responsibly in providing patient care (e.g., good resource stewardship, coordination of care).

The competency Medical Knowledge refers to the diplomate’s demonstration of knowledge about established and evolving biomedical, clinical, and cognate sciences, as well as the application of these sciences in patient care.

The competency Interpersonal & Communication Skills refers to the diplomate’s demonstration of skills that result in effective information exchange and partnering with patients, their families, and professional associates (e.g., fostering a therapeutic relationship that is ethically sound, using effective listening skills with nonverbal and verbal communication; being mindful of health literacy; and working effectively in a team both as a team member and as a team leader).

The competency Professionalism refers to the diplomate’s demonstration of a commitment to carrying out professional responsibilities, adhering to ethical principles, applying the skills and values to deliver compassionate, patient-centered care, demonstrating humanism, being sensitive to diverse patient care needs, and remaining committed to lifelong learning.
Standards for the ABMS Program for Maintenance of Certification (MOC)

populations and workforce, and practicing wellness and self-care.

ABMS Member Boards should integrate learning and assessment of the six competencies throughout their Programs for MOC in a manner that best serves the needs of patients cared for by diplomates and that is relevant to the practice of their respective specialties and to the specific type of practice of a diplomate. As appropriate, the four component parts of a Program for MOC should harmonize with each other. Multiple methods of assessment, learning, and improvement can be utilized effectively within a Program for MOC.

GS-2. Each ABMS Member Board will work to enhance the value of its Program for MOC and the experience of diplomates engaged in its Program including taking actions to increase the Program’s quality, relevance, and meaningfulness and with sensitivity to the time, administrative burden, and costs (monetary and other) associated with participation.

Annotation

The ABMS Member Boards serve the Public through developing and implementing a rigorous and relevant Program for MOC; the Program for MOC also serves the Profession. ABMS Member Boards should be sensitive to diplomates’ complex and diverse practice environments, regulatory requirements, learning needs, and other responsibilities in their program design and implementation.

GS-3. Each ABMS Member Board will engage in continual quality monitoring and improvement of its Program for MOC and will participate in the ABMS’ Program for MOC Review Process.

Annotation

Over time, this quality monitoring should incorporate opportunities for review of activities and materials produced and accepted for MOC credit, examination quality and administration, customer service, relationship between the Program for MOC and health outcomes, and other relevant factors. ABMS Member Boards may adopt multiple approaches to quality monitoring and continuous improvement; diplomate and Public feedback must be incorporated into each ABMS Member Board’s overall approach.

The ABMS Program for MOC Review Process will incorporate a continuous quality improvement mechanism and a periodic in-depth review of each ABMS Member Board’s Program for MOC and for MOC Programs sponsored by multiple ABMS Member Boards. The ABMS Review Process will involve the ABMS Member Boards, the Public, and diplomates, among others.
Part I Standards – Professionalism and Professional Standing

Purposes and Anticipated Outcomes

Part I of the Program for MOC focuses on Professionalism and Professional Standing of ABMS Member Board diplomates. These standards contribute to better patient care and improved medical practice by helping to assure the Public that diplomates exhibit professionalism in their medical practice, including acting in the patients’ best interests; behaving professionally with patients, families, and colleagues across the health professions; taking appropriate self-care; and representing their board certification and Maintenance of Certification status in a professional manner. These standards also contribute to improved access to quality health care for patients by facilitating re-entry to certification and medical practice for former diplomates of ABMS Member Boards.

PPS-1. Each ABMS Member Board will identify and convey that Board’s professionalism expectations to its diplomates and will incorporate professionalism learning and assessment activities into its Program for MOC.

Annotation

ABMS Member Boards will identify professionalism expectations for all diplomates. An ABMS Member Board’s professionalism expectations may be articulated in documents developed or adopted by the Member Board (examples include, but are not limited to, the ABMS Medical Professionalism definition, the AMA Code of Medical Ethics, the AOA Code of Ethics, the American Board of Internal Medicine Foundation [ABIMF] Charter on Physician Professionalism, and the American College of Surgeons Code of Professional Conduct).

As with all of the six ABMS/ACGME competencies, ABMS Member Boards should incorporate professionalism into multiple parts of their Programs for MOC.

PPS-2. Each ABMS Member Board will establish and maintain a process that provides former diplomates an opportunity to regain board certification.

Annotation

A process to regain Board Certification should be extended to former diplomates who have voluntarily or involuntarily lost board certification unless the Member Board determines that compelling circumstances preclude a former diplomate’s participation. A Member Board may develop different requirements on the basis of the reasons for loss of Board Certification. Engagement in a process to regain Board Certification does not guarantee that a former diplomate will ultimately regain certification and should not be linked with descriptors like ‘board eligible’.
PPS-3. Each ABMS Member Board will have a process in place to consider the circumstances of an action taken against a diplomate’s license by a State Medical Board or other determination of unprofessional conduct by an appropriate authority and to respond appropriately.

Annotation

A valid and unrestricted license to practice medicine is an indication that the State Medical Boards have not identified a lack of professionalism or another issue sufficient to justify an action against a diplomate’s license. Hence, this may be an appropriate screening indicator. ABMS Member Boards may, but generally do not, act as the “first investigator” of complaints about a diplomate. In some cases of action taken against a diplomate’s medical license by a State Medical Board, the suspension or termination of board certification is appropriate. In other cases, the action taken against a diplomate’s medical license by a State Medical Board does not preclude continued board certification. ABMS Member Boards will appropriately balance their primary obligation to the Public with the simultaneous obligation of fairness and due process to the diplomate.

ABMS Member Boards with non-physician diplomates will establish appropriate mechanisms to address actions taken against the professional licenses of these diplomates.
Part II – Lifelong Learning and Self-Assessment

Purposes and Anticipated Outcomes

Part II of the Program for MOC focuses on Lifelong Learning and Self-Assessment (LLS) of diplomates. These standards contribute to better patient care by requiring ongoing diplomate participation in high quality, unbiased learning and self-assessment activities that are relevant to the diplomate’s specialty and areas of practice within the specialty. Additional anticipated outcomes are that Part II activities are relevant, easy-to-use, cost-effective, and meaningful for diplomates.

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.

Annotation

Each ABMS Member Board will establish LLS requirements for its Program for MOC and determine which activities meet the Board’s requirements. LLS activities should substantially link to the diplomate’s own practice activities and to professional practice gaps identified within the specialty or by the diplomate. Ideally, LLS requirements should emphasize learning based on self-assessment. These requirements should incorporate but not be limited to engagement in CME activities that are accredited (ACCME, AAFP, or AOA) or certified for credit (e.g., AMA Physician’s Recognition Award [PRA] Category I, American Academy of Family Physicians [AAFP] Prescribed Credit, American Congress of Obstetricians and Gynecologists [ACOG] Cognates, or AOA Category IA). As a general example, no fewer than 25 CME credits (33% of which incorporate guided self-assessment) should be required annually.

To be considered “free of commercial bias and control of a commercial interest,” LLS activities should conform, at a minimum, to ACCME Standards for Commercial Support. Other documents, including the Council of Medical Specialty Societies Code for Interaction with Companies, may be of assistance.

ABMS Member Boards should advocate for the development of learning and self-assessment activities across all six competencies, particularly those competencies (e.g., professionalism, practice-based learning & improvement, systems-based practice) for which there is a relative shortage of available learning
resources. To the degree practical, ABMS Member Boards should support the use of specialty-specific, individualized learning and assessment plans for diplomates.

Each ABMS Member Board may work with specialty societies, other Boards and other organizations to develop LLS materials; adopt materials prepared by others; develop materials themselves; or otherwise make materials available. If a learning or self-assessment activity is not accredited by the ACCME, the AAFP, or the AOA, the ABMS Member Board must establish an internal process for quality evaluation of materials. ABMS Member Boards will publish and be transparent about their criteria for granting MOC credit for learning and self-assessment materials developed by other organizations.

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

**Annotation**

The topic of Patient Safety should be substantially reflected throughout a Program for MOC across diplomates’ careers. Patient Safety is highlighted in these standards for a number of reasons, including (1) the science underlying Patient Safety is still relatively new knowledge for many physicians, particularly those who completed graduate medical education programs before 2002; (2) studies have demonstrated the value of such knowledge in addressing the substantial mortality and morbidity associated with preventable errors in the health care system; and (3) the issue incorporates all six ABMS/ACGME Core Competencies and team activities.

ABMS Member Boards should work to ensure that diplomates have adequate knowledge of safety science and principles. Diplomates should successfully complete a Board-approved foundational patient safety course or equivalent learning experience prior to, or early in, the diplomate’s participation in the Program for MOC. As patient safety courses and equivalent experiences are increasingly incorporated into graduate medical education training, Member Boards may accept such experiences as the foundational experience. After completion of a foundational patient safety course or equivalent learning experience, MOC patient safety activities should focus on those topics/activities identified as most relevant to the specialty and to gaps identified in the specialty.
Part III – Assessment of Knowledge, Judgment, and Skills

Purposes and Anticipated Outcomes

Part III of the Program for MOC focuses on the Assessment of Knowledge, Judgment, and Skills of the diplomates. Part III should build upon and link to the continuous learning and self-assessment requirements of Part II of the Program for MOC. These standards contribute to better patient care by incorporating an external objective assessment of the diplomate. Engagement in external assessment provides an assurance that the diplomate has maintained the necessary commitment to lifelong learning and seeks to remain current in the core subject matter of the specialty. Furthermore, assessment can drive learning both through preparing for the examination and through targeted learning in response to examination results. These standards are specific to the examinations for maintaining certification.

KJS-1. ABMS board certification requires ongoing examination of diplomates’ knowledge of core content, judgment, and skills in the specialty no less often than every 10 years.

Examinations should be constructed in a manner that incorporates educational standards for test development, reliability, validity, administration, scoring, and reporting. Examinations will be conducted in a manner that ensures that (1) the identified test-taker is, in fact, the person who is taking the test; (2) materials (and any other assistance in any form) used during the examination are limited to materials (and any other assistance in any form) provided or approved by the ABMS Member Board; and 3) actual test content and information about the test content are not shared by examinees, examiners, or anyone else associated with the examination, unless specifically approved by the Member Board.

Annotation

The examination should demonstrate that the diplomate has the necessary core knowledge of the specialty. The examination will focus on core clinical information and advances within the specialty. An ABMS Member Board may link the examination within the Program for MOC with a diplomate’s specific practice areas within the specialty through modular components or similar elements.

Professionalism in constructing, administering, and scoring the examination is critical. The examination process should balance sensitivity to the needs of examinees with the importance of the intent and security of the examination.

ABMS Member Boards are exploring new methods of evaluating diplomate knowledge, judgment, and skills; alternatives to traditional testing; and mechanisms for linking examination content to specific practice elements. These explorations are encouraged and may affect test development and administration,
including formats, testing venues, and other aspects of the assessment process. These explorations will be consistent within the KJS-I standard criteria, unless prior approval is obtained from the ABMS' Committee on Continuing Certification (CCC). In their review, the members of the CCC will consider elements such as methods of test development, reliability, examination validity, and scoring.

KJS-2. To assist diplomates in developing individualized LLS programs, the ABMS Member Board will provide feedback to the diplomate about performance on secure examinations.

Annotation

ABMS Member Boards should provide information about diplomates’ performance on these examinations to the diplomates. This information should be provided in a manner that informs the diplomate of strengths and weaknesses, while also respecting the security requirements of the examination.
Part IV – Improvement in Medical Practice

Purposes and Anticipated Outcomes

Part IV of the Program for MOC focuses on Improvement in Medical Practice (IMP) by the diplomates. These standards contribute 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.

IMP-1. Each ABMS Member Board will incorporate practice assessment and improvement activities into its Program for MOC requirements throughout diplomates’ careers. Each ABMS Member Board’s Program for MOC will incorporate ways in which diplomates may engage in specialty-relevant, performance-in-practice assessment followed by improvement activities when practice gaps are identified.

Annotation

The ideal outcome of this standard is the ongoing engagement of diplomates in assessment and improvement activities relevant to improving patient outcomes, the patient care experience, and the value of the health care experience in the diplomate’s practice and/or within the broader system in which the diplomate practices. Recognizing this goal, the ABMS Member Board should create appropriate expectations for engagement of diplomates in these activities.

Each ABMS Member Board will identify a variety of ways in which practice assessment and improvement activities can be completed; these may include the use of registries, patient logs, patient surveys, peer surveys, practice improvement modules, performance improvement CME activities, etc. To the degree possible, the use of recognized performance measures should be incorporated into these activities.

Each ABMS Member Board may work with specialty societies, other Boards and other organizations to develop IMP methods and materials, adopt methods and materials prepared by others; develop these methods and materials themselves; or otherwise make these methods and materials available. The methods and materials offered should foster ongoing improvements in the care of patients by the physician and the health care system in which the physician practices medicine. An ABMS Member Board’s Program for MOC performance-in-practice requirements should encourage and enable diplomates to address the more difficult issues within their practices.

ABMS Member Boards should work to ensure that diplomates have adequate knowledge of quality improvement science and practice.
IMP-2. Each ABMS Member Board should encourage diplomate involvement in performance improvement activities within the context of the health care team and system of practice, and in alignment with other care-related quality improvement programs.

Annotation

Diplomates work across the medical specialties, as part of multi-professional health care teams, and within complex health care systems. Substantive diplomate engagement in organizational or health care system quality initiatives is encouraged and should be recognized for MOC credit.
## ABMS Member Board
### Alternative Research Pathways

<table>
<thead>
<tr>
<th>Program</th>
<th>Clinical Training Requirements</th>
<th>Research Training Requirements</th>
<th>Supervision</th>
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<tbody>
<tr>
<td><strong>American Board of Anesthesiology</strong></td>
<td>Research 1 templates:</td>
<td>• 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.</td>
<td>• 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.</td>
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<tr>
<td>Link</td>
<td>36 Months:</td>
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<td>• 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 the ABA that the requirement has been met.</td>
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<td></td>
<td>3 months in CA 1-2 years</td>
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<td>6 months in CA-3 year</td>
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<td>9 months, maximum total (25% of total time)</td>
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<td>48 months:</td>
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<td></td>
<td>2 months in CBY of anesthesiology-relevant research time</td>
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<td>3 months in CA 1-2 years</td>
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<td>6 months in CA-3 year</td>
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<td>11 months, maximum total (23% of total time)</td>
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<td>60 months:</td>
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<td>2 months in CBY of anesthesiology-relevant research time</td>
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<td>3 months in CA 1-2 years</td>
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<td>6 months in CA-3 year</td>
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<td>12 months in CA-4 year</td>
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<td>23 months, maximum total (38% of total time)</td>
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<td><strong>American Board of Internal Medicine:</strong></td>
<td>• 24 months of internal medicine training (at least 20 months must involve direct patient care responsibility)</td>
<td>• At least 3 years of training at 80% commitment.</td>
<td>• The internal medicine program director must be in support of a resident’s request to pursue the research pathway.</td>
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<tr>
<td><strong>Research Pathway</strong></td>
<td>If Subspecialty certification is also desired, training must include the clinical training requirements in the subspecialty area (12-24 months)</td>
<td>Should include completion of work leading to a graduate degree (if not already acquired) or its equivalent.</td>
<td>• Ratings of satisfactory clinical performance must be maintained annually for each trainee in the ABIM Research Pathway.</td>
</tr>
<tr>
<td>Link</td>
<td>During research training, 20% of each year must be spent in clinical experiences, including a half-day per week in continuity clinic.</td>
<td>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%.</td>
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<td>During subspecialty research training, at least one-half day per week must be spent in an ambulatory clinic.</td>
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<td>Time spent in continuity outpatient clinic during non-clinical training is in addition to the requirement for full-time clinical training.</td>
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<td></td>
<td>Ratings of satisfactory clinical performance must be maintained annually for each trainee in the ABIM Research Pathway.</td>
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<tr>
<td>American Board of Pathology: Physician-Scientist Research Pathway</td>
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<td>• The GME training requirements to apply for board certification are the same as for trainees that are not in this pathway (See section III in the Booklet of Information).</td>
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<td>• Trainees should apply to take the certification examination as soon as GME training requirements are completed. Trainees must become certified within five years of completion of GME requirements.</td>
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<td>• The ABP certification examination and ABP 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 Maintenance of Certification Part II and Part IV requirements (except for peer evaluations) for that period of the MOC cycle.</td>
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<td>• Current ABP GME training requirements allow for up to six months of research during core training. Trainees in the Physician-Scientist Research Pathway must complete at least one additional year of research.</td>
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<td>• ACGME Program Requirements must be followed during the six months of research that is part of the required core GME training; however, the additional research time is not subject to ACGME Program Requirements.</td>
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<tr>
<td>• All additional research time must occur in blocks of at least six months and should be protected by not being commingled with substantial clinical training.</td>
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<tr>
<th>American Board of Pediatrics: Accelerated Research Pathway</th>
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<tbody>
<tr>
<td>• 2 years of core pediatrics training must be completed for general pediatrics certification.</td>
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<tr>
<td>• The third year of general pediatrics is waived.</td>
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<td>• 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.</td>
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<tr>
<td>• 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.</td>
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<td>• A work product and a comprehensive personal statement must be submitted to the ABP at the completion of fellowship.</td>
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<tr>
<td>• All subspecialty trainees will be expected to participate in a core curriculum in scholarly activity skills.</td>
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<tr>
<th>American Board of Physical Medicine and Rehabilitation: Clinical Investigator Pathway</th>
<th>Link</th>
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<td>5 year residency program:</td>
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<td>• PGY-1: clinical skills required for PMR training program</td>
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<td>• PGY-2,3,4,5: Combination of clinical and investigative training</td>
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<td>• 12-24 months research required; training should include completion of work leading to a graduate degree (if not already acquired)</td>
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<td>• During research training, 20% of each year must be spent in clinical experiences. Intermittent or blocks of clinical time will be considered.</td>
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<p>| • Design training plan with residency program director and research mentor. | |
| • Annually report progress. | |</p>
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<tr>
<th>American Board of Radiology: Holman Research Pathway</th>
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- **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.