REPORTS OF THE COUNCIL ON MEDICAL EDUCATION

The following reports, 1–7, were presented by Carol D. Berkowitz, MD, Chair.

1. COUNCIL ON MEDICAL EDUCATION SUNSET REVIEW OF 2009 HOUSE POLICIES

Reference committee hearing: see report of Reference Committee C.

HOUSE ACTION: RECOMMENDATIONS ADOPTED
REMAINDER OF REPORT FILED

AMA Policy G-600.110, "Sunset Mechanism for AMA Policy," is intended to help ensure that the AMA Policy Database is current, coherent, and relevant. By eliminating outmoded, duplicative, and inconsistent policies, the sunset mechanism contributes to the ability of the AMA to communicate and promote its policy positions. It also contributes to the efficiency and effectiveness of House of Delegates deliberations. The current policy reads as follows:

1. As the House of Delegates adopts policies, a maximum ten-year time horizon shall exist. A policy will typically sunset after ten years unless action is taken by the House of Delegates to retain it. Any action of our AMA House that reaffirms or amends an existing policy position shall reset the sunset "clock," making the reaffirmed or amended policy viable for another 10 years.

2. In the implementation and ongoing operation of our AMA policy sunset mechanism, the following procedures shall be followed: (a) Each year, the Speakers shall provide a list of policies that are subject to review under the policy sunset mechanism; (b) Such policies shall be assigned to the appropriate AMA Councils for review; (c) Each AMA council that has been asked to review policies shall develop and submit a report to the House of Delegates identifying policies that are scheduled to sunset; (d) For each policy under review, the reviewing council can recommend one of the following actions: (i) Retain the policy; (ii) Sunset the policy; (iii) Retain part of the policy; or (iv) Reconcile the policy with more recent and like policy; (e) For each recommendation that it makes to retain a policy in any fashion, the reviewing Council shall provide a succinct, but cogent justification; (f) The Speakers shall determine the best way for the House of Delegates to handle the sunset reports.

3. Nothing in this policy shall prohibit a report to the HOD or resolution to sunset a policy earlier than its 10-year horizon if it is no longer relevant, has been superseded by a more current policy, or has been accomplished.

4. The AMA Councils and the House of Delegates should conform to the following guidelines for sunset: (a) when a policy is no longer relevant or necessary; (b) when a policy or directive has been accomplished; or (c) when the policy or directive is part of an established AMA practice that is transparent to the House and codified elsewhere such as the AMA Bylaws or the AMA House of Delegates Reference Manual: Procedures, Policies and Practices.

5. The most recent policy shall be deemed to supersede contradictory past AMA policies.

6. Sunset policies will be retained in the AMA historical archives.

The Council on Medical Education's recommendations on the disposition of the 2009 House policies that were assigned to it are included in the Appendix to this report.

RECOMMENDATION

The Council on Medical Education recommends that the House of Delegates policies listed in the appendix to this report be acted upon in the manner indicated and the remainder of this report be filed.

APPENDIX - Recommended Actions on 2009 and Other Related House Of Delegates Policies

Policy Number, Title, Policy	Recommended Action

H-30.983, "Medical Education on Alcoholism and Other Chemical Dependencies"

The AMA supports (1) taking a leadership role in educating or causing changes in physician education for exposure to early identification, treatment and prevention of alcoholism and other chemical dependencies; and (2) public education efforts in coordination with other interested groups on an ongoing basis. (Res. 67, I-86; Reaffirmed: Sunset Report, I-96; Reaffirmed: CMS Rep. 10, A-99; Reaffirmed: CME Rep. 2, A-09)	Retain; still relevant.

H-200.957, "Proper Notification and Education Regarding Healthcare Professional Shortage Areas by Medicare Carrier"

Our AMA shall educate member physicians regarding Medicare Part B carriers' responsibility to notify all physicians that if they practice in a Healthcare Professional Shortage Area, they are eligible for incentive payments under Centers for Medicare & Medicaid Services guidelines, and they may be eligible to file amended claims under the incentive payment program retroactively for up to twelve months. (Res. 103, I-99; Reaffirmed: CME Rep. 2, A-09)	Retain; still relevant.

D-200.998, "Physician Workforce Planning and Physician Re-Training"

Our AMA will consider physician retraining during all its deliberations on physician workforce planning. (Res. 324, A-99; Reaffirmed and Modified: CME Rep. 2, A-09	Retain through incorporation into H-200.955, "Revisions to AMA Policy on the Physician Workforce," as follows: (9) Our AMA will consider physician retraining during all its deliberations on physician workforce planning.

D-225.999, "The Emerging Use of Hospitalists: Implications for Medical Education"

(1) Our AMA, through its Council on Medical Education and Council on Medical Service, will collect data on the following areas: (a) the emergence of educational opportunities for hospitalist physicians at the residency level, including the curriculum of hospitalist tracks within residency training programs; (b) the availability and content of continuing medical education opportunities for hospitalist physicians; (c) the policies of hospitals and managed care organizations related to the maintenance of hospital privileges for generalist physicians who do not typically care for inpatients; and (d) the quality and costs of care associated with hospitalist practice. (2) Our Council on Medical Education and Council on Medical Service will monitor the evolution of hospitalist programs, with the goal of identifying successful models. (3) Our AMA will encourage dissemination of information about the education implications of the emergence of hospitalism to medical students, resident physicians, and practicing physicians. (CME Rep. 2, A-99; Reaffirmed: CME Rep. 2, A-09)	Sunset; directive has been accomplished through reports from both Councils.

H-230.959, "Ultrasound and Biopsy of the Thyroid"

Our AMA adopts the position that only appropriately trained and credentialed physicians (M.D. and D.O.) and appropriately trained and certified ultrasound technologists perform ultrasound examinations of the thyroid and that only appropriately trained and credentialed physicians evaluate and interpret ultrasound examinations and perform ultrasound-guided biopsies of the thyroid.	Retain; still relevant.

| (Sub. Res. 818, I-99; Reaffirmed: CME Rep. 2, A-09) | |

H-230.989, "Patient Protection and Clinical Privileges"

| Concerning the granting of staff and clinical privileges in hospitals and other health care facilities, the AMA believes:
(1) the best interests of patients should be the predominant consideration;
(2) the accordance and delineation of privileges should be determined on an individual basis, commensurate with an applicant's education, training, experience, and demonstrated current competence. In implementing these criteria, each facility should formulate and apply reasonable, nondiscriminatory standards for the evaluation of an applicant's credentials, free of anti-competitive intent or purpose;
(3) differences among health care practitioners in their clinical privileges are acceptable to the extent that each has a scientific basis. However, the same standards of performance should be applied to limited practitioners who offer the kinds of services that can be performed by limited licensed health care practitioners or physicians; and
(4) health care facilities that grant privileges to limited licensed practitioners should provide that patients admitted by limited licensed practitioners undergo a prompt medical evaluation by a qualified physician; that patients admitted for inpatient care have a history taken and a comprehensive physical examination performed by a physician who has such privileges; and that each patient's general medical condition is the responsibility of a qualified physician member of the medical staff. (Sub. Res. 36, A-84; Reaffirmed: CME Rep.8, I-93; Reaffirmed: Res. 802, I-99; Reaffirmed: CME Rep. 2, A-09) | Retain; still relevant. |

H-255.974, "Preservation of Opportunities for US Graduates and International Medical Graduates Already Legally Present in the US"

| In the event of reductions in the resident workforce, the AMA will advocate for a mechanism of resident selection which promotes the maintenance of resident physician training opportunities for all qualified graduates of United States Liaison Committee on Medical Education and American Osteopathic Association accredited institutions; and the AMA adopts the position that it will be an advocate for IMGs already legally present in this country.
(Res. 324, A-97; Reaffirmed: CME Rep. 10, A-99; Reaffirmed: CME Rep. 2, A-09) | Sunset; superseded by other policies on IMGs, including H-255.988, "AMA Principles on International Medical Graduates" and D-255.982, "Oppose Discrimination in Residency Selection Based on International Medical Graduate Status." Through the work of its IMG Section and related initiatives, the AMA is a preeminent advocate for IMGs. |

D-275.963, "Ensuring Diversity in United States Medical Licensing Examination Exams"

| Our AMA will pursue diversity on all United States Medical Licensing Examination test/oversight committees in order to include the perspectives from others, including international medical graduates, to better reflect the diversity of the test takers. (Sub. Res. 306, A-09) | Retain; still relevant. |

D-295.319, "Discriminatory Questions on Applications for Medical Licensure"

| Our American Medical Association will work with the Federation of State Medical Boards and other appropriate stakeholders to develop model language for medical licensure applications which is non discriminatory and which does not create barriers to appropriate diagnosis and treatment of psychiatric disorders, consistent with the responsibility of state medical boards to protect the public health.
(Res. 925, I-09) | Sunset; superseded by H-275.970, "Licensure Confidentiality," which reads:

"1. The AMA (a) encourages specialty boards, hospitals, and other organizations involved in credentialing, as well as state licensing boards, to take all necessary steps to assure the confidentiality of information contained on application forms for credentials; (b) encourages boards to include in application forms only requests for information that can |

	reasonably be related to medical practice; (c) encourages state licensing boards to exclude from license application forms information that refers to psychoanalysis, counseling, or psychotherapy required or undertaken as part of medical training; (d) encourages state medical societies and specialty societies to join with the AMA in efforts to change statutes and regulations to provide needed confidentiality for information collected by licensing boards; and (e) encourages state licensing boards to require disclosure of physical or mental health conditions only when a physician is suffering from any condition that currently impairs his/her judgment or that would otherwise adversely affect his/her ability to practice medicine in a competent, ethical, and professional manner, or when the physician presents a public health danger. "2. Our AMA will encourage those state medical boards that wish to retain questions about the health of applicants on medical licensing applications to use the language recommended by the Federation of State Medical Boards that reads, "Are you currently suffering from any condition for which you are not being appropriately treated that impairs your judgment or that would otherwise adversely affect your ability to practice medicine in a competent, ethical and professional manner? (Yes/No)."

D-295.325, "Remediation Programs for Physicians"

1. Our AMA supports the efforts of the Federation of State Medical Boards (FSMB) to maintain an accessible national repository on remediation programs that provides information to interested stakeholders and allows the medical profession to study the issue on a national level. 2. Our AMA will collaborate with other appropriate organizations, such as the FSMB and the Association of American Medical Colleges, to study and develop effective methods and tools to assess the effectiveness of physician remediation programs, especially the relationship between program outcomes and the quality of patient care. 3. Our AMA supports efforts to remove barriers to assessment programs including cost and accessibility to physicians. 4. Our AMA will partner with the FSMB and state medical licensing boards, hospitals, professional societies and other stakeholders in efforts to support the development of consistent standards and programs for remediating deficits in physician knowledge and skills. 5. Our AMA will ask the Liaison Committee on Medical Education and the Accreditation Council for Graduate Medical Education to develop standards that would encourage medical education programs to engage in early identification and remediation of conditions, such as learning disabilities, that could lead to later knowledge and skill deficits in practicing physicians. (CME Rep. 3, A-09)	Retain; still relevant.

D-295.326, "Recognition of Osteopathic Education and Training"

Our AMA will explore the feasibility of collaborating with other stakeholder organizations and funding agencies to convene leaders in allopathic and osteopathic medicine responsible for undergraduate and graduate medical education, accreditation and certification, to explore opportunities to align educational policies and practices. (CME Rep. 12, A-09)	Sunset; this is being accomplished at the graduate medical education level through the Single GME Accreditation System.

D-295.328, "Promoting Physician Lifelong Learning"

1. Our AMA encourages medical schools and residency programs to explicitly include training in and an evaluation of the following basic skills: (a) the acquisition and appropriate utilization of information in a time-effective manner in the context of the care of actual or simulated patients; (b) the identification of information that is evidence-based, including such things as data quality, appropriate data analysis, and analysis of bias of any kind; (c) the ability to assess one's own learning needs and to create an appropriate learning plan; (d) the principles and processes of assessment of practice performance; (e) the ability to engage in reflective practice. 2. Our AMA will work to ensure that faculty members are prepared to teach and to demonstrate the skills of lifelong learning. 3. Our AMA encourages accrediting bodies for undergraduate and graduate medical education to evaluate the performance of educational programs in preparing learners in the skills of lifelong learning. 4. Our AMA will monitor the utilization and evolution of the new methods of continuing physician professional development, such as performance improvement and internet point-of-care learning, and work to ensure that the methods are used in ways that are educationally valid and verifiable. 5. Our AMA will continue to study how to make participation in continuing education more efficient and less costly for physicians. (CME Rep. 10, A-09)	Retain; still relevant.

D-295.329, "Communication and Clinical Teaching Curricula"

Our AMA will: 1. encourage the Liaison Committee on Medical Education to continue to enforce accreditation standards requiring that faculty members and resident physicians are prepared for and evaluated on their teaching effectiveness; 2. encourage the Accreditation Council for Graduate Medical Education to create institutional-level standards related to assuring the quality of faculty teaching; 3. encourage medical schools and institutions sponsoring graduate medical education programs to offer faculty development for faculty and resident physicians in time-efficient modalities, such as online programs, and/or to support faculty and resident participation in off-site programs; 4. encourage medical educators to develop and utilize valid and reliable measures for teaching effectiveness; and 5. encourage medical schools to recognize participation in faculty development for purposes of faculty retention and promotion. (CME Rep. 9, A-09)	Retain; still relevant.

D-295.330, "Update on the Uses of Simulation in Medical Education"

Our AMA will: 1. continue to advocate for additional funding for research in curriculum development, pedagogy, and outcomes to further assess the effectiveness of simulation and to implement effective approaches to the use of simulation in both teaching and assessment; 2. continue to work with and review, at five-year intervals, the accreditation requirements of the Liaison Committee on Medical Education (LCME), the Accreditation Council for	Retain; still relevant.

Graduate Medical Education (ACGME), and the Accreditation Council for Continuing Medical Education (ACCME) to assure that program requirements reflect appropriate use and assessment of simulation in education programs; 3. encourage medical education institutions that do not have accessible resources for simulation-based teaching to use the resources available at off-site simulation centers, such as online simulated assessment tools and simulated program development assistance; 4. monitor the use of simulation in high-stakes examinations administered for licensure and certification as the use of new simulation technology expands; 5. further evaluate the appropriate use of simulation in interprofessional education and clinical team building; and 6. work with the LCME, the ACGME, and other stakeholder organizations and institutions to further identify appropriate uses for simulation resources in the medical curriculum. (CME Rep. 8, A-09)	

H-295.867, "Expanding the Visiting Students Application Service for Visiting Student Electives in the Fourth Year"

1. Our American Medical Association strongly encourages the Association of American Medical Colleges (AAMC) to expand eligibility for the Visiting Students Application Service (VSAS) to medical students from Commission on Osteopathic College Accreditation (COCA)-accredited medical schools. 2. Our AMA supports and encourages the AAMC in its efforts to increase the number of members and non-member programs in the VSAS, such as medical schools accredited by COCA and teaching institutions not affiliated with a medical school. 3. Our AMA encourages the AAMC to ensure that member institutions that previously accepted both allopathic and osteopathic applications for fourth year clerkships prior to VSAS implementation continue to have a mechanism for accepting such applications of osteopathic medical students. (Res. 910, I-09)	Retain; still relevant.

H-295.887, "Clinical Skills Assessment During Medical School"

Our AMA encourages medical schools that do not already do so to implement valid and reliable methods to evaluate medical students' clinical skills. (CMS Rep. 7, I-99; Reaffirmed: CME Rep. 2, A-09)	Sunset; superseded by D-295.988, "Clinical Skills Assessment During Medical School," which reads in part: "1. Our AMA will encourage its representatives to the Liaison Committee on Medical Education (LCME) to ask the LCME to determine and disseminate to medical schools a description of what constitutes appropriate compliance with the accreditation standard that schools should 'develop a system of assessment' to assure that students have acquired and can demonstrate core clinical skills… "3. Our AMA will work to … include active participation by faculty leaders and assessment experts from U.S. medical schools, as they work to develop new and improved methods of assessing medical student competence for advancement into residency. "4. Our AMA is committed to assuring that all medical school graduates entering graduate medical education programs have demonstrated competence in clinical skills. "5. Our AMA will continue to work with appropriate stakeholders to assure the processes for assessing clinical

	skills are evidence-based and most efficiently use the time and financial resources of those being assessed."

H-295.889, "Color Blindness"

Our AMA will encourage medical schools to be aware of students with color blindness and its effect on their medical studies. (Sub. Res, 303, A-99; Reaffirmed: CME Rep. 2, A-09)	Retain; still relevant.

H-295.890, "Medical Education and Training in Women's Health"

Our AMA: (1) encourages the coordination and synthesis of the knowledge, skills, and attitudinal objectives related to women's health/gender-based biology that have been developed for use in the medical school curriculum. Medical schools should include attention to women's health throughout the basic science and clinical phases of the curriculum; (2) does not support the designation of women's health as a distinct new specialty; (3) that each specialty should define objectives for residency training in women's health, based on the nature of practice and the characteristics of the patient population served; (4) that surveys of undergraduate and graduate medical education, conducted by the AMA and other groups, should periodically collect data on the inclusion of women's health in medical school and residency training; (5) encourages the development of a curriculum inventory and database in women's health for use by medical schools and residency programs; (6) encourages physicians to include continuing education in women's health/gender based biology as part of their continuing professional development; and (7) encourages its representatives to the Liaison Committee on Medical Education, the Accreditation Council for Graduate Medical Education, and the various Residency Review Committees to promote attention to women's health in accreditation standards. (Jt. Rep. CME and CSA, A-99; Reaffirmed: CME Rep. 2, A-09)	Retain; still relevant.

H-295.919, "Advanced Cardiac Life Support Training"

Our AMA: (1) strongly supports the teaching of advanced cardiac life support and basic life support beginning in medical school and continuing during residency training; and (2) encourages medical schools to include the following areas related to airway management as part of the required curriculum: (a) airway anatomy and function; (b) basic life support and advanced cardiac life support, and (c) airway management and intubation in the unconscious patient. (Sub. Res. 309, A-95; Reaffirmed and Appended: CME Rep. 3, I-99; Reaffirmed and Modified: CME Rep. 2, A-09)	Sunset; this has become well established in medical education and practice.

H-295.949, "Encouraging Community Based Medical Education"

Our AMA recognizes and acknowledges the vital role of practicing physicians in community hospitals in medical student and resident teaching. (Res. 44, A-91; Modified: Sunset Report, I-01; Reaffirmed: CME Rep. 9, A-09)	Retain through incorporation into H-295.916, "Improving Medical School/Community Practice," as follows: 1. Our AMA recognizes and acknowledges the vital role of practicing physicians in community hospitals in medical student and resident teaching. 12. Medical schools should be encouraged to include community physicians who serve as volunteer faculty in medical school activities and in committees and other decision-making bodies related to the student educational

	program, such as the curriculum committee and the admission committee, and in search committees for medical school deans and department chairs.
	23. County/state medical societies should be encouraged to include medical school administrators and faculty members in committees and other society activities, and to consider creating a seat for medical school deans in the state society house of delegates.
	34. There should be mechanisms established at local or state levels to address tensions arising between the academic and practice communities, such as problems associated with the granting of faculty appointment or hospital staff privileges.
	45. Medical schools and other academic continuing medical education providers should work with community physicians to develop continuing education programs that address local needs.
	56. Community physician groups and schools of medicine should be encouraged to communicate during the initial stages of discussions about the formation of patient care networks.

D-295.983, "Fostering Professionalism During Medical School and Residency Training"

(1) Our AMA, in consultation with other relevant medical organizations and associations, will work to develop a framework for fostering professionalism during medical school and residency training. This planning effort should include the following elements: (a) Synthesize existing goals and outcomes for professionalism into a practice-based educational framework, such as provided by the AMA's Principles of Medical Ethics. (b) Examine and suggest revisions to the content of the medical curriculum, based on the desired goals and outcomes for teaching professionalism. (c) Identify methods for teaching professionalism and those changes in the educational environment, including the use of role models and mentoring, which would support trainees? acquisition of professionalism. (d) Create means to incorporate ongoing collection of feedback from trainees about factors that support and inhibit their development of professionalism. (2) Our AMA, along with other interested groups, will continue to study the clinical training environment to identify the best methods and practices used by medical schools and residency programs to fostering the development of professionalism. (CME Rep. 3, A-01; Reaffirmation I-09)	Retain; still relevant, with editorial change as shown below: (c) Identify methods for teaching professionalism and those changes in the educational environment, including the use of role models and mentoring, which would support trainees?' acquisition of professionalism.

D-295.992, "Development of Courses to Prepare Medical Students and Residents for the Political, Legal and Socioeconomic Aspects of Practice and Physician Advocacy"

Our AMA will assist local and state medical societies to develop education programs on the political, legal, and socioeconomic aspects of medical practice and physician advocacy, to be offered to medical students and physicians in residency training throughout the country to supplement their clinical education and prepare them for practice. (Res. 322, A-99; Reaffirmed: CME Rep. 2, A-09	Sunset; superseded by the following policies, as excerpted below. H-295.961, "Medicolegal, Political, Ethical and Economic Medical School Course" "The AMA urge every medical school and residency program to teach the legal, political, ethical and economic issues which will affect physicians. (2) The AMA will work with state and county medical societies to identify and provide

speakers, information sources, etc., to assist with the courses..."

H-295.953, "Medical Student, Resident and Fellow Legislative Awareness"

"1. The AMA strongly encourages the state medical associations to work in conjunction with medical schools to implement programs to educate medical students concerning legislative issues facing physicians and medical students.

"2. Our AMA will advocate that political science classes which facilitate understanding of the legislative process be offered as an elective option in the medical school curriculum.

"3. Our AMA will establish health policy and advocacy elective rotations based in Washington, DC for medical students, residents, and fellows.

"4. Our AMA will support and encourage institutional, state, and specialty organizations to offer health policy and advocacy opportunities for medical students, residents, and fellows."

H-295.977, "Socioeconomic Education for Medical Students"

"1. The AMA favors (a) continued monitoring of U.S. medical school curricula and (b) providing encouragement and assistance to medical school administrators to include or maintain material on health care economics in medical school curricula.

"2. Our AMA will advocate that the medical school curriculum include an optional course on coding and billing structure, RBRVS, RUC, CPT and ICD-9."

H-295.924, "Future Directions for Socioeconomic Education"

"The AMA: (1) asks medical schools and residencies to encourage that basic content related to the structure and financing of the current health care system, including the organization of health care delivery, modes of practice, practice settings, cost effective use of diagnostic and treatment services, practice management, risk management, and utilization review/quality assurance, is included in the curriculum;
(2) asks medical schools to ensure that content related to the environment and economics of medical practice in fee-for-service, managed care and other financing systems is presented in didactic sessions and reinforced during clinical experiences, in both inpatient and ambulatory care settings, at educationally appropriate times during undergraduate and graduate medical education; and
(3) will encourage representatives to the Liaison Committee on Medical Education (LCME) to ensure that survey teams pay close attention during the accreditation process to the degree to which 'socioeconomic' subjects are covered in the medical curriculum."

D-295.996, "Update on Development of Branch Campuses of International Medical Schools"

Our AMA will join with the Association of American Medical Colleges in continuing to support the process of voluntary accreditation of medical education programs. (BOT Rep. 25, A-99; Reaffirmed and Modified: CME Rep. 2, A-09	Retain, still relevant.

D-300.981, "Proposed Fee Increase by the Accreditation Council for Continuing Medical Education"

Our AMA will strongly urge the Accreditation Council for Continuing Medical Education (ACCME) to reconsider the proposed fee increase and, if the ACCME refuses to reconsider the proposed fee increase, our AMA will investigate and recommend ways by which physicians may receive appropriate, accredited continuing medical education other than through ACCME-accredited activities. (Res. 312, A-09)	Retain, still relevant; also, will be covered in more detail in a planned Council on Medical Education report.

D-305.963, "Securing Medicare GME Funding for Research and Ambulatory Non-Hospital Based Outside Rotations During Residency"

Our AMA will: 1. Advocate for the Centers for Medicare and Medicaid Services (CMS) (both federal Medicare and federal/state Medicaid) funding for the time residents and fellows spend in research, didactic activities, and extramural educational activities required for the Accreditation Council for Graduate Medical Education (ACGME) accreditation during their training. 2. Continue to work with organizations such as the Association of American Medical Colleges (AAMC) and the Council on Graduate Medical Education (COGME), to make recommendations to change current Graduate Medical Education (GME) funding regulations during residency training, which currently limit funding for research, extramural educational opportunities, and flexible GME training programs and venues. 3. Monitor any public and/or private efforts to change the financing of medical services (health system reform) so as to advocate for adequate and appropriate funding of GME. 4. Advocate for funding for training physician researchers from sources in addition to CMS such as the National Institutes of Health, the Agency for Healthcare Research and Quality, the Veterans Administration, and other agencies. (CME Rep. 4, I-08 Reaffirmed: CME Rep. 3, I-09 Modified: CCB/CLRPD Rep. 2, A-14)	Sunset; already accomplished, or superseded by other AMA policy. Items 1 and 2 have been addressed: For direct graduate medical education funds, CMS will count research time if it's part of the ACGME-accredited program; for indirect GME, CMS will count research time if it's associated with the treatment or diagnosis of a particular patient. The brochure "Medicare Payments for Graduate Medical Education: What Every Medical Student, Resident, and Advisor Needs to Know," from the Association of American Medical Colleges," provides additional information on this topic: "16. What about the time I spend doing research? "For DGME payments, a hospital may count the time a resident spends performing research, including bench research, as long as the research takes place in the hospital and is part of an approved training program. For IME payments, a hospital may only count the time a resident spends performing clinical research that is associated with the treatment or diagnosis of a particular patient. If you were to take a year away from your residency training specifically to conduct research not required by your residency program, the research year would not count toward your IRP. For example, if you had completed three years of a general surgery program (a program with a five-year IRP), and you stepped away from the program for one year to do research not required by your program, you would still have two years remaining on your IRP when you returned to training after your research year." Item 3 is superseded by more comprehensive AMA policy, including D-305.967, "The Preservation, Stability and Expansion of Full Funding for Graduate Medical Education" and H-310.917, "Securing Funding for Graduate Medical Education." Item 4 is superseded by H-460.930, "Importance of Clinical Research," which reads in part: "(2) Our AMA continues to advocate vigorously for a stable, continuing base of funding and support for all aspects of clinical research within the research programs of all relevant federal agencies, including the National Institutes of Health, the Agency for Healthcare Research and Quality, the Centers for Medicare & Medicaid Services, the Department of Veterans Affairs and the Department of Defense."

D-305.996, "Coding for Services Involving Teaching Activity"

Our AMA will continue its efforts to develop the next generation of CPT coding, with attention to the coding needs of teaching physicians. (BOT Rep. 7, A-99; Reaffirmed and Modified: CME Rep. 2, A-09	Retain; still relevant.

D-305.997, "Training of Physicians Under Managed Care"

Our AMA will monitor ongoing legislative initiatives and support specific language that would preserve the opportunities for medical students and resident physicians to participate in the care of patients under the supervision of the responsible attending staff. (CME Rep. 4, A-99; Reaffirmed and Modified: CME Rep. 2, A-09	Sunset; superseded by H-295.995, "Recommendations for Future Directions for Medical Education," which reads in part: "(36) Our AMA will strongly advocate for the rights of medical students, residents, and fellows to have physician-led (MD or DO as defined by the AMA) clinical training, supervision, and evaluation while recognizing the contribution of non-physicians to medical education." Also superseded by H-285.974, "Residents Working with Managed Care Programs," which reads: "The AMA encourages managed care plans to allow residents to care for patients under faculty supervision in the inpatient and outpatient setting."

H-310.930, "Attending Physician Supervision of Night-Float Rotations"

Our AMA supports hospitals and residency programs including those utilizing a night-float system, continuing to assure that there is rapid access to appropriately qualified attending physicians for trainee supervision and the provision of the best quality of patient care. (Res. 320, A-99; Reaffirmed: CME Rep. 2, A-09)	Sunset; superseded by the following policies: H-310.929, "Principles for Graduate Medical Education" "(12) SUPERVISION OF RESIDENT PHYSICIANS. Program directors must supervise and evaluate the clinical performance of resident physicians. The policies of the sponsoring institution, as enforced by the program director, and specified in the ACGME Institutional Requirements and related accreditation documents, must ensure that the clinical activities of each resident physician are supervised to a degree that reflects the ability of the resident physician and the level of responsibility for the care of patients that may be safely delegated to the resident. The sponsoring institution's GME Committee must monitor programs' supervision of residents and ensure that supervision is consistent with: (A) Provision of safe and effective patient care; (B) Educational needs of residents; (C) Progressive responsibility appropriate to residents' level of education, competence, and experience; and (D) Other applicable Common and specialty/subspecialty specific Program Requirements. The program director, in cooperation with the institution, is responsible for maintaining work schedules for each resident based on the intensity and variability of assignments in conformity with ACGME Review Committee recommendations, and in compliance with the ACGME clinical and educational work hour standards. Integral to resident supervision is the necessity for frequent evaluation of residents by faculty, with discussion between faculty and resident. It is a cardinal principle that responsibility for the treatment of each patient and the education of resident and fellow physicians lies with the physician/faculty to whom the patient is assigned and who supervises all care rendered to the patient by residents and fellows. Each patient's attending physician must decide, within guidelines established by the program director, the extent to which responsibility may be delegated to the resident, and the appropriate degree of supervision of the resident's participation in the care of the patient. The attending physician, or designate, must be available to the resident for consultation at all times."

| | H-310.907, "Resident/Fellow Clinical and Educational Work Hours"

"6. Our AMA recognizes the ACGME for its work in ensuring an appropriate balance between resident education and patient safety, and encourages the ACGME to continue to:
… develop standards to ensure that appropriate education and supervision are maintained, whether the setting is in-house or at-home."

"o) The general public should be made aware of the many contributions of resident/fellow physicians to high-quality patient care and the importance of trainees' realizing their limits (under proper supervision) so that they will be able to competently and independently practice under real-world medical situations."

In addition, the following from the AMA *Code of Medical Ethics* is relevant to rescission of this policy:

Opinion 9.2.2, "Resident & Fellow Physicians' Involvement in Patient Care"

"Physicians involved in training residents and fellows should … (f) Provide residents and fellows with appropriate faculty supervision and availability of faculty consultants, and with graduated responsibility relative to level of training and expertise." |
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H-310.945, "Graduate Medical Education Faculty Evaluations"

The AMA recommends that evaluations of residency program faculty should be done in a confidential manner, at least annually, and the areas evaluated should include teaching ability, clinical knowledge, scholarly contributions, attitudes, interpersonal skills, communication ability and commitment. Residency program directors should provide faculty members with a written summary of the evaluations. (CME Rep. 7, I-93; Reaffirmed and Modified: CME Rep. 2, A-05; Reaffirmed: CME Rep. 9, A-09)	Retain; still relevant.

D-310.956, "Transfer of Care for Resident and Fellow Physicians in Training"

| Our AMA: (1) working with other organizations and stakeholders, will identify best practices including the presence, quality, and utilization of computerized systems for transfer of care in training programs in all specialties; (2) will encourage the ACGME to add to the Institutional Requirements a requirement that GME training institutions ensure that trainees in all specialties are provided with an effective, systematic approach for handoffs of clinical information and transfer of care between trainees within their institution; and (3) will advocate for the use of federal dollars in existing Health Information Technology (HIT) initiatives to sponsor systems that enable transfers of care that are integral to any well-functioning electronic medical record. (Res. 329, A-09) | Sunset, for reasons stipulated below.

Item 1 is superseded by H-310.907, "Resident/Fellow Clinical and Educational Work Hours," which reads in part: "3. Our AMA encourages publication and supports dissemination of studies in peer-reviewed publications and educational sessions about all aspects of clinical and educational work hours, to include such topics as extended work shifts, handoffs..."

Item 2 is already reflected in ACGME Institutional Requirements (effective July 1, 2018):

III.B.3. Transitions of Care: The Sponsoring Institution must:

III.B.3.a) facilitate professional development for core faculty members and residents/fellows regarding effective transitions of care; and, (Core)

III.B.3.b) in partnership with its ACGME-accredited program(s), ensure and monitor effective, structured patient |
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	hand-over processes to facilitate continuity of care and patient safety at participating sites. (Core)
	Item 3 has been accomplished. HITECH (Health Information Technology for Economic and Clinical Health) Act funding for health information exchanges (HIEs) has run out, the Meaningful Use program is over, and the AMA successfully advocated to the Centers for Medicare & Medicaid Services (CMS) to focus its Performance Improvement efforts on interoperability. In fact, the newest HIE measures from CMS are on closing the referral loop—a core function in care transfer. Finally, the AMA has a significant number of other policies on broader advocacy efforts for interoperability.

D-310.957, "Resident and Fellow Benefit Equity During Research Assignments"

1. Our AMA will urge the Accreditation Council for Graduate Medical Education to require accredited sponsoring residency and fellowship training programs to continue to provide comparable benefits to resident and fellow physicians engaged in research activities that are required by either their sponsoring residency and fellowship training programs or residency review committees as if it were full-time clinical service. 2. Our AMA will collect data on resident and fellow physician benefits including resident and fellow physicians engaged in research activities. 3. Our AMA will, through the AMA Resident and Fellow Section, continue to work with residents and fellows and support training of biomedical scientists and health care researchers. 4. Our AMA will advocate that the Centers for Medicare & Medicaid Services include in an expanded cap the FEC count for GME payment formulas the time that resident and fellow physicians spend in research and other scholarly activities that is required by the ACGME. (CME Rep. 14, A-09)	Sunset, as described below. Item 1 would be anticompetitive, and unenforceable, based on an analogous ACGME requirement from the 1990s, which stated that all clinical residents at the same level be paid the same amount. This 1990s requirement was ruled anticompetitive by the U.S. Department of Justice at that time; item 1 would in all likelihood meet with the same decision. Despite research by AMA staff, it is unclear whether item 2 was accomplished; that said, it does not seem likely that it can be (or would be) accomplished in the future. Item 3 is *a priori* the role of the Resident and Fellow Section. Item 4 has been addressed: For direct graduate medical education funds, CMS will count research time if it's part of the ACGME-accredited program; for indirect GME, CMS will count research time if it's associated with the treatment or diagnosis of a particular patient. The brochure "Medicare Payments for Graduate Medical Education: What Every Medical Student, Resident, and Advisor Needs to Know," from the Association of American Medical Colleges, provides additional information on this topic: "16. What about the time I spend doing research? "For DGME payments, a hospital may count the time a resident spends performing research, including bench research, as long as the research takes place in the hospital and is part of an approved training program. For IME payments, a hospital may only count the time a resident spends performing clinical research that is associated with the treatment or diagnosis of a particular patient. If you were to take a year away from your residency training specifically to conduct research not required by your residency program, the research year would not count toward your IRP. For example, if you had completed three years of a general surgery program (a program with a five-year IRP), and you stepped away from the program for one year to do research not required by your program, you would still have two years remaining on your IRP when you returned to training after your research year."

D-310.960, "Timely Issuance of Social Security Number"

Our AMA will work with the United States government to provide a social security number in a timely fashion to foreign physicians with a work-related visa, upon lawful entry to the United States, for any purposes. (Res. 304, A-09)	Retain; still relevant.

H-350.968, "Medical School Faculty Diversity"

Our AMA encourages increased recruitment and retention of faculty members from underrepresented minority groups as part of efforts to increase the number of individuals from underrepresented minority groups entering and graduating from US medical schools. (CME Rep. 8, I-99; Reaffirmed: CME Rep. 2, A-09)	Sunset; superseded by D-200.985, "Strategies for Enhancing Diversity in the Physician Workforce," which reads in part (relevant portions in italics): "1. Our AMA, independently and in collaboration with other groups such as the Association of American Medical Colleges (AAMC), will actively work and advocate for funding at the federal and state levels and in the private sector to support the following: a. Pipeline programs to prepare and motivate members of underrepresented groups to enter medical school; b. Diversity or minority affairs offices at medical schools; c. Financial aid programs for students from groups that are underrepresented in medicine; and *d. Financial support programs to recruit and develop faculty members from underrepresented groups."* *"4. Our AMA will encourage the Liaison Committee on Medical Education to assure that medical schools demonstrate compliance with its requirements for a diverse student body and faculty."*

2. UPDATE ON MAINTENANCE OF CERTIFICATION AND OSTEOPATHIC CONTINUOUS CERTIFICATION (RESOLUTION 316-A-18)

Reference committee hearing: see report of Reference Committee C.

**HOUSE ACTION: RECOMMENDATIONS ADOPTED
                                 IN LIEU OF RESOLUTION 316-A-18
                                 REMAINDER OF REPORT FILED**
                                 See Policies H-275.924 and D-275.954

Resolution 316-A-18, "End Part IV IMP Requirement for ABMS," introduced by Michigan and referred by the American Medical Association (AMA) House of Delegates (HOD), asks the AMA to call for an end to the mandatory American Board of Medical Specialties "Part 4 Improvement in Medical Practice" maintenance of certification requirement.

Policy D-275.954 (39), "Maintenance of Certification and Osteopathic Continuous Certification," asks the AMA to continue studying the certifying bodies that compete with the American Board of Medical Specialties and provide an update in the Council on Medical Education's annual report on maintenance of certification at A-19.

Policy D-275.954 (1), "Maintenance of Certification and Osteopathic Continuous Certification," asks that the AMA continue to monitor the evolution of Maintenance of Certification (MOC) and Osteopathic Continuous Certification (OCC), continue its active engagement in discussions regarding their implementation, encourage specialty boards to investigate and/or establish alternative approaches for MOC, and prepare a yearly report to the HOD regarding the MOC and OCC processes.

BACKGROUND

During the 2018 Annual Meeting, testimony before Reference Committee C was mixed regarding Resolution 316-A-18. Testimony noted the lack of relevance, burden, and cost of the Maintenance of Certification (MOC) Part IV process in addition to the other requirements physicians are required to fulfill for meaningful use, the Medicare Access and CHIP Reauthorization Act (MACRA), etc. However, it was also noted that the broadening range of acceptable activities that meet the Improvement in Medical Practice (MOC Part IV) component has made this activity acceptable for other national value-based reporting requirements and continuing certification programs. It was further noted that the boards are implementing a number of activities related to registries, systems-based practice, and practice audits to show improvement in practice. The ABMS Multi-Specialty Portfolio Program™ offers health care organizations a way to support physician involvement in their institution's quality and performance improvement initiatives by offering credit for the Improvement in Medical Practice component of the ABMS Program for MOC. Due to the Council on

Medical Education's ongoing work with the ABMS and the ABMS member boards to improve this process, the HOD referred this item for further study as part of this annual report.

CONTINUING BOARD CERTIFICATION: VISION FOR THE FUTURE COMMISSION

In early 2018, the Continuing Board Certification: Vision for the Future Commission was established by the ABMS and charged with reviewing continuing certification within the current context of the medical profession. The Commission was also asked to address key issues currently facing the ABMS member boards and diplomates. The Commission was composed of 27 individuals who represented diverse stakeholders including practicing physicians; health care leadership; academic medicine; group medical practices; state and national medical associations; ABMS Board executives; specialty societies; and health advocate groups who represented patients, families, and the public at large.

In March 2018, shortly after the Commission was established, the Council on Medical Education co-convened a conference with the ABMS, ABMS member boards, and key stakeholders to discuss how continuing board certification can meet the needs of diverse stakeholders, including physicians, hospitals, patients, and the public, and to develop recommendations for the Commission. Meeting attendees explored approaches for maximizing assessment, learning, and improvement. The meeting also highlighted the importance of addressing physicians' needs and expectations while at the same time recognizing the value of continuous maintenance and improvement of competence. While no effort was made to develop consensus on any specific issue, the discussion reflected a broad range of attitudes and opinions, and nine emergent themes about continuing certification were identified that suggested the process should be affirmative, affordable, aligned, appropriately managed, collaborative, innovative, meaningful, patient-focused, and supportive.

Throughout 2018, the Commission conducted a national survey, heard public testimony from diplomates and key stakeholders, and held Commission meetings to review the information collected and presented. The Commission used this knowledge base to establish a conceptual framework and guiding principles that were then used to draft its report and recommendations. The recommendations highlighted the need for any assessment framework to identify gaps in knowledge and skills that are relevant to the physician's practice in order to foster lifelong learning and assist physicians in remaining current with new knowledge and advances in medicine. In its recommendations, the Commission emphasized that improving practice and quality of care is an important goal of the continuing certification process, which means assessing practice data and gaps in quality of care. The Commission recommended new program models for continuing board certification that are responsive to the needs of those who rely on the system, and that are relevant, meaningful, and of value to those who hold the credential. A number of recommendations relate to the process of creating a better system of continuing certification and to the ways that continuing certification status is used by health systems and payers. The Commission stressed the importance of collaboration with professional organizations in the redesign of MOC and noted that any framework for continuing certification must be assessed by independent research to integrate continuous quality improvement (QI) into the continuing board certification process. The Commission's draft report and recommendations were widely circulated for comments.

In December 2018, the Council on Medical Education reviewed the Commission's draft report and recommendations and provided comments back to the Commission. The Council praised the Commission for producing a thorough report and for acknowledging long-standing physician frustrations, such as the concern that the benefits of the continuing certification process traditionally have not been worth the time or financial investment required for participation. At the same time, however, the Council strongly objected to some of the draft recommendations and other portions of the report (Appendix A).

On February 12, 2019, the Commission released its final report, which included a total of 14 recommendations (https://visioninitiative.org/commission/final-report/). Of these, the Commission emphasized that some must be implemented by the ABMS and its member boards in the short term (one to two years) or within an intermediate time frame (e.g., less than five years). The Commission also noted that one recommendation is foundational and three are aspirational.

Most of the Council's concerns were addressed in the final report (Appendix B). For example, the final recommendations included stronger language regarding the secure, high-stakes examination and the acceptance of quality data already being reported by individual physicians. The final recommendations also note that the ABMS must demonstrate the value, meaning, and purpose of continuing certification, but that it should not be the only

criterion used for credentialing and privileging decisions. In addition, detailed financial transparency regarding fiscal responsibility toward diplomates was addressed. As suggested by the Council, the final recommendations also emphasize the need for a more consistent process and requirements for continuing certification among the ABMS member boards.

On March 12, 2019, after reviewing the final recommendations of the Commission, the ABMS Board of Directors announced that all 24 member boards had accepted the Commission's recommendations. To support implementation, the ABMS Board of Directors also announced the establishment of the Achieving the Vision for Continuing Board Certification Oversight Committee (https://www.abms.org/media/194984/abms-announces-plan-to-implement-recommendations-from-the-continuing-board-certification-vision-for-the-future-commission.pdf). This committee will seek guidance from the ABMS' new Stakeholder Council and various stakeholders in the continuing certification process throughout the implementation phase. Possible implementation actions include: considering how the standards for continuing certification should be revised to reflect a more integrated framework, additional flexible approaches to knowledge assessment, feedback requirements from boards to diplomates, consistency in requirements and core processes, defining categories of consequential decisions, pathways for lifetime certificate holders to engage with continuing certification, consistency regarding professional standing, and providing a "wide door" for QI/performance improvement activities that satisfy continuing certification requirements. Organizational standards such as governance composition and financial transparency will also be reviewed.

The ABMS has attained the agreement of all member boards to commit to longitudinal or other formative assessment strategies and to offer alternatives to the highly secure, point-in-time examinations of knowledge. Other implementation actions may include developing and defining best practices for diplomate engagement; developing policies regarding diplomates with multiple certificates; allocating funds and/or allowing access to data to support external research; displaying diplomate participation on public websites; and communicating and educating hospitals, health systems, payers, and other health care organizations about the appropriate use of the continuing board certification certificate. The ABMS will involve external stakeholders and form additional task forces to address remediation pathways, assessment of professionalism, QI and advancing practice, and data and information sharing. A meeting of the ABMS/Council of Medical Specialty Societies joint board leadership will also be established to ensure full specialty society engagement in building the road map defined by the Commission report, especially with regard to the role of continuing certification in advancing clinical practice.

The Commission's final recommendations align with HOD policies and directives (Appendix C). Thus, it will be important for the Council on Medical Education to continue to work with the ABMS, ABMS Committee on Continuing Certification (3C), and ABMS Stakeholder Council to pursue opportunities to implement the Commission's recommendations and to ensure that the continuing certification process is meaningful and relevant for physicians and patients.

MAINTENANCE OF CERTIFICATION (MOC): AN UPDATE

The AMA Council on Medical Education and the HOD have carried out extensive and sustained work in developing policy on MOC and OCC (Appendix D), including working with the ABMS and the AOA to provide physician feedback to improve the MOC and OCC processes, informing our members about progress on MOC and OCC through annual reports to the HOD, and developing strategies to address the concerns about the MOC and OCC processes raised by physicians. The Council has prepared reports covering MOC and OCC for the past ten years.[1-10] During the last year, Council members, AMA trustees, and AMA staff have participated in the following meetings with the ABMS and its member boards:

- ABMS Committee on Continuing Certification
- ABMS Forum on Organizational Quality Improvement
- ABMS 2018 Conference
- Maintenance of Certification Summit
- ABMS Board of Directors Meeting
- AMA Council on Medical Education/ABMS/ABMS member boards joint meeting to explore approaches for maximizing assessment, learning, and improvement

ABMS Committee on Continuing Certification to Refocus the Direction of MOC

The ABMS Committee on Continuing Certification (3C) is charged with reviewing existing MOC programs to ensure that the ABMS member boards meet the 2015 Standards for the Program for MOC, which evaluate the effectiveness of different approaches to MOC and identify innovations to share among the boards. During 2018, the 3C approved substantive changes that have been implemented and announced new active pilot programs (Appendix E). In April and November, the 3C also met with content experts who research physician competence and administer assessment programs to discuss the future development of continuing professional development programs as well as security considerations, performance standards, and psychometric characteristics with longitudinal assessment programs.

ABMS Stakeholder Council

In 2018, the ABMS established a new Stakeholder Council to serve as an advisory body representing the interests of volunteer physicians, patients, and the public. The Council's fundamental role is to ensure that the ABMS Board of Directors makes decisions grounded in an understanding of the perspectives, concerns, and interests of multiple constituents and stakeholders who may be impacted by the work of ABMS. The Stakeholder Council is composed of five representatives from among ABMS associate members, six public members, two at-large member board executives or directors/trustees, one member from the greater credentialing community, and ten practicing physicians.

ABMS Accountability and Resolution Committee

In 2018, the ABMS also established the Accountability and Resolution Committee (ARC). The ARC serves as a subcommittee of the ABMS Board of Directors and addresses and makes recommendations to resolve complaints and problems related to noncompliance by the boards, both organizational and individual, that have not been resolved through other mechanisms.

Update on Membership of Young Physicians Serving on ABMS and ABMS Member Boards

The ABMS is working with its member boards to encourage early-career physicians to participate in ABMS work by promoting opportunities for engagement to young physicians, reducing travel obligations with online/remote engagement opportunities, choosing easily accessible locations for in-person meetings, and integrating opportunities for engagement into established annual meetings whenever possible.

The boards recognize that early-career physicians have demands on their time, and that committing to participation on ABMS and/or ABMS member board leadership boards or committees may not be feasible. However, it is common for early-career physicians to begin their involvement with the member boards by serving as volunteer test item writers. The ABMS and the member boards recruit and encourage early-career physicians to participate, solicit nominations from medical societies for opportunities including the newly formed Stakeholder Council, promote volunteer opportunities on diplomate dashboards and websites, and promote volunteer opportunities through social media platforms. The member boards also encourage early-career physicians to participate in focus groups and to contribute to standard setting and practice analysis groups. Further, the ABMS and some member boards have Visiting Scholars Programs that encourage early-career physicians to get involved through scholarly work in the member boards community.

Update on New Innovative Continuing Medical Education (CME) Models

The ABMS Continuing Certification Directory™ (https://www.abms.org/initiatives/abms-continuing-certification-directory/) continues to offer physicians access to a comprehensive, centralized, web-based repository of CME activities that have been approved for MOC credit by ABMS member boards. During the past year, the directory has increased its inventory and now indexes 700-plus activities from more than 60 CME providers to help diplomates from across the specialties meet MOC requirements for Lifelong Learning and Self-Assessment (Part II) and Improvement in Medical Practice (Part IV).

The following types of activities are currently included in the directory: internet enduring activities, journal CME, internet point of care, live activities, and performance improvement CME. All CME activities are qualified to award credit(s) from one or more of the CME credit systems: *AMA PRA Category 1 Credit*™, AAFP Prescribed Credit, ACOG Cognates, and AOA Category 1-A.

The member boards also employ technology to personalize assessments that promote greater self-awareness and support participation in CME. For example, the American Board of Anesthesiology (ABA) is now able to link assessment results from its MOCA Minute® program with CME opportunities. More than half (53 percent) of MOCA Minute® questions can be linked to at least one CME activity, and more than 110 accredited CME providers have been able to link a combined total of 3,261 activities to the MOCA content outline.[11]

Elimination of the Secure, High-stakes Examination for Assessing Knowledge and Cognitive Skills in MOC

Twenty-three ABMS member boards (95.8 percent) have moved away from the secure, high-stakes exam, and more than three-fourths of the boards (75 percent) have completed, or will soon be launching, assessment pilots that combine adult learning principles with state-of-the-art technology, enabling delivery of assessments that promote learning and are less stressful (Appendix F).

Three member boards will be converting their pilot programs into permanent options in 2019. The ABA, American Board of Obstetrics and Gynecology (ABOG), and American Board of Pediatrics (ABP) will offer innovative alternatives to the traditional examinations, which may offer both time and cost savings to physicians certified by these boards by reducing or eliminating the need for study courses, travel to exam centers, and time away from practice. Overall, the programs allow physicians to assess their knowledge, fill knowledge gaps, and demonstrate their proficiency. The programs engage physicians in answering 80 to 120 questions per year; allow for the development of practice-relevant content; offer convenient access on computer, tablet, or smartphone; and provide immediate feedback and guidance to resources for further study.

Seven ABMS member boards engaged in the longitudinal assessment approach with CertLink™—the American Board of Colon and Rectal Surgery (ABCRS), American Board of Dermatology (ABD), American Board of Medical Genetics and Genomics (ABMGG), American Board of Nuclear Medicine (ABNM), American Board of Otolaryngology-Head and Neck Surgery (ABOHNS), American Board of Pathology(ABPath), and American Board of Physical Medicine and Rehabilitation (ABPMR)—have launched their pilots. CertLink™ is a technology platform developed by the ABMS to support the boards in delivering more frequent, practice-relevant, and user-friendly competence assessments to physicians (https://www.abms.org/initiatives/certlink-platform-and-pilot-programs/). The platform provides technology to enable boards to create assessments focused on practice-relevant content; offers convenient access on desktop or mobile device (depending on each board's program); provides immediate, focused feedback and guidance to resources for further study; and provides a personalized dashboard that displays participating physicians' areas of strength and weakness. To date, more than 7,000 physicians are active on CertLink. These physicians have answered 200,000-plus questions across the seven member boards and have given CertLink a 96 percent approval rating.

Several ABMS member boards are participating in a Research and Evaluation Collaborative, sponsored by the ABMS and ABMS Research and Education Foundation, to develop metrics to define the success of the pilots, facilitate research and evaluation in areas of common interest, and share findings on the longitudinal assessment pilots. The evaluations will be used to inform ABMS member boards on how longitudinal assessment for learning and improvement can be used in conjunction with other information, such as portfolios of assessment modalities, to reach summative decisions on specialty certification status.[12]

Other member board efforts to improve Part III, Assessment of Knowledge, Judgment, and Skills, include more diplomate input into exam blueprints; integrating journal article-based core questions into assessments; modularization of exam content that allows for tailoring of assessments to reflect physicians' actual areas of practice; access during the exam to resources similar to those used at the point of care; remote proctoring to permit diplomates to be assessed at home or in the office; and performance feedback mechanisms. All boards also provide multiple opportunities for physicians to retake the Part III exam. These program enhancements will significantly reduce the cost diplomates incur to participate in MOC by reducing the need to take time off or travel to a testing center for the assessment; ensure that the assessment is practice-relevant; emphasize the role of assessment for learning; assure opportunities for remediation of knowledge gaps; and reduce the stress associated with a high-stakes test environment.

Progress with Improving MOC Part IV, Improvement in Medical Practice

The ABMS member boards have broadened the range of acceptable activities that meet the Improvement in Medical Practice (IMP) requirements, including those offered at the physician's institution and/or individual practices, to

address physician concerns about the relevance, cost, and burden associated with fulfilling the IMP requirements (Appendix F). In addition to improving alignment between national value-based reporting requirements and continuing certification programs, the boards are implementing a number of activities related to registries, practice audits, and systems-based practice.

Patient registries (also known as clinical data registries) provide information to help physicians improve the quality and safety of patient care—for example, by comparing the effectiveness of different treatments for the same disease. While many member boards allow physicians to earn Part IV credit for participating in externally developed patient registries, the American Board of Ophthalmology (ABO), ABOHNS, and American Board of Family Medicine (ABFM) have designed performance improvement initiatives that are supported by registry data.

Several ABMS member boards have developed online practice assessment protocols that allow physicians to assess patient care using evidence-based quality indicators. Other initiatives include:

- Free tools to complete an IMP project, including a simplified and flexible template to document small improvements, educational videos, infographics, and enhanced web pages;
- Partnerships with specialty societies to design quality and performance improvement activities for diplomates with a population-based clinical focus;
- Successful integration of patient experience and peer review into several of the boards' IMP requirements (for example, one board has aggressively addressed the issue of cost and unnecessary procedures with an audit and feedback program);
- Integration of simulation options; and
- A process for individual physicians to develop their own improvement exercises that address an issue of personal importance, using data from their own practices, built around the basic Plan-Do-Study-Act (PDSA) process.

The ABMS member boards are aligning MOC activities with other organizations' QI efforts to reduce redundancy and physician burden while promoting meaningful participation. Nineteen of the boards encourage participation in organizational QI initiatives through the ABMS Multi-Specialty Portfolio Program™ (described below). Many boards encourage involvement in the development and implementation of safety systems or the investigation and resolution of organizational quality and safety problems. For physicians serving in research or executive roles, some boards have begun to give IMP credit for having manuscripts published, writing peer-reviewed reports, giving presentations, and serving in institutional roles that focus on QI (provided that an explicit PDSA process is used). Physicians who participate in QI projects resulting from morbidity and mortality conferences and laboratory accreditation processes resulting in the identification and resolution of quality and safety issues can also receive IMP credit from some boards.

ABMS Multi-Specialty Portfolio Program™

The ABMS Multi-Specialty Portfolio Program (Portfolio Program™) offers health care organizations a way to support physician involvement in their institution's quality and performance improvement initiatives by offering credit for the IMP component of the ABMS Program for MOC (mocportfolioprogram.org). Originally designed as a service for large hospitals, the Portfolio Program™ is extending its reach to physicians whose practices are not primarily in institutions. This includes non-hospital organizations such as academic medical centers, integrated delivery systems, interstate collaboratives, specialty societies, and state medical societies. Recent additions among the nearly 100 current sponsors include the American Society of Anesthesiologists, Minnesota Hospital Association, Hospital Quality Institute of the California Hospital Association, and Columbus Medical Association.

More than 3,100 types of QI projects have been approved by the Portfolio Program™, in which 19 ABMS member boards participate, focusing on such areas as advanced care planning, cancer screening, cardiovascular disease prevention, depression screening and treatment, provision of immunizations, obesity counseling, patient-physician communication, transitions of care, and patient-safety related topics including sepsis and central line infection reduction. Many of these projects have had a profound impact on patient care and outcomes. For example, during the past two years, Portfolio Program™ initiatives at the Children's Hospital of Philadelphia have been responsible for decreasing inpatient hospital days for oncology patients with fever and neutropenia by more than 35 percent, preventable readmissions for neurology patients by approximately 80 percent, and rates of urinary catheterization for febrile infants by 65 percent. Additionally, rates of pneumococcal immunization among patients with chronic kidney disease have increased by 79 percent, and the application of evidence-based practices to evaluate and manage children

with attention deficit disorder and hyperactivity has increased by 50 percent. There have been nearly 26,000 instances of physicians receiving MOC IMP credit through participation in the program.

Update on the Emerging Data and Literature Regarding the Value of Continuing Board Certification

The Council on Medical Education has continued to review published literature and emerging data as part of its ongoing efforts to critically review continuing board certification issues. Although physicians still report some frustrations with the ABMS MOC process,[13-15] many improvements have been made to the MOC program, making participation more relevant, efficient, convenient, and cost-effective as well as less burdensome. The member boards are utilizing a variety of ways to incorporate important quality and patient safety activities in their continuing certification programs.[16] In addition, important peer-reviewed studies published during the last year demonstrate the benefits of participating in a continuous certification program. These studies are summarized below.

<u>Association between Continuous Certification and Practice-related Outcomes</u>

- A study that evaluated a QI intervention that trained providers on human papillomavirus (HPV) vaccination recommendations and communication methods showed that a learning collaborative model provides an effective forum for practices to improve HPV vaccine delivery. This QI intervention reduced missed opportunities for HPV vaccination in 33 community practices and 14 pediatric continuity clinics over nine months. This QI effort offered ABP MOC Part IV credit, as well as ABFM MOC Part IV credit, as incentives for participation.[17]
- A QI effort utilizing an injury prevention screening tool at pediatric offices to facilitate discussions and rescreenings with families at subsequent practitioner visits resulted in substantially improved practitioner-patient communications and more families reporting safer behaviors at later visits. Physicians who participated and submitted data for the QI effort received ABP MOC Part IV credit.[18]
- A QI effort to evaluate how a distance-learning, QI intervention to improve pediatric primary care physicians' use of attention-deficit/hyperactivity disorder parent and teacher rating scales showed that the level of engagement in this QI effort was an important consideration. The results of the study, involving 105 clinicians at 19 sites, showed that those who participated in at least one feedback call, and those who participated in MOC, had higher rates of sending parent rating scales.[19]
- A study to determine the impact of a multi-component QI intervention on Chlamydia screening rates for young women showed that this practice-based QI intervention resulted in a 21 percent increase in annual Chlamydia screening rates among adolescent females without lengthening median visit time. This effort offered ABP MOC Part IV credit as an incentive for participation.[20]
- A study that assessed whether participation by Georgia pediatricians in the Healthy Weight Counseling MOC program was associated with greater use of weight management strategies showed that such participation was indeed associated with increased use of health messages and behavior change goal-setting. Importantly, weight-related counseling practices were sustained six months after the program ended.[21]
- A QI effort to review an electronic medical records tool called My Personal Outcomes Data (MyPOD) that tracked surgical outcomes at the Nemours-AI duPont Hospital for Children compared MyPOD and the National Surgical Quality Improvement Program (NSQIP) databases. The NSQIP program and similar EMR-driven tools are becoming essential components of the American Board of Surgery (ABS) MOC process. The study showed how problems that can occur with self-reporting can be addressed through the MOC Part IV process.[22]
- A study to determine if a decrease in CT scans for emergency department patients with a chief complaint of headache was followed by an increase in missed diagnoses or an increase in mortality rates showed that out of 582 patients, there were 10 missed diagnoses and 9 deaths, but no difference in mortality rate, after a reduction in CT scans. The authors concluded that these results show that the use of CT scans may be safely reduced for emergency department patients. The study fulfilled the American Board of Emergency Medicine (ABEM) MOC QI requirement, which required collecting data before and after the intervention.[23]
- In a study presenting the results of a survey of 112 radiology departments across the United States regarding quality indicators, MOC participation was found to be varied and a requirement of employment for nearly half of the respondents. The authors note that MOC is currently the best measure of a radiologist staying current with recommended practices.[24]
- A study to examine the practice behavior of emergency medicine physicians when caring for patients with chest pain showed that resident emergency physicians were more likely to hospitalize patients and board-certified physicians were more likely to discharge patients, which the study attributes to possible levels of clinical experience among these physicians and a concern that an acute coronary syndrome (ACS) diagnosis could be

missed. The authors conclude that the overestimation of ACS without risk assessment was prevalent among emergency resident physicians.[25]

- A study conducted to determine if the imposition of American Board of Internal Medicine (ABIM) MOC completion requirements affected adherence to guideline-compliant mammography screening for Medicare beneficiaries showed that the MOC requirement was associated with an increase in annual screening and biennial screening, leading to improved guideline-compliant mammography screening.[26]
- A study to assess associations between MOC and performance on Healthcare Effectiveness Data and Information Set (HEDIS) process measures showed that maintaining certification was positively associated with performance scores on these process measures.[27]
- Price et al. evaluated 39 studies to examine the relationship of MOC to physician knowledge, clinical practice processes, or patient care outcomes. The studies in this analysis offered examples of how continuing certification can work or how it is currently working and showed positive associations between participation in MOC program activities and physician and patient outcomes.[28]
- A literature review by Holloway examined evidence for improved HPV vaccination rates from 46 studies. The studies show that using a multi-method approach—such as a MOC PI CME intervention that combines repeated contacts, education, individualized feedback, and strong quality improvement incentives to increase both initiation and completing dosing of the HPV vaccine series among male and female adolescents—will increase vaccination rates.[29-30]

Standardized Simulation-based Assessment, Performance Gaps, and Opportunities for Improvement

- A study to determine whether mannequin-based simulation can reliably characterize how board-certified anesthesiologists manage simulated medical emergencies showed that standardized simulation-based assessment identified performance gaps and informed opportunities for improvement. The study involved 263 consenting board-certified anesthesiologists participating in existing simulation-based MOC courses at one of eight simulation centers.[31]
- Based on a literature review, the author discusses how obstetric simulation and simulation hands-on courses, used by the American College of Obstetricians and Gynecologists, the Society for Maternal-Fetal Medicine, and the ABOG, fulfill continuing certification/MOC requirements.[32]

Comparison of Continuous Certification to Medical Licensure Actions

- The ABS analyzed loss of license actions for 15,500 general surgeons who were initially certified by the ABS. The study authors found that surgeons who recertified on time following initial board certification (who did not allow their initial certification to lapse) had a significantly lower likelihood of future loss of medical license than those who allowed their initial certification to lapse or never recertified.[33]
- Research that compared the medical license actions of 15,486 anesthesiologists certified between 1994 and 1999 (non–time-limited certificate holders who are not required to participate in MOCA®) and those certified between 2000 and 2005 (time-limited certificate holders who are required to participate in MOCA) showed that board-certified anesthesiologists who met MOCA program requirements were less likely to be disciplined by a state medical licensing agency. There was also evidence that voluntary participation in MOCA by lifetime certificate holders was linked to a lower occurrence of license actions.[34]
- A study that examined the association between family physicians receiving a disciplinary action from a state medical board and certification by the American Board of Family Medicine, using data from 1976 to 2017, showed that 95 percent (114,454 of 120,443) of the family physicians studied had never received any disciplinary action. The authors concluded that family physicians who had ever been ABFM-certified were less likely to receive an action; the most severe actions were associated with decreased odds of being board certified at the time of the action; and receiving the most severe action type increased the likelihood of physicians holding a prior but not current certification.[35]
- A study that compared the association of disciplinary actions with passing the ABIM MOC examination within ten years of initial certification showed that disciplinary actions decreased with better MOC examination scores.[36]

The Importance of Continuous Certification and Physician Satisfaction with Continuous Certification

- A study involving 8,714 diplomates that examined the number of practicing pediatricians who participate in QI activities showed that nearly 87 percent of diplomates indicated participation in a QI project. While maintaining

certification was identified as the main driver for participation, respondents also indicated identification of practice gaps, implementing change in practice, and collaborating with others as factors for participation.[37]

- A survey study of 289 dermatologists who completed ABD MOC-focused Practice Improvement (fPI) modules, showed that participants identified the module activities as relevant and helpful in identifying practice gaps. Most participants (254 [87.9 percent]) felt that the activities reaffirmed their practice, and would recommend the fPI modules.[38]
- An evaluation of the ABFM diplomate feedback survey data to examine family physician opinions about ABFM self-assessment module (SAM) content (448,408 SAM feedback surveys were completed within the period 2006-2016) showed that family medicine diplomates generally value SAMs. Respondents felt that the SAM content is appropriate, and favorability ratings increased as diplomates engaged in more SAM activities.[39]
- A study that examined how improving ABFM's SAM content and technical interface could make SAMs more meaningful to ABFM diplomates resulted in mixed feedback between separate modules; overall, respondents indicated satisfaction with and positive reactions to the SAMs, with 80 percent giving SAMs a positive rating. The authors conclude that the results of this study can assist in understanding physicians' perceptions and inform MOC program activities of other specialties.[40]

More than 60 sessions at the ABMS annual QI Forum held during the 2018 ABMS Conference (https://www.abmsconference.com/session-descriptions-2018/) focused on innovations in board certification, the science of assessment and learning, quality improvement, health policy research, and patient safety. Posters presented by the ABMS Portfolio Program™ sponsors and other health care researchers underscored best practices and research in continuing certification and QI activities (https://www.abmsconference.com/posters-2018/).

The Council on Medical Education is committed to monitoring emerging data and the literature to identify improvements to continuing board certification programs, especially those that improve physician satisfaction and patient outcomes and those that enable physicians to keep pace with advances in clinical practice, technology, and assessment.

UPDATE ON OSTEOPATHIC CONTINUOUS CERTIFICATION

The American Osteopathic Association Bureau of Osteopathic Specialists (AOA-BOS) was organized in 1939 as the Advisory Board for Osteopathic Specialists to meet the needs resulting from the growth of specialization in the osteopathic profession. Today, 18 AOA-BOS specialty certifying boards offer osteopathic physicians the option to earn board certification in several specialties and subspecialties. As of December 31, 2017, 31,762 osteopathic physicians were certified by the AOA and held a combined total of 36,982 active certifications, representing a 7 percent increase over the number of active certifications held in 2016 (34,555). In 2017, 2,206 new certifications were processed as follows:

- Primary specialty: 1,891
- Subspecialty: 224
- Certification of added qualifications (family medicine and preventive medicine only): 91

Additionally, 1,357 OCC completions were processed in 2017.

In January 2017, the AOA impaneled the AOA Certifying Board Services (CBS) Task Force II to address the directive of enhancing board certification services and marketability to make AOA board certification more attractive. Specifically, the Task Force was charged with addressing the following goals:

- Aligning AOA board leadership structure to strengthen physician-led, professionally managed relationships. The demands on CBS have grown substantially, and the expectations placed on the CBS are more than the current system can handle. The goal is to have working physicians serve as the backbone of AOA certification while allowing them to focus on specific tasks that require a physician's skill set and expertise, with administrative support of these efforts delegated to non-physicians.
- Unifying the osteopathic certifying boards through common practices, bylaws, reporting processes, operational alignment, and expenses, and developing uniform, reasonable, and competitive examination fees.

The CBS presented its recommendations to the BOS at its midyear meeting on April 8, 2017. Several of these recommendations are currently being implemented by CBS. For example, board meetings are being aligned into a

cluster-based system to facilitate communication. Initiatives to standardize operations to ensure consistent products are also underway.[41] All 18 boards also submitted their new OCC plans to the BOS for review and approval.

The following is a summary of the OCC components listed in the most current BOS Handbook (https://certification.osteopathic.org/wp-content/uploads/2017/05/bos-handbook.pdf):

- Component 1 - Active Licensure:
  AOA board-certified physicians must hold a valid, active license to practice medicine in one of the 50 states or Canada. In addition, they are required to adhere to the AOA's Code of Ethics.

- Component 2 - Life Long Learning/CME:
  CME requirements for diplomates participating in OCC are as follows:
  1. A minimum of 60 CME credits in the specialty area of certification during the specialty boards' 2016-2018 CME cycle.
  2. There are variances across the 18 boards with regards to specific CME inclusions. It is important to refer to each specialty board's website (certification.osteopathic.org) or the current AOA CME Guide (osteopathic.org/cme/cme-guide) for those specifics.

- Component 3 – Cognitive Assessment:
  1. Diplomates must sit for/complete and pass one (or more) psychometrically valid, ongoing assessments during each OCC cycle.
  2. The assessment must evaluate the diplomate's knowledge and skill in the given specialty or subspecialty.

- Component 4 - Practice Performance Improvement and Assessment:
  Diplomates must engage in continuous quality improvement by satisfying one of the following:
  1. Attestation to or online submission of evidence of participation in quality improvement activities.
  2. Completion of Practice Performance Assessment Modules (PPAs) developed by specialty boards and approved by the Standards Review Committee (SRC) of the BOS.
  3. Completion of verifiable, quality-driven, or clinically focused encounters that assess the physician's clinical acumen.

CERTIFYING BODIES THAT COMPETE WITH THE ABMS

AMA Policy D-275.954 (39), "Maintenance of Certification and Osteopathic Continuous Certification," asks the AMA to continue studying the certifying bodies that compete with the ABMS. Appendix G provides information on the recertification requirements of the ABMS, AOA, American Board of Physician Specialties, National Board of Physicians and Surgeons (NBPAS), American Board of Facial Plastic and Reconstructive Surgery, and the American Board of Cosmetic Surgery.

In its previous reports,[2-3] the Council noted that wide-scale use of long-standing traditional recertification programs, such as the ABMS MOC, are reflected in training and delivery systems, and based on core competencies developed and adopted by the ABMS and the Accreditation Council for Graduate Medical Education. The MOC program was designed to provide a comprehensive approach to physician lifelong learning, self-assessment, and practice improvement, and strives to identify those physicians capable of delivering high-quality specialized medical care.[42]

Newer alternative pathways to specialty board recertification, such as the NBPAS, have been formed to provide a type of recertification that is less rigorous than that obtained via the ABMS MOC process.[43] Ongoing concerns have been registered about administrative burdens, value of the program, relevance and cost of the ABMS MOC process, and time away from patient care. It is important to note that the NBPAS does not have an external assessment or IMP requirements.

AMA policy reinforces the need for ongoing learning and practice improvement and supports the need for an evidence-based certification process that is evaluated regularly to ensure physicians' needs are being met and that activities are relevant to clinical practice. The AMA has adopted extensive policy (H-275.924) that outlines the principles of the ABMS MOC and AOA-BOS OCC and supports the intent of these programs.

CURRENT AMA POLICIES RELATED TO MOC AND OCC

The ABMS Board of Directors is currently using a new name, "Continuing Board Certification," for its MOC Program (although some ABMS member boards are still referring to the program as MOC). To be consistent with this change, this report recommends that the terms "Maintenance of Certification" that appear in the title and body of HOD Policies H-275.924, "AMA Principles on Maintenance of Certification," and D-275.954, "Maintenance of Certification and Osteopathic Continuous Certification," should be changed to "Continuing Board Certification" or "CBC" as shown in Appendix H.

SUMMARY AND RECOMMENDATIONS

The Council on Medical Education is committed to ensuring that continuing board certification programs support physicians' ongoing learning and practice improvement and serve to assure the public that physicians are providing high-quality patient care. The AMA will continue to advocate for a certification process that is evidence-based and relevant to clinical practice as well as cost-effective and inclusive to reduce duplication of work. During the last year, the Council has continued to monitor the development of continuing board certification programs and to work with the ABMS, ABMS member boards, AOA, and state and specialty medical societies to identify and suggest improvements to these programs. The AMA has also been involved in the Continuing Board Certification: Vision for the Future Commission and in the development of the Commission's recommendations for the future continuing board certification process.

The Council on Medical Education therefore recommends that the following recommendations be adopted in lieu of Resolution 316-A-18 and the remainder of the report be filed.

1. That our American Medical Association (AMA), through its Council on Medical Education, continue to work with the American Board of Medical Specialties (ABMS), ABMS Committee on Continuing Certification (3C), and ABMS Stakeholder Council to pursue opportunities to implement the recommendations of the Continuing Board Certification: Vision for the Future Commission and AMA policies related to continuing board certification.

2. That our AMA, to be consistent with terminology now used by the American Board of Medical Specialties, amend the following policies by addition and deletion to read as follows:

    Policy H-275.924, Amend the title to read, "~~Maintenance of~~ <u>Continuing Board</u> Certification" (AMA Principles on ~~Maintenance of~~ <u>Continuing Board</u> Certification), and replace the terms "Maintenance of Certification" and "MOC" with "Continuing Board Certification" and "CBC" throughout the policy, as shown in Appendix H.

    Policy D-275.954, Amend the title to read, "~~Maintenance of Certification and Osteopathic Continuous Certification~~ <u>Continuing Board Certification,</u>" and replace the terms "Maintenance of Certification" and "MOC" with "Continuing Board Certification" and "CBC" throughout the policy, as shown in Appendix H.

3. That our AMA rescind Policy D-275.954 (37), "Maintenance of Certification and Osteopathic Continuous Certification," that asks the AMA to "Through its Council on Medical Education, continue to be actively engaged in following the work of the ABMS Continuing Board Certification: Vision for the Future Commission," as this has been accomplished.

4. That our AMA rescind Policy D-275.954 (38), which asks our AMA to "Submit commentary to the American Board of Medical Specialties (ABMS) Continuing Board Certification: Vision for the Future initiative, asking that junior diplomates be given equal opportunity to serve on ABMS and its member boards," as this has been accomplished.

5. That our AMA rescind Policy D-275.954 (39) "Maintenance of Certification and Osteopathic Continuous Certification," as this has been accomplished through this report.

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January 15, 2019

Christopher Colenda, MD, MPH
William J. Scanlon, PhD
Co-Chairs, Continuing Board Certification: Vision for the Future Commission

Dear Drs. Colenda and Scanlon,

Thank you for the opportunity to review and comment on the draft report and recommendations from the Continuing Board Certification: Vision for the Future Commission (the "Commission"). The American Medical Association (AMA) Council on Medical Education (the "Council") values your efforts to make continuing certification more relevant, meaningful, and of value to both physicians and patients alike.

The Council applauds the Commission not only for producing such a thorough report, but equally for acknowledging long-standing physician frustrations, such as the concern that the benefits of the continuing certification process traditionally have not been worth the time or financial investment required for participation.

As the report and recommendations are finalized, the Council invites the Commission to consider the following comments.

Preamble

The Council strongly objects to the second paragraph of the section "Purpose and Value of Continuing Certification" on page 7 of the Preamble (which starts, "A fundamental axiom...").

Historically, diplomates have consistently and vocally expressed concern regarding linkages between continuing certification and licensure, and AMA policy with respect to this issue explicitly rejects any such association. Additionally, renewal of licensure in many states is primarily based on completion of CME hours; this does not support the general premise of this report, which argues that rigorous standards must be met to achieve meaningful lifelong learning and assure patient safety.

The Council, therefore, recommends that this paragraph be carefully considered and rewritten; left as is, it may undermine the thoughtful work that characterizes the remainder of the report.

Recommendation 2
Continuing certification should incorporate assessments that support diplomate learning and retention, identify knowledge and skill gaps, and help diplomates learn advances in the field.

The Commission should employ stronger language regarding secure, high-stakes examinations for knowledge assessment. While the Council believes that flexibility in the certification process is important, the Commission should recommend that all Boards incorporate models based on ongoing assessment and feedback, which are better exemplars of contemporary standards of adult learning principles.

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Recommendation 4
Standards for learning and practice improvement must expect diplomate participation and meaningful engagement in both lifelong learning and practice improvement. ABMS Boards should seek to integrate readily available information from a diplomate's actual clinical practice into any assessment of practice improvement.

The Commission should recommend that all Boards utilize stronger language regarding the acceptance of quality data already being reported by individual physicians. If a physician is actively participating in the Centers for Medicare and Medicaid Services (CMS) Quality Payment Program (QPP) via the Merit-based Incentive Payment System (MIPS) or an Advanced Alternative Payment Model (APM), the Commission should recommend that all Boards accept this participation as a satisfactory requirement for certification.

Recommendation 5
ABMS Boards have the responsibility and obligation to change a diplomate's certification status when certification standards are not met.

The Council feels strongly that Recommendation 5 should be edited as follows:

"ABMS Boards have the responsibility and obligation to change a diplomate's continuing certification status when continuing certification standards are not met."

Likewise, the first sentence of the explanation for Recommendation 5 should be modified:

"The Commission supports the ABMS Boards in making decisions about the continuing certification status of a diplomate and changing the diplomate's status when continuing certification standards are not met."

At no time can a Board revoke or change an individual physician's original certification solely on the basis of non-participation in the continuing certification process.

Recommendation 8
The certificate has value, meaning and purpose in the health care environment.

Although the report does specify that board certification should not be tied to credentialing, there is no parallel mention of this with respect to medical licensure. The Commission should address this explicitly to assuage long-held and expressed concerns that the Federation of State Medical Boards (FSMB) may at some point tie certification to licensure (although the Council recognizes that this is not the current policy of the FSMB).

Recommendation 11
ABMS Boards must comply with all ABMS certification and organizational standards.

The Council notes that while financial transparency is included in the findings of both Recommendations 10 and 11, it is not specifically referenced in either of the Recommendations themselves. Detailed financial transparency regarding fiscal responsibility toward diplomates must be a cornerstone of all Board models, and may help communicate the message that the concerns of many diplomates who have expressed anxiety on this point have been heard and are being addressed.

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The Council applauds the report for its recommendation of inclusion with respect to Board composition; the Commission may wish specifically to include mention of young physicians.

Recommendation 14
ABMS Boards should have consistent certification processes for certain elements.

The Council appreciates the intention behind this Recommendation, and recognizes that diplomates of certain Boards have expressed frustration regarding their individual Board's lack of momentum with respect to innovation. While it may make sense to standardize terminology across Boards, a more cautious approach may be appropriate when thinking about standardization of processes, as different specialties require varied approaches to ongoing certification and diplomates in many specialties are satisfied with their individual Board's innovations to date.

The Council, therefore, recommends that the Commission strongly encourage the ABMS to develop and publicly share its plans to actively oversee and navigate its approach to consistency. The Council also recommends that the Commission strongly encourage the ABMS to consider the negative public impact that less innovative Boards may be having on those that have dedicated significant time and resources to improving their processes for diplomates. Further, the Council recommends that the Commission encourage the ABMS to publicize its newly established Accountability and Resolution Committee (ARC), tasked with addressing and making recommendations to resolve complaints and problems related to non-compliance, both organizational and individual, that have not been resolved through other mechanisms, and to ensure that the ARC's processes and decisions are transparent to the public.

General Comments

- The Council feels that the final sentence in the Concluding Comments, which references "better doctors," is somewhat subjective, and suggests that the Commission consider language that recognizes the importance of doctors who remain current in the appropriate competencies to best serve their patients.

- Continuing medical education (CME) activities are discussed in detail on page 18 of the report. The Commission may wish to modify the sentence that references the ACCME, as entities beyond the ACCME are involved in this important process:

  "Those involved in developing and approving CME activities, and setting standards for such activities, should be encouraged to establish processes to encourage high quality CME and remediate or eliminate lower quality activities."

- Page 21 of the report focuses on the public's expectations. The Council believes it is important to acknowledge that continuing certification is but one component to promote patient safety and quality. Health care is a systems-based team effort, and changes to continuing certification should not create the unrealistic expectation that lapses in patient safety are primarily failures of individual physicians.

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Again, thank you for the opportunity to participate in this important process. If the Council may be of further assistance to you in this matter, please do not hesitate to communicate with us.

Sincerely,

Jacqueline A. Bello, MD, FACR
Chair-Elect, AMA Council on Medical Education

cc: Susan E. Skochelak, MD
       Richard E. Hawkins, MD

APPENDIX B - Impact of the Council on Medical Education's Comments on the Final Recommendations of the Continuing Board Certification: Vision for the Future Commission

Draft Recommendations/Council on Medical Education Comments	Final Recommendations*
2. Continuing certification should incorporate assessments that support diplomate learning and retention, identify knowledge and skill gaps, and help diplomates learn advances in the field. The Commission should employ stronger language regarding secure, high-stakes examinations for knowledge assessment. While the Council believes that flexibility in the certification process is important, the Commission should recommend that all Boards incorporate models based on ongoing assessment and feedback, which are better exemplars of contemporary standards of adult learning principles.	2. Continuing certification must change to incorporate longitudinal and other innovative formative assessment strategies that support learning, identify knowledge and skills gaps, and help diplomates stay current. The ABMS Boards must offer an alternative to burdensome highly-secure, point-in-time examinations of knowledge.
4. Standards for learning and practice improvement must expect diplomate participation and meaningful engagement in both lifelong learning and practice improvement. ABMS Boards should seek to integrate readily available information from a diplomate's actual clinical practice into any assessment of practice improvement. The Commission should recommend that all Boards utilize stronger language regarding the acceptance of quality data already being reported by individual physicians. If a physician is actively participating in the Centers for Medicare and Medicaid Services (CMS) Quality Payment Program (QPP) via the Merit-based Incentive Payment System (MIPS) or an Advanced Alternative Payment Model (APM), the Commission should recommend that all Boards accept this participation as a satisfactory requirement for certification.	13. ABMS and the ABMS Boards should collaborate with specialty societies, the CME/CPD community, and other expert stakeholders to develop the infrastructure to support learning activities that produce data-driven advances in clinical practice. The ABMS Boards must ensure that their continuing certification programs recognize and document participation in a wide range of quality assessment activities in which diplomates already engage.
5. ABMS Boards have the responsibility and obligation to change a diplomate's certification status when certification standards are not met. Recommendation 5 should be edited as follows: "ABMS Boards have the responsibility and obligation to change a diplomate's continuing certification status when continuing certification standards are not met." Likewise, the first sentence of the explanation for Recommendation 5 should be modified: "The Commission supports the ABMS Boards in making decisions about the continuing certification status of a diplomate and changing the diplomate's status when continuing certification standards are not met." At no time can a Board revoke or change an individual physician's original certification solely on the basis of non-participation in the continuing certification process.	7. The ABMS Boards must change a diplomate's certification status when continuing certification standards are not met.
8. The certificate has value, meaning and purpose in the health care environment. Although the report does specify that board certification should not be tied to credentialing, there is no parallel mention of this with respect to medical licensure. The Commission should address this explicitly to assuage long-held and expressed concerns that the Federation of State Medical Boards (FSMB) may at some point tie certification to licensure (although the Council recognizes that this is not the current policy of the FSMB).	11. ABMS must demonstrate and communicate that continuing certification has value, meaning, and purpose in the health care environment. a. Hospitals, health systems, payers and other health care organizations can independently decide what factors are used in credentialing and privileging decisions. b. ABMS must inform these organizations that continuing certification should not be the only criterion used in these decisions and these organizations should use a wide portfolio of criteria in these decisions. c. ABMS must encourage hospitals, health systems, payers, and other health care organizations to not deny credentialing or privileging to a physician solely on the basis of certification status.

11. ABMS Boards must comply with all ABMS certification and organizational standards. While financial transparency is included in the findings of both Recommendations 10 and 11, it is not specifically referenced in either of the Recommendations themselves. Detailed financial transparency regarding fiscal responsibility toward diplomates must be a cornerstone of all Board models, and may help communicate the message that the concerns of many diplomates who have expressed anxiety on this point have been heard and are being addressed. The Council applauds the report for its recommendation of inclusion with respect to Board composition; the Commission may wish specifically to include mention of young physicians.	10. The ABMS Boards must comply with all ABMS certification and organizational standards, including financial stewardship and ensuring that diverse groups of practicing physicians and the public voice are represented.
14. ABMS Boards should have consistent certification processes for certain elements. The Council appreciates the intention behind this Recommendation, and recognizes that diplomates of certain Boards have expressed frustration regarding their individual Board's lack of momentum with respect to innovation. While it may make sense to standardize terminology across Boards, a more cautious approach may be appropriate when thinking about standardization of processes, as different specialties require varied approaches to ongoing certification and diplomates in many specialties are satisfied with their individual Board's innovations to date. The Council, therefore, recommends that the Commission strongly encourage the ABMS to develop and publicly share its plans to actively oversee and navigate its approach to consistency. The Council also recommends that the Commission strongly encourage the ABMS to consider the negative public impact that less innovative Boards may be having on those that have dedicated significant time and resources to improving their processes for diplomates. Further, the Council recommends that the Commission encourage the ABMS to publicize its newly established Accountability and Resolution Committee (ARC), tasked with addressing and making recommendations to resolve complaints and problems related to non-compliance, both organizational and individual, that have not been resolved through other mechanisms, and to ensure that the ARC's processes and decisions are transparent to the public.	4. The ABMS and the ABMS Boards must have consistent processes and requirements for continuing certification that are fair, equitable, transparent, effective, and efficient.

* Several of the final recommendations were revised, reorganized, and renumbered in the Continuing Board Certification: Vision for the Future Commission's Final Report.

APPENDIX C - Final Recommendations of the Continuing Board Certification: Vision for the Future Commission and Related AMA Policy

Final Recommendations	Related AMA Policy
1. Continuing certification must integrate professionalism, assessment, lifelong learning, and advancing practice to determine the continuing certification status of a diplomate.	H-300.958 (7) Our AMA affirms that lifelong learning is a fundamental obligation of our profession and recognizes that lifelong learning for a physician is best achieved by ongoing participation in a program of high quality continuing medical education appropriate to that physician' s medical practice as determined by the relevant specialty society.
2. Continuing certification must change to incorporate longitudinal and other innovative formative assessment strategies that support learning, identify knowledge and skills gaps, and help diplomates stay current. The ABMS Boards must offer an alternative to burdensome highly-secure, point-in-time examinations of knowledge.	H-275.924 (22) There should be multiple options for how an assessment could be structured to accommodate different learning styles. D-275.954 Our AMA will…(5) Work with the ABMS to streamline and improve the Cognitive Expertise (Part III)

	component of MOC, including the exploration of alternative formats, in ways that effectively evaluate acquisition of new knowledge while reducing or eliminating the burden of a high-stakes examination. (29) Call for the immediate end of any mandatory, secured recertifying examination by the ABMS or other certifying organizations as part of the recertification process for all those specialties that still require a secure, high-stakes recertification examination. (31) Continue to work with the ABMS to encourage the development by and the sharing between specialty boards of alternative ways to assess medical knowledge other than by a secure high stakes exam. (36) Continue to work with the medical societies and the American Board of Medical Specialties (ABMS) member boards that have not yet moved to a process to improve the Part III secure, high-stakes examination to encourage them to do so.
3. The ABMS Boards must regularly communicate with their diplomates about the standards for the specialty and encourage feedback about the program.	H-275.924 (13) The MOC process should be evaluated periodically to measure physician satisfaction, knowledge uptake and intent to maintain or change practice. D-275.954 Our AMA will…(19) Continue to work with the ABMS to ensure that physicians are clearly informed of the MOC requirements for their specific board and the timelines for accomplishing those requirements. (20) Encourage the ABMS and its member boards to develop a system to actively alert physicians of the due dates of the multi-stage requirements of continuous professional development and performance in practice, thereby assisting them with maintaining their board certification.
4. The ABMS and the ABMS Boards must have consistent processes and requirements for continuing certification that are fair, equitable, transparent, effective, and efficient.	H-275.924 (19) The MOC process should be reflective of and consistent with the cost of development and administration of the MOC components, ensure a fair fee structure, and not present a barrier to patient care. (27) Our AMA will continue to work with the national medical specialty societies to advocate for the physicians of America to receive value in the services they purchase for Maintenance of Certification from their specialty boards. Value in MOC should include cost effectiveness with full financial transparency, respect for physicians' time and their patient care commitments, alignment of MOC requirements with other regulator and payer requirements, and adherence to an evidence basis for both MOC content and processes.
5. The ABMS Boards must enable multi-specialty and subspecialty diplomates to remain certified across multiple ABMS Boards without duplication of effort.	D-275.954 Our AMA will…(11) Work with the ABMS to lessen the burden of MOC on physicians with multiple board certifications, particularly to ensure that MOC is specifically relevant to the physician's current practice.
6. ABMS and the ABMS Boards must facilitate and encourage independent research to build on the existing evidence base about the value of continuing certification.	D-275.954 Our AMA will…(3) Continue to monitor the progress by the American Board of Medical Specialties (ABMS) and its member boards on implementation of MOC, and encourage the ABMS to report its research findings on the issues surrounding certification and MOC on a periodic basis. (4) Encourage the ABMS and its member boards to continue to explore other ways to measure the ability of physicians to access and apply knowledge to care for patients, and to continue to examine the evidence supporting the value of specialty board certification and MOC.
7. The ABMS Boards must change a diplomate's certification status when continuing certification standards are not met.	H-275.924 (24) No qualifiers or restrictions should be placed on diplomates with lifetime board certification recognized by the ABMS related to their participation in MOC. (26) The initial certification status of time-limited diplomates shall be listed and publicly available on all American Board of Medical Specialties (ABMS) and ABMS Member Boards' websites and physician certification databases. The names and initial certification status of time-limited diplomates shall

	not be removed from ABMS and ABMS Member Boards' websites or physician certification databases even if the diplomate chooses not to participate in MOC.
8. The ABMS Boards must have clearly defined remediation pathways to enable diplomates to meet continuing certification standards in advance of and following any loss of certification.	D-295.325 (4) Our AMA will partner with the FSMB and state medical licensing boards, hospitals, professional societies and other stakeholders in efforts to support the development of consistent standards and programs for remediating deficits in physician knowledge and skills.
9. ABMS and the ABMS Boards must make publicly available the certification history of all diplomates, including their participation in the continuing certification process. The ABMS Boards must facilitate voluntary re-engagement into the continuing certification process for lifetime certificate holders and others not currently participating in the continuing certification process.	H-275.924 (24) No qualifiers or restrictions should be placed on diplomates with lifetime board certification recognized by the ABMS related to their participation in MOC. (26) The initial certification status of time-limited diplomates shall be listed and publicly available on all American Board of Medical Specialties (ABMS) and ABMS Member Boards' websites and physician certification databases. The names and initial certification status of time-limited diplomates shall not be removed from ABMS and ABMS Member Boards' websites or physician certification databases even if the diplomate chooses not to participate in MOC.
10. The ABMS Boards must comply with all ABMS certification and organizational standards, including financial stewardship and ensuring that diverse groups of practicing physicians and the public voice are represented.	H-275.924 (27) Our AMA will continue to work with the national medical specialty societies to advocate for the physicians of America to receive value in the services they purchase for Maintenance of Certification from their specialty boards. Value in MOC should include cost effectiveness with full financial transparency, respect for physicians' time and their patient care commitments, alignment of MOC requirements with other regulator and payer requirements, and adherence to an evidence basis for both MOC content and processes. D-275.954 Our AMA will…(10) Encourage the ABMS to ensure that MOC and certifying examinations do not result in substantial financial gain to ABMS member boards, and advocate that the ABMS develop fiduciary standards for its member boards that are consistent with this principle.
11. ABMS must demonstrate and communicate that continuing certification has value, meaning, and purpose in the health care environment. a. Hospitals, health systems, payers and other health care organizations can independently decide what factors are used in credentialing and privileging decisions. b. ABMS must inform these organizations that continuing certification should not be the only criterion used in these decisions and these organizations should use a wide portfolio of criteria in these decisions. c. ABMS must encourage hospitals, health systems, payers, and other health care organizations to not deny credentialing or privileging to a physician solely on the basis of certification status.	H-275.924 (15) The MOC program should not be a mandated requirement for licensure, credentialing, recredentialing, privileging, reimbursement, network participation, employment, or insurance panel participation. (27) Our AMA will continue to work with the national medical specialty societies to advocate for the physicians of America to receive value in the services they purchase for Maintenance of Certification from their specialty boards. Value in MOC should include cost effectiveness with full financial transparency, respect for physicians' time and their patient care commitments, alignment of MOC requirements with other regulator and payer requirements, and adherence to an evidence basis for both MOC content and processes. D-275.954 Our AMA will…(6) Work with interested parties to ensure that MOC uses more than one pathway to assess accurately the competence of practicing physicians, to monitor for exam relevance and to ensure that MOC does not lead to unintended economic hardship such as hospital de-credentialing of practicing physicians. (33) Through legislative, regulatory, or collaborative efforts, will work with interested state medical societies and other interested parties by creating model state legislation and model medical staff bylaws while advocating that Maintenance of Certification not be a requirement for: (a) medical staff membership, privileging, credentialing, or recredentialing; (b) insurance panel participation; or (c) state medical licensure.

12. ABMS and the ABMS Boards must seek input from other stakeholder organizations to develop consistent approaches to evaluate professionalism and professional standing while ensuring due process for the diplomate when questions of professionalism arise.	9.4.1 Peer Review & Due Process. Physicians have mutual obligations to hold one another to the ethical standards of their profession. Peer review, by the ethics committees of medical societies, hospital credentials and utilization committees, or other bodies, has long been established by organized medicine to scrutinize professional conduct. Peer review is recognized and accepted as a means of promoting professionalism and maintaining trust. The peer review process is intended to balance physician' right to exercise medical judgment freely with the obligation to do so wisely and temperately. Fairness is essential in all disciplinary or other hearings where the reputation, professional status, or livelihood of the physician or medical student may be adversely affected. Individually, physicians and medical students who are involved in reviewing the conduct of fellow professionals, medical students, residents or fellows should: (a) Always adhere to principles of a fair and objective hearing, including: (i) a listing of specific charges, (ii) adequate notice of the right of a hearing, (iii) the opportunity to be present and to rebut the evidence, and (iv) the opportunity to present a defense. (b) Ensure that the reviewing body includes a significant number of persons at a similar level of training. (c) Disclose relevant conflicts of interest and, when appropriate, recuse themselves from a hearing. Collectively, through the medical societies and institutions with which they are affiliated, physicians should ensure that such bodies provide procedural safeguards for due process in their constitutions and bylaws or policies.
13. ABMS and the ABMS Boards should collaborate with specialty societies, the CME/CPD community, and other expert stakeholders to develop the infrastructure to support learning activities that produce data-driven advances in clinical practice. The ABMS Boards must ensure that their continuing certification programs recognize and document participation in a wide range of quality assessment activities in which diplomates already engage.	D-275.954 Our AMA will…(12) Work with key stakeholders to (a) support ongoing ABMS member board efforts to allow multiple and diverse physician educational and quality improvement activities to qualify for MOC; (b) support ABMS member board activities in facilitating the use of MOC quality improvement activities to count for other accountability requirements or programs, such as pay for quality/performance or PQRS reimbursement; (c) encourage ABMS member boards to enhance the consistency of quality improvement programs across all boards; and (d) work with specialty societies and ABMS member boards to develop tools and services that help physicians meet MOC requirements. (18) Encourage medical specialty societies' leadership to work with the ABMS, and its member boards, to identify those specialty organizations that have developed an appropriate and relevant MOC process for its members.
14. The ABMS Boards must collaborate with professional and/or CME/CPD organizations to share data and information to guide and support diplomate engagement in continuing certification.	D-275.954 Our AMA will…(30) Support a recertification process based on high quality, appropriate Continuing Medical Education (CME) material directed by the AMA recognized specialty societies covering the physician's practice area, in cooperation with other willing stakeholders, that would be completed on a regular basis as determined by the individual medical specialty, to ensure lifelong learning.

APPENDIX D - Current HOD Policies Related to Maintenance of Certification and Osteopathic Continuous Certification

H-275.924, Maintenance of Certification
AMA Principles on Maintenance of Certification (MOC)
1. Changes in specialty-board certification requirements for MOC programs should be longitudinally stable in structure, although flexible in content.
2. Implementation of changes in MOC must be reasonable and take into consideration the time needed to develop the proper MOC structures as well as to educate physician diplomates about the requirements for participation.

3. Any changes to the MOC process for a given medical specialty board should occur no more frequently than the intervals used by that specialty board for MOC.

4. Any changes in the MOC process should not result in significantly increased cost or burden to physician participants (such as systems that mandate continuous documentation or require annual milestones).

5. MOC requirements should not reduce the capacity of the overall physician workforce. It is important to retain a structure of MOC programs that permits physicians to complete modules with temporal flexibility, compatible with their practice responsibilities.

6. Patient satisfaction programs such as The Consumer Assessment of Healthcare Providers and Systems (CAHPS) patient survey are neither appropriate nor effective survey tools to assess physician competence in many specialties.

7. Careful consideration should be given to the importance of retaining flexibility in pathways for MOC for physicians with careers that combine clinical patient care with significant leadership, administrative, research and teaching responsibilities.

8. Legal ramifications must be examined, and conflicts resolved, prior to data collection and/or displaying any information collected in the process of MOC. Specifically, careful consideration must be given to the types and format of physician-specific data to be publicly released in conjunction with MOC participation.

9. Our AMA affirms the current language regarding continuing medical education (CME): "Each Member Board will document that diplomates are meeting the CME and Self-Assessment requirements for MOC Part II. The content of CME and self-assessment programs receiving credit for MOC will be relevant to advances within the diplomate's scope of practice, and free of commercial bias and direct support from pharmaceutical and device industries. Each diplomate will be required to complete CME credits (AMA PRA Category 1 Credit", American Academy of Family Physicians Prescribed, American College of Obstetricians and Gynecologists, and/or American Osteopathic Association Category 1A)."

10. In relation to MOC Part II, our AMA continues to support and promote the AMA Physician's Recognition Award (PRA) Credit system as one of the three major credit systems that comprise the foundation for continuing medical education in the U.S., including the Performance Improvement CME (PICME) format; and continues to develop relationships and agreements that may lead to standards accepted by all U.S. licensing boards, specialty boards, hospital credentialing bodies and other entities requiring evidence of physician CME.

11. MOC is but one component to promote patient safety and quality. Health care is a team effort, and changes to MOC should not create an unrealistic expectation that lapses in patient safety are primarily failures of individual physicians.

12. MOC should be based on evidence and designed to identify performance gaps and unmet needs, providing direction and guidance for improvement in physician performance and delivery of care.

13. The MOC process should be evaluated periodically to measure physician satisfaction, knowledge uptake and intent to maintain or change practice.

14. MOC should be used as a tool for continuous improvement.

15. The MOC program should not be a mandated requirement for licensure, credentialing, recredentialing, privileging, reimbursement, network participation, employment, or insurance panel participation.

16. Actively practicing physicians should be well-represented on specialty boards developing MOC.

17. Our AMA will include early career physicians when nominating individuals to the Boards of Directors for ABMS member boards.

18. MOC activities and measurement should be relevant to clinical practice.

19. The MOC process should be reflective of and consistent with the cost of development and administration of the MOC components, ensure a fair fee structure, and not present a barrier to patient care.

20. Any assessment should be used to guide physicians' self-directed study.

21. Specific content-based feedback after any assessment tests should be provided to physicians in a timely manner.

22. There should be multiple options for how an assessment could be structured to accommodate different learning styles.

23. Physicians with lifetime board certification should not be required to seek recertification.

24. No qualifiers or restrictions should be placed on diplomates with lifetime board certification recognized by the ABMS related to their participation in MOC.

25. Members of our House of Delegates are encouraged to increase their awareness of and participation in the proposed changes to physician self-regulation through their specialty organizations and other professional membership groups.

26. The initial certification status of time-limited diplomates shall be listed and publicly available on all American Board of Medical Specialties (ABMS) and ABMS Member Boards websites and physician certification databases. The names and initial certification status of time-limited diplomates shall not be removed from ABMS and ABMS Member Boards websites or physician certification databases even if the diplomate chooses not to participate in MOC.

27. Our AMA will continue to work with the national medical specialty societies to advocate for the physicians of America to receive value in the services they purchase for Maintenance of Certification from their specialty boards. Value in MOC should include cost effectiveness with full financial transparency, respect for physicians' time and their patient care commitments, alignment of MOC requirements with other regulator and payer requirements, and adherence to an evidence basis for both MOC content and processes.

(CME Rep. 16, A-09 Reaffirmed: CME Rep. 11, A-12 Reaffirmed: CME Rep. 10, A-12 Reaffirmed in lieu of Res. 313, A-12 Reaffirmed: CME Rep. 4, A-13 Reaffirmed in lieu of Res. 919, I-13 Appended: Sub. Res. 920, I-14 Reaffirmed: CME Rep. 2, A-15 Appended: Res. 314, A-15 Modified: CME Rep. 2, I-15 Reaffirmation A-16 Reaffirmed: Res. 309, A-16 Modified: Res. 307, I-16 Reaffirmed: BOT Rep. 05, I-16 Appended: Res. 319, A-17 Reaffirmed in lieu of: Res. 322, A-17 Modified: Res. 953, I-17)"

D-275.954, Maintenance of Certification and Osteopathic Continuous Certification

Our AMA will:

1. Continue to monitor the evolution of Maintenance of Certification (MOC) and Osteopathic Continuous Certification (OCC), continue its active engagement in discussions regarding their implementation, encourage specialty boards to investigate and/or establish alternative approaches for MOC, and prepare a yearly report to the House of Delegates regarding the MOC and OCC process.

2. Continue to review, through its Council on Medical Education, published literature and emerging data as part of the Council's ongoing efforts to critically review MOC and OCC issues.

3. Continue to monitor the progress by the American Board of Medical Specialties (ABMS) and its member boards on implementation of MOC, and encourage the ABMS to report its research findings on the issues surrounding certification and MOC on a periodic basis.

4. Encourage the ABMS and its member boards to continue to explore other ways to measure the ability of physicians to access and apply knowledge to care for patients, and to continue to examine the evidence supporting the value of specialty board certification and MOC.

5. Work with the ABMS to streamline and improve the Cognitive Expertise (Part III) component of MOC, including the exploration of alternative formats, in ways that effectively evaluate acquisition of new knowledge while reducing or eliminating the burden of a high-stakes examination.

6. Work with interested parties to ensure that MOC uses more than one pathway to assess accurately the competence of practicing physicians, to monitor for exam relevance and to ensure that MOC does not lead to unintended economic hardship such as hospital de-credentialing of practicing physicians.

7. Recommend that the ABMS not introduce additional assessment modalities that have not been validated to show improvement in physician performance and/or patient safety.

8. Work with the ABMS to eliminate practice performance assessment modules, as currently written, from MOC requirements.

9. Encourage the ABMS to ensure that all ABMS member boards provide full transparency related to the costs of preparing, administering, scoring and reporting MOC and certifying examinations.

10. Encourage the ABMS to ensure that MOC and certifying examinations do not result in substantial financial gain to ABMS member boards, and advocate that the ABMS develop fiduciary standards for its member boards that are consistent with this principle.

11. Work with the ABMS to lessen the burden of MOC on physicians with multiple board certifications, particularly to ensure that MOC is specifically relevant to the physician's current practice.

12. Work with key stakeholders to (a) support ongoing ABMS member board efforts to allow multiple and diverse physician educational and quality improvement activities to qualify for MOC; (b) support ABMS member board activities in facilitating the use of MOC quality improvement activities to count for other accountability requirements or programs, such as pay for quality/performance or PQRS reimbursement; (c) encourage ABMS member boards to enhance the consistency of quality improvement programs across all boards; and (d) work with specialty societies and ABMS member boards to develop tools and services that help physicians meet MOC requirements.

13. Work with the ABMS and its member boards to collect data on why physicians choose to maintain or discontinue their board certification.

14. Work with the ABMS to study whether MOC is an important factor in a physician's decision to retire and to determine its impact on the US physician workforce.

15. Encourage the ABMS to use data from MOC to track whether physicians are maintaining certification and share this data with the AMA.

16. Encourage AMA members to be proactive in shaping MOC and OCC by seeking leadership positions on the ABMS member boards, American Osteopathic Association (AOA) specialty certifying boards, and MOC Committees.

17. Continue to monitor the actions of professional societies regarding recommendations for modification of MOC.

18. Encourage medical specialty societies' leadership to work with the ABMS, and its member boards, to identify those specialty organizations that have developed an appropriate and relevant MOC process for its members.

19. Continue to work with the ABMS to ensure that physicians are clearly informed of the MOC requirements for their specific board and the timelines for accomplishing those requirements.

20. Encourage the ABMS and its member boards to develop a system to actively alert physicians of the due dates of the multi-stage requirements of continuous professional development and performance in practice, thereby assisting them with maintaining their board certification.

21. Recommend to the ABMS that all physician members of those boards governing the MOC process be required to participate in MOC.

22. Continue to participate in the National Alliance for Physician Competence forums.

23. Encourage the PCPI Foundation, the ABMS, and the Council of Medical Specialty Societies to work together toward utilizing Consortium performance measures in Part IV of MOC.

24. Continue to assist physicians in practice performance improvement.

25. Encourage all specialty societies to grant certified CME credit for activities that they offer to fulfill requirements of their respective specialty board's MOC and associated processes.

26. Support the American College of Physicians as well as other professional societies in their efforts to work with the American Board of Internal Medicine (ABIM) to improve the MOC program.

27. Oppose those maintenance of certification programs administered by the specialty boards of the ABMS, or of any other similar physician certifying organization, which do not appropriately adhere to the principles codified as AMA Policy on Maintenance of Certification.

28. Ask the ABMS to encourage its member boards to review their maintenance of certification policies regarding the requirements for maintaining underlying primary or initial specialty board certification in addition to subspecialty board certification, if they have not yet done so, to allow physicians the option to focus on maintenance of certification activities relevant to their practice.

29. Call for the immediate end of any mandatory, secured recertifying examination by the ABMS or other certifying organizations as part of the recertification process for all those specialties that still require a secure, high-stakes recertification examination.

30. Support a recertification process based on high quality, appropriate Continuing Medical Education (CME) material directed by the AMA recognized specialty societies covering the physician's practice area, in cooperation with other willing stakeholders, that would be completed on a regular basis as determined by the individual medical specialty, to ensure lifelong learning.

31. Continue to work with the ABMS to encourage the development by and the sharing between specialty boards of alternative ways to assess medical knowledge other than by a secure high stakes exam.

32. Continue to support the requirement of CME and ongoing, quality assessments of physicians, where such CME is proven to be cost-effective and shown by evidence to improve quality of care for patients.

33. Through legislative, regulatory, or collaborative efforts, will work with interested state medical societies and other interested parties by creating model state legislation and model medical staff bylaws while advocating that Maintenance of Certification not be a requirement for: (a) medical staff membership, privileging, credentialing, or recredentialing; (b) insurance panel participation; or (c) state medical licensure.

34. Increase its efforts to work with the insurance industry to ensure that maintenance of certification does not become a requirement for insurance panel participation.

35. Advocate that physicians who participate in programs related to quality improvement and/or patient safety receive credit for MOC Part IV.

36. Continue to work with the medical societies and the American Board of Medical Specialties (ABMS) member boards that have not yet moved to a process to improve the Part III secure, high-stakes examination to encourage them to do so.

37. Through its Council on Medical Education, continue to be actively engaged in following the work of the ABMS Continuing Board Certification: Vision for the Future Commission.

38. (a) Submit commentary to the American Board of Medical Specialties (ABMS) Continuing Board Certification: Vision for the Future initiative, asking that junior diplomates be given equal opportunity to serve on ABMS and its member boards; and (b) work with the ABMS and member boards to encourage the inclusion of younger physicians on the ABMS and its member boards.

39. Continue studying the certifying bodies that compete with the American Board of Medical Specialties and provide an update in the Council on Medical Education s annual report on maintenance of certification at the 2019 Annual Meeting.

(CME Rep. 2, I-15 Appended: Res. 911, I-15 Appended: Res. 309, A-16 Appended: CME Rep. 02, A-16 Appended: Res. 307, I-16 Appended: Res. 310, I-16 Modified: CME Rep. 02, A-17 Reaffirmed: Res. 316, A-17 Reaffirmed in lieu of: Res. 322, A-17 Appended: CME Rep. 02, A-18 Appended: Res. 320, A-18 Appended: Res. 957, I-18)

APPENDIX E - ABMS Committee on Continuing Certification (3C) Supplemental Information

1.   List of ABMS pilots and substantive changes approved at 3C Meetings

APPROVED – Substantive Changes

Board	MOC Component	Pilot	Announced	Approved
American Board of Anesthesiology	Assessment of Knowledge, Judgment, and Skills	MOCA Minute	April 2015	April 2018
American Board of Thoracic Surgery	Assessment of Knowledge, Judgment, and Skills	Mastery Learning Process Using SESATS	April 2015	November 2015
American Board of Pathology	Assessment of Knowledge, Judgment, and Skills	Remote Proctoring	April 2015	July 2016
American Board of Dermatology	Improvement in Medical Practice	Practice Improvement Pilot	November 2015	April 2018
American Board of Obstetrics and Gynecology	Lifelong Learning and Self-Assessment, Knowledge, Judgment, and Skills	Integration of MOC Parts II & III	November 2015	April 2018
American Board of Emergency Medicine	Professionalism and Professional Standing	Improvements to Communication/Professionalism Requirement	April 2016	April 2018
American Board of Pediatrics	Assessment of Knowledge, Judgment, and Skills	MOCAPeds	November 2016	April 2018

| American Board of Emergency Medicine | Lifelong Learning and Self-Assessment | Lifelong Learning and Self-Assessment Requirements Update | November 2018 | November 2018 |

2.   List of ABMS active pilots announced at 3C Meetings

ACTIVE - Pilots

Board	MOC Component	Pilot	Announced
American Board of Internal Medicine	Improvement in Medical Practice	Improvements to Part IV	April 2015
American Board of Neurological Surgery	Assessment of Knowledge, Judgment, and Skills	Cognitive Assessment/Learning Tool	November 2016
American Board of Radiology	Assessment of Knowledge, Judgment, and Skills	Online Longitudinal Assessment (OLA)	November 2016
American Board of Ophthalmology	Assessment of Knowledge, Judgment, and Skills	Quarterly Questions	November 2016
American Board of Pathology	Assessment of Knowledge, Judgment, and Skills	Longitudinal Assessment Program: CertLink	November 2016
American Board of Medical Genetics and Genomics	Assessment of Knowledge, Judgment, and Skills	Longitudinal Assessment Program: CertLink	April 2017
American Board of Nuclear Medicine	Assessment of Knowledge, Judgment, and Skills	Longitudinal Assessment Program: CertLink	April 2017
American Board of Allergy and Immunology	Assessment of Knowledge, Judgment, and Skills	Continuous Assessment Program	April 2017
American Board of Internal Medicine	Assessment of Knowledge, Judgment, and Skills	Knowledge Check-Ins	April 2017
American Board of Colon and Rectal Surgery	Assessment of Knowledge, Judgment, and Skills	Longitudinal Assessment Program: CertLink	November 2017
American Board of Physical Medical and Rehabilitation	Assessment of Knowledge, Judgment, and Skills	Longitudinal Assessment Program: CertLink	November 2017
American Board of Plastic Surgery	Lifelong Learning and Self-Assessment, Knowledge, Judgment, and Skills	Lifelong Learning and Self-Assessment and Knowledge, Judgment, and Skills	November 2017
American Board of Psychiatry and Neurology	Lifelong Learning and Self-Assessment, Knowledge, Judgment, and Skills	Lifelong Learning and Self-Assessment and Knowledge, Judgment, and Skills	November 2017
American Board of Surgery	Assessment of Knowledge, Judgment, and Skills	New Assessment Process	November 2017
American Board of Otolaryngology – Head and Neck Surgery	Assessment of Knowledge, Judgment, and Skills	Longitudinal Assessment Program: CertLink	April 2018
American Board of Orthopaedic Surgery	Assessment of Knowledge, Judgment, and Skills	Web-based Longitudinal Assessment (WLA)	April 2018
American Board of Emergency Medicine	Assessment of Knowledge, Judgment, and Skills	MyEMCert	April 2018
American Board of Dermatology	Assessment of Knowledge, Judgment, and Skills	Longitudinal Assessment Program: CertLink	July 2018

American Board of Family Medicine	Assessment of Knowledge, Judgment, and Skills	Family Medicine Certification Longitudinal Assessment	November 2018

APPENDIX F - Improvements to the American Board of Medical Specialties (ABMS) Part III, Assessment of Knowledge, Judgment, and Skills and Part IV, Improvement in Medical Practice*

American Board of:	Original Format	New Models/Innovations
Allergy and Immunology (ABAI) abai.org	**Part III:** Computer-based, secure exam was administered at a proctored test center once a year. Diplomates were required to pass the exam once every 10 years.	**Part III:** In 2018, ABAI-Continuous Assessment Program Pilot was implemented in place of current exam: • A 10-year program with two 5-year cycles; • Diplomates take exam where and when it is convenient; • Open-book annual exam with approximately 80 questions; • Mostly article-based with some core questions during each 6-month cycle. Diplomates must answer three questions for each of ten journal articles in each cycle. The articles are posted in January and July and remain open for 6 months. • Questions can be answered independently for each article; • Diplomate feedback required on each question; • Opportunity to drop the two lowest 6-month cycle scores during each 5-year period to allow for unexpected life events; and • Ability to complete questions on PCs, laptops, MACs, tablets, and smart phones by using the new diplomate dashboard accessed via the existing ABAI Web Portal page.
	Part IV[2]: ABAI diplomates receive credit for participation in registries.	**Part IV[2]:** In 2018, new Part IV qualifying activities provided credit for a greater range of improvement in medical practice (IMP) activities that physicians complete at their institutions and/or individual practices. A practice assessment/quality improvement (QI) module must be completed once every 5 years.
Anesthesiology (ABA) theaba.org	**Part III:** MOCA 2.0 introduced in 2014 to provide a tool for ongoing low-stakes assessment with more extensive, question-specific feedback. Also provides focused content that could be reviewed periodically to refresh knowledge and document cognitive expertise. *All diplomates with time-limited certification in anesthesiology that expired on or before December 31, 2015 and diplomates whose subspecialty certificates expired on or before December 31, 2016, must complete the traditional MOCA® requirements before they can register for MOCA 2.0®.*	**Part III:** MOCA Minute® replaced the MOCA exam. Diplomates must answer 30 questions per calendar quarter (120 per year), no matter how many certifications they are maintaining.
	Part IV[2]: Traditional MOCA requirements include completion of case evaluation and simulation course during the	**Part IV[3-4]:** ABA is adding and expanding multiple activities for diplomates to demonstrate that

	10-year MOCA cycle. One activity must be completed between Years 1 to 5, and the second between Years 6 to 10. An attestation is due in Year 9.	they are participating in evaluations of their clinical practice and are engaging in practice improvement. Diplomates may choose activities that are most relevant to their practice; reporting templates no longer required for self-report activities; simulation activity no longer required following diplomate feedback that it was expensive and time-consuming.
Colon and Rectal Surgery (ABCRS) abcrs.org	**Part III:** Computer-based secure exam administered at a proctored test center once a year (in May). Diplomates must pass the exam once every 10 years.	**Part III[1]:** ABCRS is exploring ways to modify the exam experience to provide a more consistent assessment process and to replace the exam as it presently is administered. The first diplomates enrolled in CertLink™ MOC included those sitting for the ABCRS certifying exam in September 2017. These diplomates started CertLink™ MOC in the Spring of 2018. Other diplomates will be able to enroll in the near future. The computer-based secure exam will not be offered after 2019.
	Part IV: Requires ongoing participation in a local, regional, or national outcomes registry or quality assessment program.	**Part IV[3-4]:**
Dermatology (ABD) abderm.org	**Part III:** Computer-based secure modular exam administered at a proctored test center twice a year or by remote proctoring technology. Diplomates must pass the exam once every 10 years. Test preparation material available 6 months before the exam at no cost. The material includes diagnoses from which the general dermatology clinical images will be drawn and questions that will be used to generate the subspecialty modular exams. Examinees are required to take the general dermatology module, consisting of 100 clinical images to assess diagnostic skills, and can then choose among 50-item subspecialty modules.	**Part III[1]:** ABD successfully completed trials employing remote proctoring technology to monitor exam administration in the diplomates' homes or offices. ABD is developing a longitudinal assessment as an alternative to the traditional MOC exam (pilot scheduled for 2019, launch tentatively scheduled for 2020).
	Part IV[2]: Tools diplomates can use for Part IV include: • Focused practice improvement modules. • ABD's basal cell carcinoma registry tool. Partnering with specialty society to transfer any MOC-related credit directly to Board.	**Part IV:** ABD developed more than 40 focused practice improvement modules that are simpler to complete and cover a wide range of topics to accommodate different practice types. Peer and patient communication surveys are now optional.
Emergency Medicine (ABEM) abem.org	**Part III:** ABEM's ConCert™, computer-based, secure exam administered at a proctored test center twice a year. Diplomates must pass the exam once every 10 years.	**Part III:** In 2020, a second way to demonstrate physicians continue to possess the knowledge and cognitive skills of an ABEM-certified emergency physician—MyEMCert—will be piloted. MyEMCert will consist of: Shorter, more frequent tests: Each test will assess one or more specific content areas relevant to the clinical practice of emergency medicine, such as cardiovascular disorders or

		trauma. The tests will be about an hour long, with. the ability to retake a test again if it is not passed the first time, providing: physicians with a clearer idea of what topics need to be reviewed. Physicians will take the test remotely and have access to references.
	Part IV²: Physicians may complete practice improvement efforts related to any of the measures or activities listed on the ABEM website. Others that are not listed, may be acceptable if they follow the four steps ABEM requirements.	**Part IV:** ABEM is developing a pilot program to incorporate clinical data registry. ABEM diplomates receive credit for improvements they are making in their practice setting.
Family Medicine (ABFM) theabfm.org	**Part III:** Computer-based secure exam administered at a proctored test center twice a year or by remote proctoring technology. Diplomates must pass the exam once every 10 years. Improving relevance of exam by using national study of care content in family medicine practices. Providing feedback to residents and practicing physicians about the "anatomy" of the exam and their specific knowledge gaps (this effort has resulted in significant improvement in passing rates and improved feedback regarding relevance).	**Part III:** In December 2018, the ABFM launched a pilot to study the feasibility and validity of an alternative to the 10-year examination, called Family Medicine Certification Longitudinal Assessment (FMCLA). Limited to diplomates who are currently certified and are in the tenth year of certification due to end December 31, 2019, this approach is more aligned with adult learning principles, and when coupled with modern technology, promotes more enduring learning, retention, and transfer of knowledge than episodic examinations.
	Part IV²: IMP Projects include: • Collaborative Projects: Structured projects that involve physician teams collaborating across practice sites and/or institutions to implement strategies designed to improve care. • Projects Initiated in the Workplace: These projects are based on identified gaps in quality in a local or small group setting. • Web-based Activities: Self-paced activities that physicians complete within their practice setting (these activities are for physicians, who do not have access to other practice improvement initiatives).	**Part IV²⁻³:** ABFM developed and launched the national primary care registry (PRIME) to reduce time and reporting requirements.
Internal Medicine (ABIM) abim.org	**Part III:** Computer-based secure exam administered at a proctored test center. Diplomates must pass the exam once every 10 years. ABIM introduced grace period for physicians to retry assessments for additional study and preparation if initially unsuccessful.	**Part III:** In 2018, two assessment options were offered: 1) Certified physicians (internal medicine, cardiovascular disease, geriatric medicine, endocrinology, diabetes, and metabolism, gastroenterology, hematology, infectious disease, nephrology, pulmonary disease, and rheumatology with more specialties to roll out in 2020) will be eligible to take the Knowledge Check-In, a new 2-year open-book (access to *UpToDate®*) assessment with immediate performance feedback. Assessments can be taken at the physician's home or office or at a computer testing facility instead of taking the long-form exam every 10 years at a testing facility. Those who meet a performance standard on shorter assessments will not need to take the 10-year exam again to remain certified.

		2) Diplomates can also choose to take a long-form assessment given every 10 years. This option is the same as the current 10-year exam, but it will include open-book access (to *UpToDate®*) that physicians requested. *ABIM is also working with specialty societies to explore the development of collaborative pathways through which physicians can maintain board certification.*
	Part IV[2]: Practice assessment/QI activities include identifying an improvement opportunity in practice, implementing a change to address that opportunity, and measuring the impact of the change. Diplomates can earn MOC points for many practice assessment/QI projects through their medical specialty societies, hospitals, medical groups, clinics, or other health-related organizations.	**Part IV:** Increasing number of specialty-specific IMP activities recognized for credit (activities that physicians are participating in within local practice and institutions).
Medical Genetics and Genomics (ABMGG) abmgg.org	**Part III:** Computer-based secure exam administered at a proctored test center once a year (August). Diplomates must pass the exam once every 10 years.	**Part III[1]:** In 2018, CertLink Pilot Program launched: • Twenty-four questions distributed every 6 months throughout pilot period, regardless of number of specialties in which a diplomate is certified; • All questions must be answered by end of each 6-month timeframe (~5 minutes allotted per question); • Resources allowed, collaboration with colleagues not allowed; • Realtime feedback and performance provided for each question; and • "Clones" of missed questions will appear in later timeframes to help reinforce learning.
	Part IV[2]: Diplomates can choose from the list of options to complete practice improvement modules in areas consistent with the scope of their practice.	**Part IV[3-4]:** ABMGG is developing opportunities to allow diplomates to use activities already completed at their workplace to fulfill certain requirements. Expanding accepted practice improvement activities for laboratorians.
Neurological Surgery (ABNS) abns.org	**Part III:** The 10-year secure exam can be taken from any computer, i.e., in the diplomate's office or home. Access to reference materials is not restricted; it is an open book exam. On applying to take the exam, a diplomate must assign a person to be his or her proctor. Prior to the exam, that individual will participate in an on-line training session and "certify" the exam computers.	**Part III:** In 2018, the 10-year exam was replaced with an annual adaptive cognitive learning tool, Core Neurosurgical Knowledge: • Open book exam focusing on 30 or so evidence-based practice principles critical to emergency, urgent, or critical care; • Shorter, relevant, and more focused questions than the prior exam; • Web-based format with 24/7 access from the diplomates' home or office; and • Immediate feedback to each question and references with links and/or articles are provided.

	Part IV: Diplomates receive credit for documented participation in an institutional QI project.	**Part IV:** Diplomates are required to participate in a meaningful way in morbidity and morality conferences at his or her primary hospital. For those diplomates participating in the Pediatric Neurosurgery, CNS-ES, NeuCC focused practice programs, a streamlined case log is required to confirm that their practice continues to be focused and the diplomate is required to complete a learning tool that includes core neurosurgery topics and an additional eight evidence-based concepts critical to providing emergency, urgent, or critical care in their area of focus.
Nuclear Medicine (ABNM) abnm.org	**Part III:** Computer-based secure exam administered at a proctored test center once a year (October). Diplomates must pass the exam once every 10 years.	**Part III[1]:** Diplomates can choose between the 10-year exam or a longitudinal assessment pilot program (CertLink™). CertLink™ periodically delivers nuclear medicine questions with detailed explanations and references directly to diplomates.
	Part IV: Diplomates must complete one of the three following requirements each year. 1) Attestation that the diplomate has participated in QI activities as part of routine clinical practice, such as participation in a peer review process, attendance at tumor boards, or membership on a radiation safety committee. 2) Participation in an annual practice survey related to approved clinical guidelines released by the ABNM. The survey has several questions based on review of actual cases. Diplomates receive a summary of the answers provided by other physicians that allows them to compare their practice to peers. 3) Improvement in medical practice projects designed by diplomates, or provided by professional groups such as the Society of Nuclear Medicine and Molecular Imaging (SNMMI). Project areas may include medical care provided for common/major health conditions, physician behaviors, such as communication and professionalism, as they relate to patient care, and many others. The projects typically follow the model of Plan-Do-Study-Act. The ABNM has developed a few IMP modules for the SNMMI, Alternatively, diplomates may design their own project.	**Part IV[3-4]:** ABNM recognizes QI activities in which physicians participate in their clinical practice.
Obstetrics and Gynecology (ABOG) abog.org	**Part III:** The secure, external assessment is offered in the last year of each ABOG diplomate's 6-year cycle in a modular test format; diplomates can choose two selections that are the most relevant to their current practice.	**Part III:** ABOG completed a pilot program and integrated the article-based self-assessment (Part II) and external assessment (Part III) requirements, allowing diplomates to continuously demonstrate their knowledge of the specialty. The pilot allowed diplomates to earn an exemption from the current computer-based exam in the sixth year of the program if

<table>
<tr><td></td><td></td><td>they reach a threshold of performance during the first 5 years of the self-assessment program.

In 2019, diplomates can choose to take the 6-year exam or participate in Performance Pathway, an article-based self-assessment (with corresponding questions) which showcases new research studies, practice guidelines, recommendations, and up-to-date reviews. Diplomates who participate in Performance Pathway are required to read a total of 180 selected articles and answer 720 questions about the articles over the 6-year MOC cycle.</td></tr>
<tr><td></td><td>**Part IV[2]:**
Diplomates required to participate in one of the available IMP activities yearly in MOC Years 1-5.

ABOG will consider structured QI projects (IMP modules, QI efforts, simulation courses) in obstetrics and gynecology for Part IV credit. These projects must demonstrate improvement in care and be based on accepted improvement science and methodology.

Newly developed QI projects from organizations with a history of successful QI projects are also eligible for approval.</td><td>**Part IV:**
ABOG recognizes work with QI registries for credit.

ABOG continues to expand the list of approved activities which can be used to complete the Part IV.

The number of hours required for approval of simulation course credit has been decreased to 4 hours of instruction.</td></tr>
<tr><td>**Ophthalmology** (ABO) abop.org</td><td>**Part III:**
The Demonstration of Ophthalmic Cognitive Knowledge (DOCK) high-stakes, 10-year exam administered through 2018.</td><td>**Part III:**
In 2019, Quarterly Questions™ will replace the DOCK Examination for all diplomates:
• Will deliver 50 questions (40 knowledge-based and 10 article-based);
• Offered remotely at home or office through computer, tablet, or mobile apps;
• The questions should not require preparation in advance, but a content outline for the multiple-choice questions will be available;
　•Diplomates will receive instant feedback and recommendations for resources related to gaps in knowledge; and
• Key ophthalmic journal articles with questions focused on the application of this information to patient care. The journal portion will require reading five articles from a list of 30 options.</td></tr>
<tr><td></td><td>**Part IV[2]:**
Diplomates whose certificates expire on or before December 31, 2020 must complete one of the following options; all other diplomates complete two activities:
1) Read QI articles through Quarterly Questions;
2) Choose a QI CME activity;
3) Create an individual IMP activity; or
4) Participate in the ABMS multi-specialty portfolio program pathway.</td><td>**Part IV[3-4]:**
Diplomates can choose to:
1) Design a registry-based IMP Project using their AAO IRIS® Registry Data;
2) Create a customized, self-directed IMP activity; or
3) Participate in the ABMS multi-specialty portfolio program through their institution.</td></tr>
<tr><td>**Orthopaedic Surgery** (ABOS) abos.org</td><td>**Part III:**
Computer-based secure modular exam administered at a proctored test center. Diplomates must pass the exam once every 10 years. The optional oral exam is given in Chicago in July.</td><td>**Part III:**
In 2019, a new web-based longitudinal assessment program (ABOS WLA) the Knowledge Assessment, will be piloted. ABOS diplomates may choose this pathway</td></tr>
</table>

	Diplomates without subspecialty certifications can take practice-profiled exams in orthopaedic sports medicine and surgery of the hand. General orthopaedic questions were eliminated from the practice-profiled exams so diplomates are only tested in areas relevant to their practice. Detailed blueprints are being produced for all exams to provide additional information for candidates to prepare for and complete the exams. Eight different practice-profiled exams offered to allow assessment in the diplomate's practice area.	instead of an ABOS computer-based or oral recertification 10-year exam: • Offered remotely at home or office through computer, tablet, or mobile apps; • Thirty questions must be answered between April 15, 2019 and May 20, 2019 (two questions will come from each Knowledge Source). • The assessment is open-book and diplomates can use the Knowledge Sources, if the questions are answered within the 3-minute window and that the answer represents the diplomate's own work.
	Part IV[2]: Case lists allow diplomates to review their practice including adhering to accepted standards, patient outcomes, and rate and type of complications. Case list collection begins on January 1st of the calendar year that the diplomate plans to submit their recertification application, and is due by December 1. The ABOS recommends that this be done in Year 7 of the 10-year MOC Cycle, but it can be done in Year 8 or 9. A minimum of 35 cases is required for the recertification candidate to sit for the recertification exam of their choice. Diplomates receive a feedback report based on their submitted case list.	**Part IV[3-4]:** ABOS is streamlining the case list entry process to make it easier to enter cases and classify complications.
Otolaryngology – Head and Neck Surgery (ABOHNS) aboto.org	**Part III:** Computer-based secure modular exam administered at a proctored test center. Diplomates must pass the exam once every 10 years.	**Part III[1]:** ABOHNS is piloting a CertLink™-based longitudinal assessment in 2019 (20 questions per quarter) to explore and evaluate assessment methods to provide immediate, personalized feedback as an alternative to the high-stakes exam. Diplomates whose certificates expire in 2019 are eligible to participate on a voluntary basis.
	Part IV[2]: The three components of Part IV include: 1) A patient survey; 2) A peer survey; and 3) A registry that will be the basis for QI activities.	**Part IV:** ABOHNS is partnering with the American Academy of Otolaryngology-Head and Neck Surgery in their development of a RegentSM registry. Selected data will be extracted from RegentSM for use in practice improvement modules that diplomates can use to meet IMP requirements.
Pathology (ABPath) abpath.org	**Part III:** Computer-based secure modular exam administered at the ABP Exam Center in Tampa, Florida twice a year (March and August). Remote computer exams can be taken anytime 24/7 that the physician chooses during the assigned 2-week period (spring and fall) from their home or office. Physicians can choose from more than 90 modules, covering numerous practice areas for a practice-relevant assessment. *Diplomates must pass the exam once every 10 years.*	**Part III[1]:** The ABPath CertLink® pilot program is available for all diplomates: • Diplomates can log in anytime to answer 15 multiple-choice questions assigned per quarter; • Each question must be answered within 5 minutes; • Can use any resources (e.g. internet, textbooks, journals) except another person; • Immediate feedback on whether each question is answered correctly or incorrectly, with a short narrative about the topic (critique), and references; and • Customization allows diplomates to select questions from practice (content) areas relevant to their practice.

	Part IV[2]: Diplomates must participate in at least one inter-laboratory performance improvement and quality assurance programs per year appropriate for the spectrum of anatomic and clinical laboratory procedures performed in that laboratory.	**Part IV[3-4]:**
Pediatrics (ABP) abp.org	**Part III:** Computer-based secure exam administered at a proctored test center. Diplomates must pass the exam once every 10 years.	**Part III:** In 2019 Maintenance of Certification Assessment for Pediatrics (MOCA-Peds), a new testing platform with shorter and more frequent assessments, will be rolled out • A series of questions released through mobile devices or a web browser at regular intervals; • Twenty multiple choice questions that are available quarterly and may be answered at any time during the quarter; • Immediate feedback and references; • Resources (i.e., internet, books) can be used when taking the exam; and • Allows for questions to be tailored to the pediatrician's practice profile. Physicians will provide feedback on individual questions so the exam can be continuously improved. Those who wish to continue taking the exam once every 5 years in a secure testing facility will be able to do so.
	Part IV[2]: Diplomates must earn at least 40 points every 5 years, in one of the following activities: • Local or national QI projects • Diplomates' own project • National Committee for Quality Assurance Patient-Centered Medical Home or Specialty Practice • Institutional QI leadership • Online modules (PIMS)	**Part IV:** ABP is enabling new pathways for pediatricians to claim Part IV QI credit for work they are already doing. These pathways are available to physicians who are engaged in QI projects alone or in groups, and include a pathway for institutional leaders in quality to claim credit for their leadership. ABP is also allowing trainees (residents and fellows) to "bank" MOC credit for quality improvement activities in which they participate. The pediatricians supervising these trainees also may claim MOC credit for qualifying projects.
Physical Medicine and Rehabilitation (ABPMR) abpmr.org	**Part III:** Computer-based secure exam administered at a proctored test center. Diplomates must pass the exam once every 10 years. Released MOC 100, a set of free practice questions pulled directly from the ABPMR exam question banks to help physicians prepare for the exam.	**Part III[1]:** ABPMR is conducting a CertLink™-based longitudinal assessment pilot through 2020 to explore and evaluate shorter, more frequent assessment methods and provision of immediate, personalized feedback as an alternative to the high-stakes exam. ABPMR is also working with its specialty society to produce clinical updates that will integrate with the longitudinal assessment tool.
	Part IV[2]: Guided practice improvement projects are available through ABPMR.	**Part IV[3-4]:** ABPMR is introducing several free tools to complete an IMP project, including: simplified and flexible template to document small improvements and educational videos, infographic, and enhanced web pages.

		ABPMR is seeking approval from the National Committee for Quality Assurance Patient-Centered Specialty Practice Recognition for Part IV IMP credit. ABPMR is also working with its specialty society to develop relevant registry-based QI activities.
Plastic Surgery (ABPS) abplasticsurgery.org	**Part III:** Computer-based secure exam administered at a proctored test center once a year (October). Diplomates must pass the exam once every 10 years. Modular exam to ensure relevance to practice. ABPS offers a Part III Study Guide with multiple choice question items derived from the same sources used for the exam.	**Part III:** Piloting online delivery of Part III exam in place of centralized in-person testing center to reduce costs and time away from practice. Diplomates will be given immediate feedback on answers and offered an opportunity to respond again. If successful, this pilot may replace the high-stakes exam. Instituting online longitudinal learning program that will assess the physician's knowledge, provide immediate feedback, and reinforce areas of knowledge deficiency throughout the 5-year cycle.
	Part IV[2]: ABPS provides Part IV credit for registry participation. ABPS also allows Part IV credit for IMP activities that a diplomate is engaged in through their hospital or institution. Diplomates are asked to input data from 10 cases from any single index procedure every 3 years, and ABPS provides feedback on diplomate data across five index procedures in four subspecialty areas.	**Part IV[3-4]:** Allowing MOC credit for Improvement in Medical Practice activities that a diplomate is engaged in through their hospital or institution. Physician participation in one of four options can satisfy the diplomate's Practice Improvement Activity: • Quality improvement publication • Quality improvement project • Registry participation • Tracer procedure log
Preventive Medicine (ABPM) theabpm.org	**Part III:** In-person, pencil-and-paper, secure exam administered at secure test facility. MOC exams follow the same content outline as the initial certification exam (without the core portion). *In 2016, new multispecialty subspecialty of Addiction Medicine was established. In 2017, Addiction Medicine subspecialty certification exam was administered to diplomates of any of the 24 ABMS member boards who meet the eligibility requirements.*	**Part III:** Changes to the ABPM MOC exam are not being considered at this time.
	Part IV[2]: Diplomates must complete two IMP activities. One of the activities must be completed through a preventive medicine specialty or subspecialty society (ACOEM, ACPM, AMIA, AsMA, or UHMS).	**Part IV[3-4]:** Partnering with specialty societies to design quality and performance improvement activities for diplomates with population-based clinical focus (i.e., public health).
Psychiatry and Neurology (ABPN) abpn.com	**Part III:** Computer-based secure exam administered at a proctored test center. Diplomates must pass the exam once every 10 years. ABPN is developing MOC exams with committees of clinically active diplomates to ensure relevance to practice. ABPN is also enabling diplomates with multiple certificates to take all of their MOC exams at once and for a reduced fee. Grace period so that diplomates can retake the exam.	**Part III:** ABPN is implementing a Part III pilot program through 2021 to allow physicians who read lifelong learning articles and demonstrate learning by high performance on the questions accompanying the article, to earn exemption from the 10-year MOC high-stakes exam.

	Part IV[2]: Diplomates satisfy the IMP requirement by completing one of the following: 1) Clinical Module: Review of one's own patient charts on a specific topic (diagnosis, types of treatment, etc.). 2) Feedback Module: Obtain personal feedback from either peers or patients regarding your own clinical performance using questionnaires or surveys.	**Part IV[3-4]:** ABPN is allowing Part IV credit for IMP and patient safety activities diplomates complete in their own institutions and professional societies, and those completed to fulfill state licensure requirements. Diplomates participating in registries, such as those being developed by the American Academy of Neurology and the American Psychiatric Association, can have 8 hours of required self-assessment CME waived.
Radiology (ABR) theabr.org	**Part III:** Computer-based secure modular exam administered at a proctored test center. Diplomates must pass the exam once every 10 years.	**Part III:** An Online Longitudinal Assessment (OLA) model replaces the 10-year traditional exam. OLA includes modern and more relevant adult learning concepts to provide psychometrically valid sampling of the diplomate's knowledge. Diplomates must create a practice profile of the subspecialty areas that most closely fit what they do in practice, as they do now for the modular exams. Diplomates will receive weekly emails with links to questions relevant to their registered practice profile. Questions may be answered singly or, for a reasonable time, in small batches, in a limited amount of time. Diplomates will learn immediately whether they answered correctly or not and will be presented with the question's rationale, a critique of the answers, and brief educational material. Those who answer questions incorrectly will receive future questions on the same topic to gauge whether they have learned the material.
	Part IV[2]: Diplomates must complete at least one practice QI project or participatory quality improvement activity in the previous 3 years at each MOC annual review. A project or activity may be conducted repeatedly or continuously to meet Part IV requirements.	**Part IV[3-4]:** ABR is automating data feeds from verified sources to minimize physician data reporting. ABR is also providing a template and education about QI to diplomates with solo or group projects.
Surgery (ABS) absurgery.org	**Part III:** Computer-based secure exam administered at a proctored test center. Diplomates must pass the exam once every 10 years. Transparent exam content, with outlines, available on the ABS website and regularly updated. The ABS is coordinating with the American College of Surgeons and other organizations to ensure available study materials align with exam content.	**Part III:** In 2018, the ABS began offering shorter, more frequent, open-book, modular, lower-stakes assessments required every 2 years in place of the high-stakes exam. The new assessment is being introduced for general surgery, with other ABS specialties launching over the next few years: • Diplomates will select from four practice-related topics: general surgery, abdomen, alimentary tract, or breast; • More topics based on feedback from diplomates and surgical societies are being planned; • Diplomates can take the assessment through their own computer at a time and

		place of their choosing within the assessment window; • 40 questions total (20 core surgery, 20 practice-related; • Open book (topics and references provided in advance); • Individual questions are untimed (with 2 weeks to complete); and • Immediate feedback and results (two opportunities to answer a question correctly).
	Part IV[2]: The ABS allows ongoing participation in a local, regional or national outcomes registry or quality assessment program, either individually or through the diplomate's institution. Diplomates must describe how they are meeting this requirement—no patient data is collected. The ABS audits a percentage of submitted forms each year.	**Part IV:** The ABS allows multiple options for registry participation, including individualized registries, to meet IMP requirements.
Thoracic Surgery (ABTS) abts.org	**Part III:** Remote, secure, computer-based exams can be taken any time 24/7 that the physician chooses during the assigned 2-month period (September-October) from their home or office. Diplomates must pass the exam once every 10 years. Modular exam, based on specialty, and presented in a self-assessment format with critiques and resources made available to diplomates.	**Part III:** The ABTS developed a web-based self-assessment tool (SESATS) that includes all exam material, instant access to questions, critiques, abstracts and references.
	Part IV[2]: ABTS diplomates must complete at least one practice quality improvement project within 2 years, prior to their 5-year and 10-year milestones. There are several pathways by which diplomates may meet these requirements: individual, group or institutional.	**Part IV[3-4]:**
Urology (ABU) abu.org	**Part III:** Computer-based secure exam administered at a proctored test center once a year (October). Diplomates must pass the exam once every 10 years. Clinical management emphasized on the exam. Questions are derived from the American Urological Association (AUA) Self-Assessment Study Program booklets from the past five years, AUA Guidelines, and AUA Updates. Diplomates required to take the 40-question core module on general urology, and choose one of four 35-question content specific modules. ABU provides increased feedback to reinforce areas of knowledge deficiency.	**Part III:** The knowledge assessment portion of the lifelong learning program will not be used as a primary single metric that influences certificate status but rather to help the diplomate to identify those areas of strength versus weakness in their medical knowledge (knowledge that is pertinent to their practice). To that end ABU will continue the modular format for the lifelong learning knowledge assessment. The knowledge assessment will be based on criterion referencing, thus allowing the identification of two groups, those who unconditionally pass the knowledge assessment and those who are given a conditional pass. The group getting a conditional pass will consist of those individuals who score in the band of one standard error of measurement above the pass point down to the lowest score. That group would be required to complete additional CME in the areas where they demonstrate low scores. After completion of the designated CME activity, they would continue in the lifelong learning process and the condition of their pass would be lifted.
	Part IV[2]: Completion of Practice Assessment Protocols.	**Part I[3-4]:**

| | ABU uses diplomate practice logs and diplomate billing code information to identify areas for potential performance or QI. | ABU allows credit for registry participation (i.e., participation in the MUSIC registry in Michigan, and the AUA AQUA registry).

Another avenue to receive credit is participation in the ABMS multi-specialty portfolio program (this is more likely to be used by Diplomates who are part of a large health system, e.g. Kaiser, or those in academic practices). |

* The information in this table is sourced from ABMS Member Board websites and is current as of January 15, 2019.

[1] Utilizing CertLinkTM, an ABMS web-based platform that leverages smart mobile technology to support the design, delivery, and evaluation of longitudinal assessment programs, some of which launched in 2017-2018. More information is available at: abms.org/news-events/american-board-of-medical-specialties-announces-development-of-new-web-based-platform/ (accessed 1-2-19).

[2] Participates in the ABMS Portfolio Program.

[3] Improving alignment between national value-based reporting requirements and continuing certification programs.

[4] Aligning MOC activities with physician well-being, public health initiatives, and national quality strategies via the ABMS MOC Directory.

APPENDIX G - Alternative Pathways to Board Recertification*

Recertification Program	Recertification Requirements	Exceptions
American Board of Medical Specialties (ABMS) Maintenance of Certification (MOC) The ABMS (abms.org), founded in 1933 as the Federation of Independent Specialty Boards, bases its certification on collective standards of training, experience, and ethical behavior. Each of the ABMS member boards develops its specific standards for certification, and together they certify more than 880,000 allopathic and osteopathic physicians in 40 primary specialties and 85 subspecialties. The wide-scale use of ABMS board certification is reflected in both training and delivery systems, and based on core competencies developed and adopted by the ABMS and the Accreditation Council for Graduate Medical Education (ACGME): practice-based learning and improvement, patient care and procedural skills, systems-based practice, medical knowledge, interpersonal and communication skills, and professionalism.	The continuing board certification requirements differ among the ABMS member boards; however, at minimum, to be eligible for recertification, diplomates must meet the standards in each of these areas: • Part I: Professionalism and Professional Standing (maintain a valid, unrestricted medical license) • Part II: Lifelong Learning and Self-Assessment (complete a minimum of 25 continuing medical education [CME] credits per year [averaged over 2 to 5 years]) • Part III: Assessment of Knowledge, Judgment, and Skills (pass a secure examination to assess cognitive skills at periodic intervals) • Part IV: Improvement in Medical Practice (participate in practice assessment and quality improvement every 2 to 5 years)	Diplomates with lifetime (grandfathered) certification are not required to participate in the ABMS MOC program.
American Osteopathic Association (AOA) Osteopathic Continuous Certification (OCC) The AOA Bureau of Osteopathic Specialists (AOA-BOS) (osteopathic.org/inside-aoa/development/aoa-board-certification/Pages/bos-history.aspx) was organized in 1939 as the Advisory Board for Osteopathic Specialists to meet the needs resulting from the growth of specialization in the osteopathic profession. Today, 18 AOA-	Osteopathic physicians who hold a time-limited certificate are required to participate in the following five components of OCC to maintain osteopathic board certification: • Component 1 - Active Licensure (maintain a valid, active license to practice medicine in one of the 50 states, and adhere to the AOA's Code of Ethics) • Component 2 – Life Long Learning/CME (fulfill a minimum of 120 - 150 hours of CME credit during each 3-year CME cycle)	Osteopathic physicians who hold non-time-limited (non-expiring) certificates are not required to participate in OCC. To maintain their certification, they must continue to meet licensure, membership, and CME requirements (120-150 credits every three-year CME cycle, 30 of which are in AOA CME Category 1A).

BOS specialty certifying boards offer osteopathic physicians the option to earn board certification and recertification in numerous specialties and subspecialties. As of December 31, 2007, 31,762 physicians were certified by the AOA, and 1,357 diplomates completed OCC.	• Component 3 - Cognitive Assessment (pass one, or more, proctored examinations to assess specialty medical knowledge and core competencies in the provision of health care) • Component 4 - Practice Performance Assessment and Improvement (engage in continuous quality improvement through comparison of personal practice performance measured against national standards for the physician's medical specialty) • Component 5 - Continuous AOA Membership	
American Board of Physician Specialties (ABPS) ABPS (abpsus.org) is a multi-specialty board certifying body of the American Association of Physician Specialists (AAPS), Inc., which was founded by surgeons in 1950. The member boards of the ABPS offer specialty certification examinations for qualified allopathic and osteopathic physicians. The ABPS is governed by a board of directors and chief executive officer, who oversee eligibility requirements and testing standards. The 12-member boards of the ABPS offer certification in 18 specialties. To achieve recertification, an ABPS board certified physician must participate in a regular schedule of maintenance and enhancement of competency (MAEC) in his or her specialty.	The eligibility requirements for recertification differ among the ABPS member boards; however, at minimum, the boards require that physicians meet the following MAEC requirements every 8 years: • Maintain a full and unrestricted license in every state where he or she practices • Complete a non-remedial medical ethics program • Complete 400 CME hours during the 8-year cycle, and must have had at least an average of 25 CME hours per year in his or her specialty (also, an average of 50 questions of self-assessment CME examinations [as approved by the physician's certifying board] must be completed annually until the final year of the 8-year cycle.) • Pass a 100-question, securely administered, written examination in the final year of the 8-year cycle	Physician recertification through the ABMS and the AOA-BOS does not preclude practicing physicians who qualify from seeking recertification through the ABPS. Many of the ABPS Diplomates in leadership positions are dual-certified through the ABPS and either the ABMS or AOA-BOS.
National Board of Physicians and Surgeons (NBPAS) The NBPAS (nbpas.org) offers a two-year recertification program in all current ABMS specialties for physicians (MDs and DOs) who meet its criteria. The NBPAS has more than 6,000 participants, and is working to gain acceptance by hospitals and payers. As of January 1, 2018, 70 hospitals (credentials committees, medical executive committees and/or hospital boards) had voted to accept the NBPAS as an alternative to ABMS recertification.	To be eligible for NBPAS recertification, candidates must meet the following criteria: • Previous certification by ABMS/AOA member board • Valid medical license (hold a valid, unrestricted license to practice medicine in at least one U.S. state; candidates who only hold a license outside of the U.S. must provide evidence of an unrestricted license from a valid non-U.S. licensing body) • Submission of CME credits (complete a minimum of 50 hours of CME within the past 24 months; CME must be related to one or more of the specialties in which the candidate is applying; and re-entry for physicians with lapsed certification requires 100 hours of CME within the past 24 months) • Active hospital privileges (for some specialties, i.e., interventional cardiology, electrophysiology, surgical specialties, must have active privileges to practice that specialty in at least one U.S. hospital licensed by a nationally recognized credentialing organization with authority from the Centers for Medicare & Medicaid Services (CMS), i.e., The Joint Commission, Healthcare Facilities Accreditation Program, and DNV [Det Norske Veritas] Healthcare) • Medical staff appointment/membership (a candidate who has had their medical staff appointment/ membership or clinical	Physicians in or within two years of training are exempt from CME requirements. Physicians who are grandfathered and whose certification has not, by definition, expired must have completed at least 50 hours (not 100 hours) of CME in the past 24 months.

	privileges in the specialty for which they are seeking certification involuntarily revoked and not reinstated, must have subsequently maintained medical staff appointment/membership or clinical privileges for at least 24 months in another U.S. hospital licensed by a nationally recognized credentialing organization with authority from CMS [as listed above])	
American Board of Facial Plastic and Reconstructive Surgery (ABFPRS) The ABFPRS (abfprs.org) was established in 1986 to improve the quality of medical and surgical treatment available to the public by examining for professional expertise in facial plastic and reconstructive surgery. Since January 2001, the certificates issued by the ABFPRS been valid for 10 years only. Diplomates who were certified since then and who want to maintain their certification must participate in the ABFPRS Maintenance of Certification in Facial Plastic and Reconstructive Surgery® (MOC in FPRS®) program. As of January 2019, the total number of active ABFPRS diplomates was 1,353 and of these 333 diplomates have completed the MOC in FPRS requirements.	ABFPRS recertification has four components. To be eligible for recertification, diplomates must meet standards in each of these four areas: 1. Professional Standing: • Previous certification by the ABFPRS, American Board of Otolaryngology, American Board of Plastic Surgery or Royal College of Physicians and Surgeons of Canada in otolaryngology/head-and-neck surgery or plastic surgery • An unrestricted U.S. or Canadian medical license • Acceptable responses to a questionnaire regarding past or pending adverse actions • Satisfactory status with the Federation of State Medical Boards and the National Practitioners Data Bank • Documentation of privileges to practice facial plastic surgery in an accredited institution(s) or facility • Compliance with the ABFPRS Code of Ethics 2. CME: Complete 50 hours of CME during the 2 years preceding recertification 3. Cognitive Expertise: Pass proctored written and oral examinations 4. Practice Performance: Submit a 12-month sequential operative log of eligible procedures performed during the year preceding submission of an application, with a minimum of 50 procedures, and operative reports for the last 35 sequential cases on the operative log	
American Board of Cosmetic Surgery (ABCS) The ABCS (americanboardcosmeticsurgery.org), established in 1979, offers board certification exclusively in cosmetic surgery to qualifying surgeons. As of January 4, 2019, approximately 350 surgeons were certified by the ABCS. ABCS certification is valid for 10 years. All ABCS diplomates must be re-examined and complete all recertification requirements prior to completion of their 10th year of certification.	To be eligible for recertification, a surgeon must: • Hold at least one board certificate, recognized by the ABMS or the equivalent from the AOA, Royal College of Physicians and Surgeons of Canada, or American Board of Oral & Maxillofacial Surgery, in one of nine medical specialties related to cosmetic surgery • Maintain an unrestricted medical license • Complete 75 hours of CME during the immediate 3-years preceding recertification • Pass a comprehensive written exam • Demonstrate a high level of patient satisfaction based on surveys	

* The information in this table is sourced from the noted recertification program websites and is current as of January 15, 2019.

APPENDIX H - Recommended Changes to HOD Policies Related to Maintenance of Certification and Osteopathic Continuous Certification

H-275.924, ~~Maintenance of Certification~~ Continuing Board Certification

AMA Principles on ~~Maintenance of Certification~~ Continuing Board Certification (~~MOC~~CBC)

1. Changes in specialty-board certification requirements for ~~MOC~~CBC programs should be longitudinally stable in structure, although flexible in content.
2. Implementation of changes in ~~MOC~~CBC must be reasonable and take into consideration the time needed to develop the proper ~~MOC~~CBC structures as well as to educate physician diplomates about the requirements for participation.
3. Any changes to the ~~MOC~~CBC process for a given medical specialty board should occur no more frequently than the intervals used by that specialty board for MOC.
4. Any changes in the ~~MOC~~CBC process should not result in significantly increased cost or burden to physician participants (such as systems that mandate continuous documentation or require annual milestones).
5. ~~MOC~~CBC requirements should not reduce the capacity of the overall physician workforce. It is important to retain a structure of ~~MOC~~CBC programs that permits physicians to complete modules with temporal flexibility, compatible with their practice responsibilities.
6. Patient satisfaction programs such as The Consumer Assessment of Healthcare Providers and Systems (CAHPS) patient survey are neither appropriate nor effective survey tools to assess physician competence in many specialties.
7. Careful consideration should be given to the importance of retaining flexibility in pathways for ~~MOC~~CBC for physicians with careers that combine clinical patient care with significant leadership, administrative, research and teaching responsibilities.
8. Legal ramifications must be examined, and conflicts resolved, prior to data collection and/or displaying any information collected in the process of ~~MOC~~CBC. Specifically, careful consideration must be given to the types and format of physician-specific data to be publicly released in conjunction with ~~MOC~~CBC participation.
9. Our AMA affirms the current language regarding continuing medical education (CME): "Each Member Board will document that diplomates are meeting the CME and Self-Assessment requirements for ~~MOC~~CBC Part II. The content of CME and self-assessment programs receiving credit for ~~MOC~~CBC will be relevant to advances within the diplomate's scope of practice, and free of commercial bias and direct support from pharmaceutical and device industries. Each diplomate will be required to complete CME credits (AMA PRA Category 1 Credit", American Academy of Family Physicians Prescribed, American College of Obstetricians and Gynecologists, and/or American Osteopathic Association Category 1A)."
10. In relation to ~~MOC~~CBC Part II, our AMA continues to support and promote the AMA Physician's Recognition Award (PRA) Credit system as one of the three major credit systems that comprise the foundation for continuing medical education in the U.S., including the Performance Improvement CME (PICME) format; and continues to develop relationships and agreements that may lead to standards accepted by all U.S. licensing boards, specialty boards, hospital credentialing bodies and other entities requiring evidence of physician CME.
11. ~~MOC~~CBC is but one component to promote patient safety and quality. Health care is a team effort, and changes to ~~MOC~~CBC should not create an unrealistic expectation that lapses in patient safety are primarily failures of individual physicians.
12. ~~MOC~~CBC should be based on evidence and designed to identify performance gaps and unmet needs, providing direction and guidance for improvement in physician performance and delivery of care.
13. The ~~MOC~~CBC process should be evaluated periodically to measure physician satisfaction, knowledge uptake and intent to maintain or change practice.
14. ~~MOC~~CBC should be used as a tool for continuous improvement.
15. The ~~MOC~~CBC program should not be a mandated requirement for licensure, credentialing, recredentialing, privileging, reimbursement, network participation, employment, or insurance panel participation.
16. Actively practicing physicians should be well-represented on specialty boards developing ~~MOC~~CBC.
17. Our AMA will include early career physicians when nominating individuals to the Boards of Directors for ABMS member boards.
18. ~~MOC~~CBC activities and measurement should be relevant to clinical practice.
19. The ~~MOC~~CBC process should be reflective of and consistent with the cost of development and administration of the ~~MOC~~CBC components, ensure a fair fee structure, and not present a barrier to patient care.
20. Any assessment should be used to guide physicians' self-directed study.
21. Specific content-based feedback after any assessment tests should be provided to physicians in a timely manner.
22. There should be multiple options for how an assessment could be structured to accommodate different learning styles.
23. Physicians with lifetime board certification should not be required to seek recertification.
24. No qualifiers or restrictions should be placed on diplomates with lifetime board certification recognized by the ABMS related to their participation in ~~MOC~~CBC.
25. Members of our House of Delegates are encouraged to increase their awareness of and participation in the proposed changes to physician self-regulation through their specialty organizations and other professional membership groups.
26. The initial certification status of time-limited diplomates shall be listed and publicly available on all American Board of Medical Specialties (ABMS) and ABMS Member Boards websites and physician certification databases. The names and initial certification status of time-limited diplomates shall not be removed from ABMS and ABMS Member Boards websites or physician certification databases even if the diplomate chooses not to participate in ~~MOC~~CBC.

27. Our AMA will continue to work with the national medical specialty societies to advocate for the physicians of America to receive value in the services they purchase for ~~Maintenance of Certification~~Continuing Board Certification from their specialty boards. Value in ~~MOC~~CBC should include cost effectiveness with full financial transparency, respect for physicians time and their patient care commitments, alignment of ~~MOC~~CBC requirements with other regulator and payer requirements, and adherence to an evidence basis for both ~~MOC~~CBC content and processes.
(CME Rep. 16, A-09 Reaffirmed: CME Rep. 11, A-12 Reaffirmed: CME Rep. 10, A-12 Reaffirmed in lieu of Res. 313, A-12 Reaffirmed: CME Rep. 4, A-13 Reaffirmed in lieu of Res. 919, I-13 Appended: Sub. Res. 920, I-14 Reaffirmed: CME Rep. 2, A-15 Appended: Res. 314, A-15 Modified: CME Rep. 2, I-15 Reaffirmation A-16 Reaffirmed: Res. 309, A-16 Modified: Res. 307, I-16 Reaffirmed: BOT Rep. 05, I-16 Appended: Res. 319, A-17 Reaffirmed in lieu of: Res. 322, A-17 Modified: Res. 953, I-17)"

D-275.954, ~~Maintenance of Certification and Osteopathic Continuous Certification~~ Continuing Board Certification
Our AMA will:
1. Continue to monitor the evolution of ~~Maintenance of Certification (MOC) and Osteopathic Continuous Certification (OCC)~~Continuing Board Certification (CBC), continue its active engagement in discussions regarding their implementation, encourage specialty boards to investigate and/or establish alternative approaches for ~~MOC~~CBC, and prepare a yearly report to the House of Delegates regarding the ~~MOC and OCC~~CBC process.
2. Continue to review, through its Council on Medical Education, published literature and emerging data as part of the Council's ongoing efforts to critically review ~~MOC and OCC~~CBC issues.
3. Continue to monitor the progress by the American Board of Medical Specialties (ABMS) and its member boards on implementation of ~~MOC~~CBC, and encourage the ABMS to report its research findings on the issues surrounding certification and ~~MOC~~CBC on a periodic basis.
4. Encourage the ABMS and its member boards to continue to explore other ways to measure the ability of physicians to access and apply knowledge to care for patients, and to continue to examine the evidence supporting the value of specialty board certification and ~~MOC~~CBC.
5. Work with the ABMS to streamline and improve the Cognitive Expertise (Part III) component of ~~MOC~~CBC, including the exploration of alternative formats, in ways that effectively evaluate acquisition of new knowledge while reducing or eliminating the burden of a high-stakes examination.
6. Work with interested parties to ensure that ~~MOC~~CBC uses more than one pathway to assess accurately the competence of practicing physicians, to monitor for exam relevance and to ensure that ~~MOC~~CBC does not lead to unintended economic hardship such as hospital de-credentialing of practicing physicians.
7. Recommend that the ABMS not introduce additional assessment modalities that have not been validated to show improvement in physician performance and/or patient safety.
8. Work with the ABMS to eliminate practice performance assessment modules, as currently written, from ~~MOC~~CBC requirements.
9. Encourage the ABMS to ensure that all ABMS member boards provide full transparency related to the costs of preparing, administering, scoring and reporting ~~MOC~~CBC and certifying examinations.
10. Encourage the ABMS to ensure that ~~MOC~~CBC and certifying examinations do not result in substantial financial gain to ABMS member boards, and advocate that the ABMS develop fiduciary standards for its member boards that are consistent with this principle.
11. Work with the ABMS to lessen the burden of ~~MOC~~CBC on physicians with multiple board certifications, particularly to ensure that ~~MOC~~CBC is specifically relevant to the physician's current practice.
12. Work with key stakeholders to (a) support ongoing ABMS member board efforts to allow multiple and diverse physician educational and quality improvement activities to qualify for ~~MOC~~CBC; (b) support ABMS member board activities in facilitating the use of ~~MOC~~CBC quality improvement activities to count for other accountability requirements or programs, such as pay for quality/performance or PQRS reimbursement; (c) encourage ABMS member boards to enhance the consistency of quality improvement programs across all boards; and (d) work with specialty societies and ABMS member boards to develop tools and services that help physicians meet ~~MOC~~CBC requirements.
13. Work with the ABMS and its member boards to collect data on why physicians choose to maintain or discontinue their board certification.
14. Work with the ABMS to study whether ~~MOC~~CBC is an important factor in a physician's decision to retire and to determine its impact on the US physician workforce.
15. Encourage the ABMS to use data from ~~MOC~~CBC to track whether physicians are maintaining certification and share this data with the AMA.
16. Encourage AMA members to be proactive in shaping ~~MOC and OCC~~CBC by seeking leadership positions on the ABMS member boards, American Osteopathic Association (AOA) specialty certifying boards, and ~~MOC~~CBC Committees.
17. Continue to monitor the actions of professional societies regarding recommendations for modification of ~~MOC~~CBC.
18. Encourage medical specialty societies' leadership to work with the ABMS, and its member boards, to identify those specialty organizations that have developed an appropriate and relevant ~~MOC~~CBC process for its members.
19. Continue to work with the ABMS to ensure that physicians are clearly informed of the ~~MOC~~CBC requirements for their specific board and the timelines for accomplishing those requirements.
20. Encourage the ABMS and its member boards to develop a system to actively alert physicians of the due dates of the multi-stage requirements of continuous professional development and performance in practice, thereby assisting them with maintaining their board certification.
21. Recommend to the ABMS that all physician members of those boards governing the ~~MOC~~CBC process be required to participate in ~~MOC~~CBC.

22. Continue to participate in the National Alliance for Physician Competence forums.

23. Encourage the PCPI Foundation, the ABMS, and the Council of Medical Specialty Societies to work together toward utilizing Consortium performance measures in Part IV of ~~MOC~~CBC.

24. Continue to assist physicians in practice performance improvement.

25. Encourage all specialty societies to grant certified CME credit for activities that they offer to fulfill requirements of their respective specialty board's ~~MOC~~CBC and associated processes.

26. Support the American College of Physicians as well as other professional societies in their efforts to work with the American Board of Internal Medicine (ABIM) to improve the ~~MOC~~CBC program.

27. Oppose those maintenance of certification programs administered by the specialty boards of the ABMS, or of any other similar physician certifying organization, which do not appropriately adhere to the principles codified as AMA Policy on ~~Maintenance of Certification~~ Continuing Board Certification.

28. Ask the ABMS to encourage its member boards to review their maintenance of certification policies regarding the requirements for maintaining underlying primary or initial specialty board certification in addition to subspecialty board certification, if they have not yet done so, to allow physicians the option to focus on ~~maintenance of certification~~ continuing board certification activities relevant to their practice.

29. Call for the immediate end of any mandatory, secured recertifying examination by the ABMS or other certifying organizations as part of the recertification process for all those specialties that still require a secure, high-stakes recertification examination.

30. Support a recertification process based on high quality, appropriate Continuing Medical Education (CME) material directed by the AMA recognized specialty societies covering the physician's practice area, in cooperation with other willing stakeholders, that would be completed on a regular basis as determined by the individual medical specialty, to ensure lifelong learning.

31. Continue to work with the ABMS to encourage the development by and the sharing between specialty boards of alternative ways to assess medical knowledge other than by a secure high stakes exam.

32. Continue to support the requirement of CME and ongoing, quality assessments of physicians, where such CME is proven to be cost-effective and shown by evidence to improve quality of care for patients.

33. Through legislative, regulatory, or collaborative efforts, will work with interested state medical societies and other interested parties by creating model state legislation and model medical staff bylaws while advocating that ~~Maintenance of Certification~~ Continuing Board Certification not be a requirement for: (a) medical staff membership, privileging, credentialing, or recredentialing; (b) insurance panel participation; or (c) state medical licensure.

34. Increase its efforts to work with the insurance industry to ensure that ~~maintenance of certification~~ continuing board certification does not become a requirement for insurance panel participation.

35. Advocate that physicians who participate in programs related to quality improvement and/or patient safety receive credit for ~~MOC~~CBC Part IV.

36. Continue to work with the medical societies and the American Board of Medical Specialties (ABMS) member boards that have not yet moved to a process to improve the Part III secure, high-stakes examination to encourage them to do so.

37. Through its Council on Medical Education, continue to be actively engaged in following the work of the ABMS Continuing Board Certification: Vision for the Future Commission.

38. (a) Submit commentary to the American Board of Medical Specialties (ABMS) Continuing Board Certification: Vision for the Future initiative, asking that junior diplomates be given equal opportunity to serve on ABMS and its member boards; and (b) work with the ABMS and member boards to encourage the inclusion of younger physicians on the ABMS and its member boards.

39. Continue studying the certifying bodies that compete with the American Board of Medical Specialties and provide an update in the Council on Medical Education s annual report on maintenance of certification at the 2019 Annual Meeting.

(CME Rep. 2, I-15 Appended: Res. 911, I-15 Appended: Res. 309, A-16 Appended: CME Rep. 02, A-16 Appended: Res. 307, I-16 Appended: Res. 310, I-16 Modified: CME Rep. 02, A-17 Reaffirmed: Res. 316, A-17 Reaffirmed in lieu of: Res. 322, A-17 Appended: CME Rep. 02, A-18 Appended: Res. 320, A-18 Appended: Res. 957, I-18)

3. STANDARDIZING THE RESIDENCY MATCH SYSTEM AND TIMELINE

Reference committee hearing: see report of Reference Committee C.

HOUSE ACTION: RECOMMENDATIONS ADOPTED AS FOLLOWS
                  REMAINDER OF REPORT FILED
                  See Policy H-310.910

INTRODUCTION

Council on Medical Education Report 6-A-17 recommended, in part, that our American Medical Association (AMA):

- Encourage the Association of University Professors of Ophthalmology, the American Urological Association and other appropriate stakeholders to move ophthalmology and urology, which have early matches, into the National Resident Matching Program (NRMP); and

- Encourage the NRMP to create a sequential match process for those specialties that require a preliminary year of training, thus allowing a match to a PGY-2 position to be followed later by a second match to a PGY-1 position, which would reduce applicants' expenses for applications and travel.

At the 2017 Annual Meeting, testimony before Reference Committee C and the House of Delegates reflected almost evenly mixed testimony on this report. Representatives of the affected disciplines (ophthalmology and urology) argued that the current match system works well, provides savings in travel costs, and minimizes inconvenience. In addition, those who are unsuccessful in the ophthalmology or urology match can pursue a position in the NRMP match. It was also noted that it is impossible to guarantee that the complex match algorithm run by the NRMP could accommodate a sequential match. Others argued in favor of the report's adoption, to level the playing field for all medical students; simplify couples' matching (particularly for couples who are in separate matches); and heighten the opportunity for students to be exposed (during their fourth-year rotations) to fields that might be rewarding choices. The HOD referred recommendations 2 and 3, which are shown above; recommendation 1 was adopted (D-310.977 [16], "National Resident Matching Program Reform").

This report by the Council on Medical Education includes: 1) a brief summary of CME Report 6-A-17; 2) a description of recent changes in matching status for urology and ophthalmology specialties; 3) an accounting of the number of specialties and programs that currently require applicants to simultaneously match into a preliminary year of training and a second year of training that could participate in a sequential match; and 4) the results of discussions with the NRMP regarding a sequential match.

BACKGROUND

The specialties of ophthalmology and urology have had their own match programs for many years, primarily because both specialties require a preliminary year of training. Typically, for ophthalmology, residents spend that first postgraduate year, or PGY-1, in a transitional or internal medicine program; for urology, the PGY-1 year is spent in general surgery. The matches for ophthalmology and urology occur in January (earlier in the academic year than for specialties that secure matches through the NRMP), which allows applicants successfully matched into ophthalmology or urology PGY-2 positions to then attempt to match into PGY-1 positions in the NRMP. For some applicants, this system can be advantageous.

For example, successful applicants to early match programs will have resolved some or all of the guesswork involved in finding a PGY-1 position. Receiving interview offers for a PGY-2 position in a particular geographic area can help in application and interview strategies for a PGY-1 position, and once the match has occurred, the applicant can submit a tailored rank order list for the PGY-1 position. Potentially unsuccessful candidates who do not receive interview offers from early match programs will still have time to apply to programs in other specialties.

The limitations of the early match process, however, include additional planning, a drawn-out application and interview season, and substantial financial costs for the applicant (especially for ophthalmology applicants), without the advantages available through the NRMP. Since 1988 the NRMP has had the capability to match applicants simultaneously into PGY-1 and PGY-2 positions, by creating a supplemental rank order list. This process is used by many applicants to programs that have advanced positions, such as radiology, which requires a preliminary PGY-1 position. Furthermore, the NRMP allows two applicants to link their rank order lists in such a way as to maximize their opportunity to match into programs in the same geographic area—the so-called "couples match." Neither of these more sophisticated matching processes is available in the early match programs. Finally, the NRMP offers far more detailed match analyses and statistics, which can assist applicants and their advisors in crafting match strategy.

The two specialties that hold early matches are the primary beneficiaries of the current system. Ophthalmology and urology are able to control their own matches and peruse, interview, and claim future residents before other specialties. In addition, applicant match fees generate funds through which the specialties can create educational resources.

Council on Medical Education Report 6-A-17 concluded that if the NRMP were able to hold a sequential match, the advantages to applicants of participating in two matches, i.e., being able to reduce the number of applications sent and limit travel for interviews for a preliminary year position, could be extended to applicants in such specialties that require a preliminary year.

CHANGES IN TRAINING LENGTH AND REQUIREMENTS

Both ophthalmology and urology specialties have proposed revisions to the length of training required in their respective specialties, which would affect the necessity for two separate matches.

Ophthalmology

Currently, Accreditation Council for Graduate Medical Education (ACGME) program requirements for ophthalmology state that the length of the training program must be 36 months, and that prior to appointment to a program, residents must have completed a postgraduate clinical year in an ACGME-accredited program (or a program located and accredited in Canada) in emergency medicine, family medicine, internal medicine, neurology, obstetrics and gynecology, pediatrics, surgery, or transitional year. This has been the established length and sequence of ophthalmology training for many years.

In 2013, the American Academy of Ophthalmology and the Association of University Professors of Ophthalmology (AUPO) identified a need to restructure the PGY-1 year.[1] In August 2018, the ACGME review committee for ophthalmology proposed revisions to the program requirements, which were accepted by the ACGME Board of Directors in February 2019. The revisions to ophthalmology program requirements regarding the PGY-1 year go into effect July 2021.[2]

Education in ophthalmology will then become 48 months in length, in one of two formats: an integrated format in which all 48 months are under the authority and direction of the ophthalmology program director, or in a joint/preliminary format, in which a preliminary year precedes 36 months of education in an ophthalmology program. In the latter case, the preliminary year will take place in the same institution that sponsors the ophthalmology program, and the ophthalmology program director will have input into the PGY-1 education. Regardless of format, all residents must have three months of ophthalmology education during the PGY-1 year.[2]

Recognizing that these revisions may require significant changes for existing programs, the ACGME will not administer citations to programs for not having an integrated or joint/preliminary program and related PGY-1 requirements until after July 2023; furthermore, programs that are unable to establish either format may request an exception from the Review Committee.[3]

Once these requirements are in place, the need for applicants to use the NRMP to match into PGY-1 positions after they have matched into an ophthalmology program using the San Francisco Match (SF Match, the matching service used by ophthalmology programs, owned by the AUPO) may be reduced, at least for those applicants matching into integrated programs. While the review committee notes that a "number" of programs are currently in the joint/preliminary format, an exact count is not known. Given the coordination and negotiation that ophthalmology programs will have to undertake with other training programs (such as transitional year programs) to ensure that there will be PGY-1 positions at the sponsoring institution with three months of ophthalmology experience, it may be some time before all programs are fully compliant with these requirements. If all programs were to become fully integrated, the need for a separate match that takes place before or outside of the NRMP's Main Residency Match would seem to be obviated. As an example, the specialties of otolaryngology and neurosurgery previously participated in the San Francisco Match, but joined the NRMP once the decision was made to fully integrate the PGY-1 year. However, ophthalmology's history with the SF Match, and the revenue it generates for the AUPO, may lead the organization to continue to operate the match separately.

Urology

In October 2017, the ACGME review committee for urology proposed, as part of the decennial major revision for urology training, to change the accredited training length from 48 months to 60 months by encompassing the PGY-1 year. These revisions accepted by the ACGME Board in June 2018 and go into effect in July 2019.[4] Previously, residents who entered urology in the PGY-2 year spent the PGY-1 year in a general surgery program. When the revisions take effect, residents will no longer need to use the NRMP to match into the general surgery year. Senior medical students will use the Electronic Residency Application Service (ERAS) to apply to urology programs only (no longer applying to surgical programs as well) and will continue to use the match service run by the American Urological Association (AUA) to match directly into a urology program. Given the urology profession's satisfaction

in controlling the match, as well the perceived benefits of holding the match earlier in the year than the NRMP match, it is unlikely that urology will join the NRMP at this time.[5]

SPECIALTIES WITH TWO MATCHES

In the NRMP's 2018 Main Residency Match, there were 11 specialties with PGY-2 (advanced) positions, as shown in the table below.[6]

Specialty	No. of programs	No. of positions
Anesthesiology	75	447
Child neurology	7	8
Dermatology	122	426
Interventional radiology (integrated)	51	98
Neurodevelopmental disabilities	3	4
Neurology	55	287
Nuclear medicine	2	3
Physical medicine & rehabilitation	61	281
Radiation oncology	85	177
Radiology-diagnostic	171	944
Radiology-nuclear medicine	3	3
Total	635	2,678

Of the 4,780 applicants ranking at least one PGY-2 position combined with a PGY-1 position, 2,244 individuals matched to both. Many of the 4,780 applicants also ranked categorical positions as well; most of the 2,536 who did not match into both a PGY-1 and PGY-2 position were successfully matched to another position.[7]

The proportion of programs with advanced positions and the proportion of advanced positions offered have decreased over time. In the 2008 Main Residency Match, 14.5 percent of all participating programs offered PGY-2 positions, and PGY-2 positions made up 11.3 percent of all positions offered.[8] In 2018, those percentages had declined to 11.9 percent and 8.1 percent, respectively.[6]

DISCUSSIONS WITH THE NRMP

The NRMP has previously considered a two-phased Main Residency Match for the purpose of eliminating the "Scramble" that occurred during Match Week. Although applicants, medical schools, and residency program directors liked the idea of a two-phased Match, they did not like the schedule. Medical schools did not want the Match to occur earlier than March because it would further erode the fourth-year curriculum, and program directors did not want a final Match Day to occur later than the month of March because of difficulties on-boarding new residents. A second Match designed to fill preliminary positions would be difficult to implement not just because of scheduling, but also because the significant cost could not be justified for a relatively small number of positions. The majority of applicants are able to match simultaneously to PGY-1 and PGY-2 positions. Applicants ranking PGY-2 positions in advanced programs can create and attach a supplemental rank order list of preliminary programs to each advanced program. Also, many programs with advanced positions have agreements with programs with preliminary positions at the same institution to coordinate interviewing applicants at the same time and to create joint advanced/preliminary arrangements so that applicants can match simultaneously into a full course of training.[9]

The NRMP also has fielded questions regarding Match flexibility and scheduling for applicants who have graduated from medical school "off-cycle," a potential result of participating in a competency-based medical school educational program. The NRMP's All In Policy states that a residency program that registers for the Main Residency Match must attempt to fill all of its positions through the Match. Offering a position outside the Match makes the program ineligible for the Match, unless the program has been granted an exception. To date, the NRMP Board of Directors has not granted an exception for competency-based curricula, although it is reviewing an exception request submitted by the Education in Pediatrics Across the Continuum (EPAC) Project. It is important to note, however, that if a program has a position that becomes available after September, and training can begin before February 1, that position can be filled off-cycle without jeopardizing the program's adherence to the All In Policy.

CURRENT AMA POLICY

AMA policies related to this topic are listed in the Appendix.

SUMMARY AND RECOMMENDATIONS

Recently proposed revisions to the program requirements for ophthalmology and urology have changed the dynamics of the early match. The concerns expressed by those applicants who needed to participate in two separate matches for a urology position have been alleviated, as the match run by the AUA will now include PGY-1 positions. Those who do not successfully match into a urology program will still have the opportunity to apply to, interview for, and rank a program in the NRMP. A somewhat similar situation exists for students applying to ophthalmology programs. Even though the new integrated and joint/preliminary format changes more closely incorporate the PGY-1 year, the specialty's desire to control the match process suggests that, at least in the near future, there will continue to be two matches. However, applicants entering the ophthalmology and urology matches do not have the opportunity to fully participate in the NRMP "couples match," nor do they benefit from insight provided by the sophisticated data analysis and reports prepared by the NRMP. Additionally, preservation of this two-step match process may reduce applicants' exposure (during their fourth-year rotations) to fields that they might have otherwise enjoyed as a result of the earlier commitment to registering for the ophthalmology or urology match.

While the NRMP has investigated the possibility of a sequential match, which could reduce application and interview costs for students applying to programs with advanced positions, at this time it has concluded that the amount of coordination, cooperation, and costs involved were not justified given the relatively small number of students affected. However, the NRMP is exploring if it is possible to provide exceptions to programs that wish to accept students who graduate from competency-based medical education programs at off-cycle times.

The Council on Medical Education therefore recommends that the following recommendations be adopted and that the remainder of the report be filed:

1. That our AMA encourage appropriate stakeholders to explore options to decrease the burden upon medical students who must apply to separate preliminary PGY-1 and categorical PGY-2 positions.

2. That our AMA work with the Accreditation Council for Graduate Medical Education to encourage programs with PGY-2 positions in the National Resident Matching Program (NRMP) with insufficient availability of local PGY-1 positions to create local PGY-1 positions that will enable coordinated applications and interviews for medical students.

3. That our AMA encourage the NRMP, the San Francisco Match, the American Urological Association, the Electronic Residency Application Service, and other stakeholders to reduce barriers for medical students, residents, and physicians applying to match into training programs, including barriers to "couples matching," and to ensure that all applicants have access to robust, informative statistics to assist in decision-making.

4. That our AMA encourage the NRMP, San Francisco Match, American Urological Association, Electronic Residency Application Service, and other stakeholders to collect and publish data on a) the impact of separate matches on the personal and professional lives of medical students and b) the impact on medical students who are unable to successfully "couples match" with their significant others due to staggered entry into residency, utilization of unlinked match services, or other causes.

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9.   Mona M. Signer, President and CEO, NRMP, personal communication to the AMA Council on Medical Education, November 2018

APPENDIX - Relevant AMA Policy

D-310.977, "National Resident Matching Program Reform"
Our AMA … (7) will work with the NRMP, and other residency match programs, in revising Match policy, including the secondary match or scramble process to create more standardized rules for all candidates including supplication timelines and requirements; (8) will work with the NRMP and other external bodies to develop mechanisms that limit disparities within the residency application process and allow both flexibility and standard rules for applicant; … (16) supports the movement toward a unified and standardized residency application and match system for all non-military residencies.

H-310.910, "Preliminary Year Program Placement"
Our AMA encourages the Accreditation Council for Graduate Medical Education, the American Osteopathic Association, and other involved organizations to strongly encourage residency programs that now require a preliminary year to match residents for their specialty and then arrange with another department or another medical center for the preliminary year of training unless the applicant chooses to pursue preliminary year training separately.

D-310.958, "Fellowship Application Reform"
Our AMA will (1.a) continue to collaborate with the Council of Medical Specialty Societies and other appropriate organizations toward the goal of establishing standardized application and selection processes for specialty and subspecialty fellowship training.

4. AUGMENTED INTELLIGENCE IN MEDICAL EDUCATION
(RESOLUTION 317-A-18)

Reference committee hearing: see report of Reference Committee C.

**HOUSE ACTION: RECOMMENDATIONS ADOPTED AS FOLLOWS
                              IN LIEU OF RESOLUTION 317-A-18
                              REMAINDER OF REPORT FILED**
                              See Policies H-295.857 and D-295.328

INTRODUCTION

At the 2018 Annual Meeting of the American Medical Association (AMA), the AMA House of Delegates (HOD) adopted Policy H-480.940, "Augmented Intelligence in Health Care," which established the AMA's first official policy with respect to augmented intelligence (AI). Among other recommendations, the report called on the AMA to "encourage education for patients, physicians, medical students, other health care professionals, and health administrators to promote greater understanding of the promise and limitations of health care AI."[1]

Also during the 2018 Annual Meeting, Resolution 317-A-18, "Emerging Technologies (Robotics and AI) in Medical School Education," introduced by the Maryland Delegation, was referred for further study. This resolution called on the AMA to (1) encourage medical schools to evaluate and update as appropriate their curriculum to increase students' exposure to emerging technologies, in particular those related to robotics and artificial intelligence; 2) encourage medical schools to provide student access to computational resources like cloud computing services; 3) reaffirm Policy H-480.988, which urges physicians to continue to ensure that, for every patient, technologies will be utilized in the safest and most effective manner by health care professionals; and 4) reaffirm Opinion 1.2.11 of the AMA Code of Ethics and Policy H-480.996, which state the guidelines for the ethical development of medical technology and innovation in health care. Testimony on this item in Reference Committee C was mostly supportive, and noted that medical students will need access to new types of technology to be better prepared for practice. The need for continued

ethical guidance in this area also was referenced. Testimony in opposition argued that the appropriate place for instruction in these new technologies should be at the graduate medical education (GME), rather than undergraduate medical education (UME) level, as many of these solutions are specialty specific. In light of the Council on Medical Education's planned report to the HOD regarding AI across the medical education continuum at the 2019 Annual Meeting, Resolution 317-A-18 was referred for inclusion in this report.

DEFINITION OF ARTIFICIAL AND AUGMENTED INTELLIGENCE

The AMA's Council on Long Range Planning and Development (CLRPD) defines artificial intelligence as "the ability of a computer to complete tasks in a manner typically associated with a rational human being—a quality that enables an entity to function appropriately and with foresight in its environment. True [artificial intelligence] is widely regarded as a program or algorithm that can beat the Turing Test, which states that an artificial intelligence must be able to exhibit intelligent behavior that is indistinguishable from that of a human."[2] Augmented intelligence, meanwhile, is "an alternative conceptualization that focuses on [artificial intelligence's] assistive role, emphasizing the fact that its design enhances human intelligence rather than replaces it."[2]

In its report that led to Policy H-480.940, the Board of Trustees further parsed these two related, but distinct, terms: "Artificial intelligence constitutes a host of computational methods that produce systems that perform tasks normally requiring human intelligence. These computational methods include, but are not limited to, machine image recognition, natural language processing, and machine learning. However, in health care a more appropriate term is 'augmented intelligence,' reflecting the enhanced capabilities of human clinical decision making when coupled with these computational methods and systems."[1]

Examples of AI methods used in medicine include, but are not limited to, machine learning, deep learning, neural networks, and natural language processing. Applications include, but are not limited to, clinical decision support tools, diagnostic support tools, virtual reality, augmented reality, simulation, gamification, and wearables that contribute data to physician decision-making. These technologies can be understood to comprise areas of cognition (such as algorithms), workflow (guidance regarding prioritization), quality (validation of algorithms), and monitoring (peer review for machine learning).

THE NEED FOR POLICY RELATED TO ARTIFICIAL AND AUGMENTED INTELLIGENCE

Almost a decade ago, Peter Densen wrote:

> It is estimated that the doubling time of medical knowledge in 1950 was 50 years; in 1980, 7 years; and in 2010, 3.5 years. In 2020 it is projected to be 0.2 years—just 73 days. Students who began medical school in the autumn of 2010 will experience approximately three doublings in knowledge by the time they complete the minimum length of training (7 years) needed to practice medicine. Students who graduate in 2020 will experience four doublings in knowledge. What was learned in the first 3 years of medical school will be just 6% of what is known at the end of the decade from 2010 to 2020. Knowledge is expanding faster than our ability to assimilate and apply it effectively; and this is as true in education and patient care as it is in research. Clearly, simply adding more material and or time to the curriculum will not be an effective coping strategy—fundamental change has become an imperative.[3]

Since Densen published his predictions, the pace of change in medical education has continued to be a topic of focus and discussion and can be framed as a disruption to traditional instructional methods and timelines. The AMA has long demonstrated a commitment to developing and supporting disruptive advancements in medical education, both autonomously and in partnership with others. This commitment can be seen in the Council on Medical Education's contributions to the 1910 Flexner Report, the establishment of many of the leading U.S. medical education organizations that exist today, the groundbreaking Accelerating Change in Medical Education Consortium, the newly launched Reimagining Residency initiative, and enhanced e-learning content design and delivery. It is therefore appropriate that the AMA now begin work on a body of policy and thoughtful guidance related to AI in medical education, especially as Policy H-480.940, Resolution 317-A-18, and the CLRPD's Primer on Artificial and Augmented Intelligence have clearly demonstrated the urgent need for policy in this area.

DISCUSSION

As with many previously introduced technologies, the potential benefits, risks, and unknowns of incorporating AI into medical education have yet to be fully revealed. The promise of AI in medical education includes the potential for enhanced learning, ultimately resulting in benefit to patients; efficiency gains achieved via a reallocation of physician time; further development of physicians' emotional intelligence skills due to a reduced need to focus on automatable tasks; and enhanced learner evaluations, including the ability to assess competencies prospectively, accurately, and continuously, leading to greater facilitation of independent learning and an elimination of the "stop and test" mindset. Just-in-time assessments and learning interventions may assist with progression through competencies. In the context of the AMA's current focus on health systems science, AI promises to enable more encompassing systems analyses and quality improvement approaches and to introduce computational modeling that may replace cycles of iterative improvements. Additionally, AI in medicine may aid instruction in and delivery of care to rural or otherwise underserved locations.

Concerns, however, also exist, such as the possibility of physician de-skilling as more cognitive tasks are performed by AI; an unintentional reinforcement of health disparities,[4] both in terms of patient health outcomes and for clinicians practicing in less resourced clinical environments; the potential loss of physician humanism and further deterioration of physicians' bedside skills; and the risk of overutilization of AI-delivered care, such as the use of technology for the sake of using technology and the risk of adding to, rather than replacing items in, the curriculum.

Unknowns range from implications for learner wellness to concerns regarding exposure of gaps in faculty knowledge. Incorporation of AI in medical education may streamline learning and clinical workflow, gifting additional time to learners that can be used to focus on patients and self; however, it also has the potential to do the opposite, disrupting and displacing traditional instructional techniques without clear benefits to learners or patients. Other unknowns include the effects of AI on the teaching/modeling of professional judgment; medicolegal and ethical concerns; and rapidly changing regulatory modernization models.

The exposure of gaps in faculty knowledge of AI is already being documented; these gaps may be inhibiting learners who have an active interest in AI applications but lack exposure to knowledgeable faculty to help them understand, access, and apply them. For example, a 2015 publication[5] noted that 30 percent of U.S. medical student survey respondents had interest in clinical informatics, but were not able to identify training opportunities to assist in meeting this desire to learn. These knowledge gaps, however, should not be solely characterized in a negative fashion, as they also present important opportunities for professional development and pave the way for the introduction of new types of instructors into the medical education environment. Gonzalo et al.[6] acknowledge these points, noting the importance of focusing not only on expanding the knowledge base/skill set of current educators, but also of employing a new cohort of educators with skills in new areas. The Council on Medical Education agrees with this characterization and believes that institutional leaders and academic deans must proactively accelerate their inclusion of nonclinicians, such as data scientists and engineers, onto their faculty rosters.

Investments in AI

Private funding of AI technologies has exploded in recent years. One source estimates that the AI health market will grow to $6.6 billion by 2021 and exceed $10 billion by 2024.[7] Another estimate places AI-driven GDP growth at $15.7 trillion by 2030.[8]

The U.S. House of Representatives' Committee on Oversight and Reform, Subcommittee on Information Technology, has specifically noted that one of the benefits of increased U.S. funding for AI research and development would be the ability to fund more graduate students, which in turn would expand the future U.S. AI workforce. On February 11, 2019, President Donald J. Trump issued an Executive Order on Maintaining American Leadership in Artificial Intelligence, which, acknowledges that "[c]ontinued American leadership in AI is of paramount importance to maintaining the economic and national security of the United States and to shaping the global evolution of AI in a manner consistent with our Nation's values, policies, and priorities," and notes that the United States "must train current and future generations of American workers with the skills to develop and apply AI technologies to prepare them for today's economy and jobs of the future." This training will be achieved through "apprenticeships; skills programs; and education in science, technology, engineering, and mathematics (STEM), with an emphasis on computer science, to ensure that American workers, including Federal workers, are capable of taking full advantage of the opportunities of AI."[9]

Additionally, the Centers for Medicare & Medicaid Services has recently committed to investment in this area and has launched an Artificial Intelligence Health Outcomes Challenge,[10] with the goal of "exploring how to harness AI to predict health outcomes that are important to patients and clinicians, and to enhance care delivery."

AI and Education

At the practical level, it is important to distinguish between AI as a topic of study itself and in the instruction of learners regarding use of existing tools and applications. Furthermore, it is important to acknowledge that educating students and physicians in the practical use of specific AI technologies is not necessarily equivalent to educating students and physicians to understand how the technology works or how to evaluate its applicability, appropriateness, and effectiveness with respect to patient care.

An additional consideration will be the need for learners and physicians to adjust their receptivity to machine-recommended learning or clinical actions. The need for this receptivity may in turn spark a discussion regarding the kind of student who should be recruited to enter the profession. Traditionally, while multiple domains of ability have been valued, a premium has been placed on individual mastery of knowledge. Learners who excel at this type of knowledge, however, may not be the same kind of learners who interact effectively with AI systems. Even if learners are receptive to this type of practice, a rise in learning and practice that is less supervised by human instructors and colleagues and more interactive with non-human technologies may negatively impact patient care if recruits to the profession are not able to maintain patient communication and develop critical evaluation skills.

Recent scholarly work has documented this shift in thinking with respect to the goals of medical education.[11] Newer thinking acknowledges the rapid pace of change and emphasizes the need for physicians to analyze, categorize, contextualize, seek, find, and evaluate data and place these data in clinical context, and highlights the position that critical reasoning skills are imperative. Wartman and Combs argue that the physician of the future will require a shift in professional identity, which must be embraced early on in medical education.[11] Furthermore, the dawn of precision medicine introduces treatment possibilities that require physicians flexible enough to think beyond established treatment protocols.[11] These changes require parallel changes in the way medical students, residents, fellows, instructors, and practicing physicians are taught and, in turn, teach.

ACCREDITATION AND LICENSURE IMPLICATIONS

Profound changes to established medical educational content, as well as to methods of instruction, necessitate considered and reflective responses from those organizations that focus on accreditation and licensure. Yet the response in this area regarding the implications of AI in medical education has been varied.

The Liaison Committee on Medical Education (LCME) does not specifically address AI, but several of its standards relate to these concepts:

- Standard 4.1, Sufficiency of Faculty, requires that "A medical school has in place a sufficient cohort of faculty members with the qualifications and time required to deliver the medical curriculum and to meet the other needs and fulfill the other missions of the institution."
- Standard 4.5, Faculty Professional Development, notes, "A medical school and/or its sponsoring institution provides opportunities for professional development to each faculty member in the areas of discipline content, curricular design, program evaluation, student assessment methods, instructional methodology, and research to enhance his or her skills and leadership abilities in these areas."
- Standard 5.4, Sufficiency of Buildings and Equipment, states that "A medical school has, or is assured the use of, buildings and equipment sufficient to achieve its educational, clinical, and research missions."
- Standard 5.6, Clinical Instructional Facilities/Information Resources, requires that "Each hospital or other clinical facility affiliated with a medical school that serves as a major location for required clinical learning experiences has sufficient information resources and instructional facilities for medical student education."
- Standard 5.9, Information Technology Resources/Staff, states that "A medical school must provide access to well-maintained information technology resources sufficient in scope to support its educational and other missions." Further, information technology staff must have "sufficient expertise to fulfill its responsibilities and is responsive to the needs of the medical students, faculty members, and others associated with the institution."
- Standard 6.3, Self-Directed and Life-Long Learning, requires that "The faculty of a medical school ensure that the medical curriculum includes self-directed learning experiences and time for independent study to allow

medical students to develop the skills of lifelong learning. Self-directed learning involves medical students' self-assessment of learning needs; independent identification, analysis, and synthesis of relevant information; and appraisal of the credibility of information sources."

Commission on Osteopathic College Accreditation (COCA) standards are similar:

- Standard 4, Facilities, states that "A COM [college of osteopathic medicine] must have sufficient physical facilities, equipment, and resources for clinical, instructional, research, and technological functions of the COM. These resources must be readily available and accessible across all COM locations to meet its needs, the needs of the students consistent with the approved class size, and to achieve its mission."
- Element 4.3, Information Technology, states that "A COM must ensure access to information technology to support its mission."
- Element 4.4, Learning Resources, requires that "A COM must ensure access to learning resources to support its mission."
- Element 6.7, Self-Directed Learning, requires that "A COM must ensure that the curriculum includes self-directed learning experiences and time for independent study to allow students to develop skills for lifelong learning. Self-directed learning includes students' self-assessment of learning needs; independent identification, analysis, and synthesis of relevant information; and appraisal of the credibility of sources of information."
- Element 7.1, Faculty and Staff Resources and Qualifications, states that "At all educational teaching sites, including affiliated sites, a COM must have sufficient faculty and staff resources to achieve the program mission, including part time and adjunct faculty, and preceptors who are appropriately trained and credentialed. The physician faculty, in the patient care environment, must hold current medical licensure and board certification/board eligibility. The non-physician faculty must have appropriate qualifications in their fields."
- Element 7.6, Faculty Development, states that "A COM must develop and implement an ongoing needs-based, assessment-driven, faculty development program that is in keeping with the COM's mission."

Licensing exams of the National Board of Medical Examiners and the National Board of Osteopathic Medical Examiners do not specifically cover AI.[12] However, the benefits of AI-driven assessments for test preparation and scoring should be further explored, and their potential impacts on costs and student travel/time calculated, in addition to consideration of their inclusion as a topic area in exam content.

The Federation of State Medical Boards (FSMB) recently hosted a conference related to AI and potential impacts on state medical boards. AI can potentially be used to improve physician verification of licensing and credentials. Changes to state medical practice acts and/or model legislation may need to be studied to prepare for AI-driven changes to the practice of medicine.

The Common Program Requirements of the Accreditation Council for Graduate Medical Education (ACGME) do not specifically identify AI, but, as with UME standards from the LCME and COCA, related topics are addressed. Section VI.A.1.b).(2) notes that "access to data is essential to prioritizing activities for care improvement and evaluating success of improvement efforts." Also, Section VI.A.1.b).(2).(a) notes that "residents and faculty members must receive data on quality metrics and benchmarks related to their patient populations." Perhaps a more natural fit for addressing AI at the GME level could be applied through the pathways framework of the ACGME's Clinical Learning Environment Review (CLER) program, which offers programmatic feedback on the topics of patient safety, health care quality, care transitions, supervision, duty hours and fatigue management/mitigation, and professionalism.[13] Data science could be integrated into pathways for each focus area to support learners' exposure to AI-driven changes in clinical practice. Additionally, individual specialty milestones may be an appropriate location for introduction of artificial/augmented intelligence-driven technologies, many of which are specialty-specific.

None of the member boards of the American Board of Medical Specialties (ABMS) currently require education in AI activities for continuing certification credit. However, five boards[14]—the American Board of Anesthesiology, American Board of Emergency Medicine, American Board of Nuclear Medicine, American Board of Obstetrics and Gynecology, and American Board of Pathology—do accept simulation-based activities for their continuing certification Improvement in Medical Practice requirements (although it is important to note that simulation can be conducted without AI algorithms). In addition, the American Board of Family Medicine has several optional online simulated cases that can count toward meeting Lifelong Learning and Self-Assessment activities. The American Board of Internal Medicine also recognizes some simulation activities for Improvement in Medical Practice through a collaboration with the Accreditation Council for Continuing Medical Education. Finally, the ABMS has established a

new pathway for a subspecialty fellowship in clinical informatics, which is hosted through the American Board of Preventive Medicine.

At the continuing professional development level, AI offers great potential to create precision education via further investments in the adaptive quizzing model, which builds upon current trends in digital portfolios to support responsive assessments and prompts learners to assess specific skills at desired time points. Tailored educational content can be delivered to clinicians at precise moments in time, and AI-driven technologies may better identify the learning needs of busy clinicians than the clinicians themselves.

AI IN MEDICAL EDUCATION: A CURRENT SNAPSHOT

An LCME survey from the 2016-2017 academic year included a question asking institutions to indicate whether computer-based simulators (such as virtual dissection simulation) were used in various disciplines to assist students in learning or reviewing relevant anatomy. Of 145 respondents, 78 indicated simulators were used in gross anatomy, 65 in neuroanatomy/neurosciences, 42 in general surgery, 40 in obstetrics-gynecology, and 26 in surgical subspecialties (respondents could select more than one option).

Multiple forms of AI have been incorporated into medical education training, ranging from basic introductory courses in core data science and algorithm fundamentals to artificial intelligence certificate programs and dual areas of study (MD/DO plus data science, programming, statistics, informatics, or biomedical engineering). The overall extent to which these topics currently have been incorporated into medical education, however, is more difficult to quantify. The following list of examples, while not comprehensive, is meant to highlight the breadth and depth of current/planned utilization of AI in medical education today.

- The Duke Institute for Health Innovation (DIHI), which includes an incubator for health technology innovation, involves medical students in a program that joins clinical, quantitative, and data expertise to create care-enhancement technologies. DIHI students and instructors also work to ensure that AI innovations are not being applied to physicians, but rather developed by and for physicians, and that such innovations support improved models of care and incorporate machine learning into clinical processes. One example of an AI application is early identification of disease progression (such as kidney failure or sepsis).

- The radiology department at the University of Florida has entered into a partnership with a cancer-focused technology firm to develop computer-aided detection (CAD) tools for mammographers. Radiologists, including resident physicians, will be involved in the evaluation of trial technologies, which are intended to flag areas of interest in breast imaging. Residents also will participate in training and validating algorithms.

- The Carle Illinois College of Medicine in Urbana-Champaign, self-described as the first engineering-based college of medicine, seeks to leverage technology by offering a curriculum in which all courses are designed by a scientist, a clinical scientist, and an engineer. Engineering and technology comprise components of all classes, and clinical rounds are completed with both clinical and engineering faculty. The inaugural class will graduate in 2022.

- The Sharon Lund Medical Intelligence and Innovation Institute (MI3) at Children's Hospital of Orange County (CHOC) seeks to cultivate artificial intelligence methodologies and advances in genomic medicine, regenerative medicine, robotics, nanotechnology, and medical applications/devices. The MI3 Summer Internship Program at CHOC offers immersive experiences in genomic and personalized medicine, regenerative medicine and stem cells, nanomedicine, robotics and robotic surgery, artificial intelligence and big data, medical devices and mobile technology, and innovations in health care delivery. This program directly supports the pipeline of clinicians with exposure to AI technologies by inviting high school, college, graduate school, and medical school students to apply.

- The Institute for Innovations in Medical Education at New York University (NYU) Langone Health supports a multidisciplinary team of educators, scientists, informaticians, and software developers who apply informatics to teaching, learning, and assessment. NYU's technology-based Health Care by the Numbers curriculum trains students in the use of "big data" to provide holistic, population health management that improves quality and care coordination.

- The Machine Learning and Healthcare Lab at Johns Hopkins uses statistical machine learning techniques to develop new diagnostic and treatment planning tools that provide reliable inferences to help physicians make individualized care decisions.

- Stanford University's Center for Artificial Intelligence in Medicine and Imaging develops, assesses, and disseminates artificial intelligence systems to benefit patients. Graduates and post-graduates are involved in solving imaging problems using machine learning and other techniques. Stanford also offers a mini-curriculum leading to an Artificial Intelligence Graduate Certificate.

- The Human Diagnosis Project, a partnership of the AMA, the ABMS, and multiple academic centers, is an educational collaboration that sources knowledge via the submission of clinical cases from international medical professionals to create models of care that can be accessed by clinicians and learners worldwide.

- Addressing the paradigm shift in medical education, the University of Texas Dell Medical School does not support a chair of radiology or pathology; rather, leadership has identified and employed a chair of diagnostic medicine.

- The University of Virginia Center for Engineering in Medicine works, as stated in its mission, to generate and translate innovative ideas at the intersection of engineering and medicine. In this collaborative training environment, medical and nursing students are embedded in engineering labs, and engineering students are embedded in clinical environments.

- The College of Artificial Intelligence at the Massachusetts Institute of Technology focuses on interdisciplinary artificial intelligence education in biology, chemistry, history, linguistics, and ethics and is intended to bridge gaps between computer science and other areas.

- The AMA is expanding its educational resources related to AI in medicine to offer an educational module that provides the history, definitions, and components related to AI in health care, as well as a newly developed and continuously evolving website related to augmented intelligence in medicine, which provides resources, insights, and education. Furthermore, the February 2019 Issue of the AMA's Journal of Ethics was devoted entirely to the ethical implications of AI.

International Attitudes

Steps also are being taken internationally to support the use of AI in medical education. For example, virtual patients are currently being used in medical schools in a number of European countries,[15] and individual schools offer programming in AI, such as the University of Toronto's elective, 14-month Computing for Medicine certificate course.[16]

It is interesting and important to note that attitudes regarding and progress toward use of AI in medical education and clinical treatment vary significantly internationally. Vayena et al. note a recent United Kingdom survey reporting that "63% of the adult population is uncomfortable with allowing personal data to be used to improve healthcare and is unfavorable to artificial intelligence (AI) systems replacing doctors and nurses in tasks they usually perform. Another study, conducted in Germany, found that medical students—the doctors of tomorrow—overwhelmingly buy into the promise of AI to improve medicine (83%) but are more skeptical that it will establish conclusive diagnoses in, for instance, imaging exams (56% disagree). When asked about the prospects of AI, United States decision-makers at healthcare organizations are confident that it will improve medicine, but roughly half of them think it will produce fatal errors, will not work properly, and will not meet currently hyped expectations."[17]

According to a recent survey[18] of general practitioners in the United Kingdom, 68 percent felt that "future technology" would never fully replace human physicians in diagnosis of patients, 61 percent said this technology would never fully replace human physicians when referring to specialists, 61 percent said this technology would never develop personalized treatment plans, and 94 percent said it would never deliver empathetic care. A higher percentage (80 percent) did believe, however, that future technology would be able to replace human physicians to perform documentation.

A 2018 survey of German medical students found that 68 percent were unaware of the specific technologies being used in radiology AI; 56 percent thought AI would not perform well enough to establish a definite diagnosis; 86

percent thought AI would improve radiology, and 83 percent disagreed that AI would replace human radiologists (96.6 percent disagreed that AI would replace human physicians generally). Further, 70.1 percent felt AI should be included in training (interestingly, 20.5 percent mostly disagreed with this statement, and 4.9 percent disagreed entirely).[19]

While European mores may not be translatable to faculty, learners, and patients in the United States, these findings are excellent reminders that different populations—in terms of race, ethnicity, gender, age, socioeconomic background, level of education, and geographic location—not only may have different levels of familiarity and comfort with these new technologies, but also may have different expectations and desires with regard to how or even whether these technologies should be applied. Physicians will need to augment their communication skills to help patients receive the best, personalized treatments that may be enhanced or delivered entirely by AI technologies.

REVIEW OF ADDITIONAL RESEARCH

A paper regarding the biannual Artificial Intelligence in Medicine (AIME) conference in Europe, established in 1985, analyzed the content of papers published in AIME's proceedings; the first six years the topic of knowledge engineering appeared most frequently. Post-2000, machine learning and data mining were covered most frequently. Natural language processing was covered more frequently moving towards 2010, as was research related to ontologies and terminologies.[20]

Kolachalama and Garg note that between 2010 and 2017, relatively little research was published on this topic related to UME and GME. They describe a combined search using the MeSH terms "machine learning" and "graduate medical education" between 2010 and 2017, which resulted in 16 publications, and note, "Detailed review of these papers revealed that none of them were actually focused on ML education for medical professionals."[12]

More research can be found related to virtual reality and augmented reality. A 2016 paper[21] found that learning outcomes improved more for students utilizing an online three-dimensional interactive learning tool (when compared to gross anatomy resources) for neuroanatomy education. Virtual reality and augmented reality have been found to enhance neurosurgery residents' skills while reducing risk to patients, and are also helpful for preoperative planning. Virtual reality and augmented reality also can increase learner engagement and enhance spatial knowledge.[22]

RELEVANT AMA POLICY

At this time, the AMA has limited policy related to AI and medical education. Its most recent policy, H-480.940, "Augmented Intelligence in Health Care," asks our AMA to promote development of thoughtfully designed, high-quality, clinically validated health care AI that encourages education for patients, physicians, medical students, other health care professionals, and health administrators to promote greater understanding of the promise and limitations of health care AI.

Policy D-295.330, "Update on the Uses of Simulation in Medical Education," encourages ongoing research and assessment regarding the effectiveness of simulation in teaching and assessment, and encourages accrediting bodies to ensure their policies are reflective of appropriate simulation use.

See the Appendix for a full list of relevant policies.

SUMMARY AND RECOMMENDATIONS

As stated in BOT Report 41-A-18, "To reap the benefits for patient care, physicians must have the skills to work comfortably with health care AI. Just as working effectively with EHRs is now part of training for medical students and residents, educating physicians to work effectively with AI systems, or more narrowly, the AI algorithms that can inform clinical care decisions, will be critical to the future of AI in health care." While it is certainly true that physicians and physicians in training must embrace the skills and attitudes that will allow them to care for patients with assistive technologies, it is also true, as noted by Patel et al., that "[a]ll technologies mediate human performance. Technologies, whether they be computer-based or in some other form, transform the ways individuals and groups behave. They do not merely augment, enhance or expedite performance, although a given technology may do all of these things. The difference is not one of quantitative change, but one that is qualitative in nature. Technology, tools, and artifacts not only enhance people's ability to perform tasks but also change the way they perform tasks."[23]

The Council on Medical Education therefore recommends that the following recommendations be adopted in lieu of Resolution 317-A-18 and the remainder of the report be filed:

1. That our American Medical Association (AMA) encourage accrediting and licensing bodies to study how AI should be most appropriately addressed in accrediting and licensing standards.

2. That our AMA encourage medical specialty societies and boards to consider production of specialty-specific educational modules related to AI.

3. That our AMA encourage research regarding the effectiveness of AI instruction in medical education on learning and clinical outcomes.

4. That our AMA encourage institutions and programs to be deliberative in the determination of when AI-assisted technologies should be taught, including consideration of established evidence-based treatments, and including consideration regarding what other curricula may need to be eliminated in order to accommodate new training modules.

5. That our AMA encourage stakeholders to provide educational materials to help learners guard against inadvertent dissemination of bias that may be inherent in AI systems.

6. That our AMA encourage the study of how differences in institutional access to AI may impact disparities in education for students at schools with fewer resources and less access to AI technologies.

7. That our AMA encourage enhanced training across the continuum of medical education regarding assessment, understanding, and application of data in the care of patients.

8. That our AMA encourage the study of how disparities in AI educational resources may impact health care disparities for patients in communities with fewer resources and less access to AI technologies.

9. That our AMA encourage institutional leaders and academic deans to proactively accelerate the inclusion of nonclinicians, such as data scientists and engineers, onto their faculty rosters in order to assist learners in their understanding and use of AI.

10. That our AMA encourage close collaboration with and oversight by practicing physicians in the development of AI applications.

11. That Policy D-295.328, "Promoting Physician Lifelong Learning," be reaffirmed.

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APPENDIX - Relevant AMA Policy

D-295.328, "Promoting Physician Lifelong Learning"

1. Our AMA encourages medical schools and residency programs to explicitly include training in and an evaluation of the following basic skills:
(a) the acquisition and appropriate utilization of information in a time-effective manner in the context of the care of actual or simulated patients;
(b) the identification of information that is evidence-based, including such things as data quality, appropriate data analysis, and analysis of bias of any kind;
(c) the ability to assess one's own learning needs and to create an appropriate learning plan;
(d) the principles and processes of assessment of practice performance;
(e) the ability to engage in reflective practice.
2. Our AMA will work to ensure that faculty members are prepared to teach and to demonstrate the skills of lifelong learning.
3. Our AMA encourages accrediting bodies for undergraduate and graduate medical education to evaluate the performance of educational programs in preparing learners in the skills of lifelong learning.
4. Our AMA will monitor the utilization and evolution of the new methods of continuing physician professional development, such as performance improvement and internet point-of-care learning, and work to ensure that the methods are used in ways that are educationally valid and verifiable.
5. Our AMA will continue to study how to make participation in continuing education more efficient and less costly for physicians.

D-295.313, "Telemedicine in Medical Education"
1. Our AMA encourages appropriate stakeholders to study the most effective methods for the instruction of medical students, residents, fellows and practicing physicians in the use of telemedicine and its capabilities and limitations.
2. Our AMA will collaborate with appropriate stakeholders to reduce barriers to the incorporation of telemedicine into the education of physicians and other health care professionals.
3. Our AMA encourages the Liaison Committee on Medical Education and Accreditation Council for Graduate Medical Education to include core competencies in telemedicine in undergraduate medical education and graduate medical education training.

D-295.330, "Update on the Uses of Simulation in Medical Education"
Our AMA will:
1. continue to advocate for additional funding for research in curriculum development, pedagogy, and outcomes to further assess the effectiveness of simulation and to implement effective approaches to the use of simulation in both teaching and assessment;

2. continue to work with and review, at five-year intervals, the accreditation requirements of the Liaison Committee on Medical Education (LCME), the Accreditation Council for Graduate Medical Education (ACGME), and the Accreditation Council for Continuing Medical Education (ACCME) to assure that program requirements reflect appropriate use and assessment of simulation in education programs;

3. encourage medical education institutions that do not have accessible resources for simulation-based teaching to use the resources available at off-site simulation centers, such as online simulated assessment tools and simulated program development assistance;

4. monitor the use of simulation in high-stakes examinations administered for licensure and certification as the use of new simulation technology expands;

5. further evaluate the appropriate use of simulation in interprofessional education and clinical team building; and

6. work with the LCME, the ACGME, and other stakeholder organizations and institutions to further identify appropriate uses for simulation resources in the medical curriculum.

H-315.969, "Medical Student Access to Electronic Health Records"

Our AMA:

(1) recognizes the educational benefits of medical student access to electronic health record (EHR) systems as part of their clinical training;

(2) encourages medical schools, teaching hospitals, and physicians practices used for clinical education to utilize clinical information systems that permit students to both read and enter information into the EHR, as an important part of the patient care team contributing clinically relevant information;

(3) encourages research on and the dissemination of available information about ways to overcome barriers and facilitate appropriate medical student access to EHRs and advocate to the Electronic Health Record Vendors Association that all Electronic Health Record vendors incorporate appropriate medical student access to EHRs;

(4) supports medical student acquisition of hands-on experience in documenting patient encounters and entering clinical orders into patients' electronic health records (EHRs), with appropriate supervision, as was the case with paper charting;

(5) (A) will research the key elements recommended for an educational Electronic Health Record (EHR) platform; and (B) based on the research--including the outcomes from the Accelerating Change in Medical Education initiatives to integrate EHR-based instruction and assessment into undergraduate medical education--determine the characteristics of an ideal software system that should be incorporated for use in clinical settings at medical schools and teaching hospitals that offer EHR educational programs;

(6) encourage efforts to incorporate EHR training into undergraduate medical education, including the technical and ethical aspects of their use, under the appropriate level of supervision;

(7) will work with the Liaison Committee for Medical Education(LCME), AOA Commission on Osteopathic College Accreditation (COCA) and the Accreditation Council for Graduate Medical Education (ACGME) to encourage the nation's medical schools and residency and fellowship training programs to teach students and trainees effective methods of utilizing electronic devices in the exam room and at the bedside to enhance rather than impede the physician-patient relationship and improve patient care; and

(8) encourages medical schools and residency programs to: (a) design clinical documentation and electronic health records (EHR) training that provides evaluative feedback regarding the value and effectiveness of the training, and, where necessary, make modifications to improve the training; (b) provide clinical documentation and EHR training that can be evaluated and demonstrated as useful in clinical practice; and (c) provide EHR professional development resources for faculty to assure appropriate modeling of EHR use during physician/patient interactions.

H-480.940, "Augmented Intelligence in Health Care"

As a leader in American medicine, our AMA has a unique opportunity to ensure that the evolution of augmented intelligence (AI) in medicine benefits patients, physicians, and the health care community.

To that end our AMA will seek to:

1. Leverage its ongoing engagement in digital health and other priority areas for improving patient outcomes and physicians' professional satisfaction to help set priorities for health care AI.

2. Identify opportunities to integrate the perspective of practicing physicians into the development, design, validation, and implementation of health care AI.

3. Promote development of thoughtfully designed, high-quality, clinically validated health care AI that:

    a. is designed and evaluated in keeping with best practices in user-centered design, particularly for physicians and other members of the health care team;

    b. is transparent;

    c. conforms to leading standards for reproducibility;

    d. identifies and takes steps to address bias and avoids introducing or exacerbating health care disparities including when testing or deploying new AI tools on vulnerable populations; and

    e. safeguards patients' and other individuals' privacy interests and preserves the security and integrity of personal information.

4. Encourage education for patients, physicians, medical students, other health care professionals, and health administrators to promote greater understanding of the promise and limitations of health care AI.

5. Explore the legal implications of health care AI, such as issues of liability or intellectual property, and advocate for appropriate professional and governmental oversight for safe, effective, and equitable use of and access to health care AI.

5. ACCELERATING CHANGE IN MEDICAL EDUCATION CONSORTIUM OUTCOMES

Informational report; no reference committee hearing.

HOUSE ACTION: FILED

INTRODUCTION

Launched in 2013 by the American Medical Association (AMA), the Accelerating Change in Medical Education (ACE) initiative established and continues to foster a community of innovation and discovery by supporting the development and scaling of creative undergraduate medical education (UME) models across the country. Grants initially were awarded to eleven U.S. medical schools; funding was extended in 2016 to an additional 21 U.S. schools. The AMA convened these schools to create the ACE Consortium, providing an unprecedented opportunity for cross-institutional partnerships to implement and disseminate groundbreaking ideas.[1,2] Almost one-fifth of all allopathic and osteopathic medical schools in the United States are represented by these 32 grantees. Collectively, these schools are delivering revolutionary educational experiences to approximately 19,000 medical students across the country. Extrapolating the reach of students graduating from these programs, it is estimated that they will provide care to approximately 33 million patients annually.

The initiative has been successful in stimulating change at member institutions and propagating innovations across the United States. Students benefitted from training in new topics (such as health systems science) and in the creation of more precise, individualized educational pathways to support broad competency development. Faculty members benefitted from evolving funded educational roles and the opportunity for scholarship and academic advancement. Member medical schools reported enhanced reputations that strengthened recruitment and positioned them for additional external funding. Health systems benefitted from faculty and students trained in quality improvement, patient safety, and systems thinking. ACE collaborations produced 168 academic publications, which to date have been cited over 1,000 times. Over 600 consultations involving 250 institutions served to accelerate innovation across the country and internationally. In short, the ACE initiative fostered a community of medical education innovation centered around our AMA.

This report reviews the historical context prompting the initiative; structure and processes of the project; outcomes for students, faculty members, member institutions, health systems, the general medical education community, patients, and the reputation of the AMA; and outlines future steps.

OUR AMA'S HISTORICAL EDUCATIONAL MISSION AND LEADERSHIP ROLE IN EDUCATIONAL
   REFORM

Since its founding in 1847, the AMA has demonstrated a commitment to developing and supporting advancements in medical education, both autonomously and in partnership with others. The AMA's influence includes the Council on Medical Education's contributions to the Flexner Report in 1910 and the formation and sponsorship of organizations such as the Liaison Committee on Medical Education (LCME), Accreditation Council for Graduate Medical Education (ACGME), and Accreditation Council for Continuing Medical Education (ACCME).[3]
In 2005, the AMA launched a multi-year forerunner to the ACE initiative, the Initiative to Transform Medical Education (ITME), which was intended to "Promote excellence in patient care by implementing reform in the medical education and training system across the continuum, from premedical preparation and medical school admission through continuing physician professional development."[4] ITME comprised three phases: identification of existing strengths, gaps, and opportunities for improvement in physician preparation; development of recommendations for change in the system of medical education to address the gaps; and prioritization of needed changes in medical education. In 2006, Innovative Strategies for Transforming the Education of Physicians (ISTEP), a separate initiative (later encompassed by ITME), was launched to develop the evidence base needed to generate decisions leading to reform in physician education.[5-10]

To promote sustained organizational support of these important initiatives, the Council on Medical Education in 2007 recommended that the AMA "continue to recognize the need for transformation of medical education across the continuum...and the need to involve multiple stakeholders in the transformation process, while taking an appropriate leadership and coordinating role."[11]

In 2012, the AMA announced a new strategic plan, which included accelerating change in medical education as one of three key focus areas, leading to the development of the ACE initiative as it is known today.

CONTEXT OF MEDICAL SCHOOL CURRICULUM REFORM PRIOR TO THE LAUNCH OF ACE

Although medical educators have a strong tradition of continual iterative improvements in programming, these efforts have commonly been focused on enhancing individual courses or isolated programs. The turn of the 21st century, marking nearly 100 years since the Flexner Report, served as a stimulus to contemplate more transformative and large-scale change. A plethora of reports acknowledged that the delivery of health care had evolved significantly with little concomitant adjustment in the overarching medical education process. Calls for bold transformative change emerged from national professional organizations, foundations, and advocacy groups, engaging an international audience in a dynamic discussion.[12-23]

The Carnegie Foundation, for example, supported a qualitative analysis by Irby et al. of multiple institutions embarking upon educational innovations, resulting in the 2010 book *Educating Physicians: A Call for Reform of Medical School and Residency.* Four key themes emerged from this work as systemic needs:

- Standardization of outcomes yet individualization of process;
- Integration of formal learning with clinical experience;
- Fostering habits of inquiry and improvement; and
- Formation of professional identity.

The Carnegie report served as a call to action in the medical education community and acknowledged the need for significant resource investment and leadership for organizational change. At the time, however, best practices could not be offered based upon the timing and scope of the team's analysis.[19,20]

In 2010, Susan E. Skochelak, MD, MPH, then Vice President for Medical Education at the AMA, performed a comprehensive review of recommendations for change from the prior decade, with an in-depth analysis of 15 major reports from the United States and Canada (including the AMA's ITME and ISTEP initiatives). Eight major recurring themes were identified:

- Enhancing integration across the educational continuum;
- The need for evaluation and research of educational methods and processes;
- New methods of financing medical education;
- The importance of physician leadership;
- An emphasis on social accountability;
- The use of new technology in education and medical practice;
- Alignment of the educational process with changes in health care delivery; and
- Future directions in the health care workforce.

In discussing the remarkable congruence across such reports, Dr. Skochelak challenged educators to move from research to action: "We can be assured that we don't need to keep asking 'What should we do?' but rather 'How can we get there?'"[12]

Additional scholarly work from this period elaborated upon specific recommendations. The 2010 Lancet Commission report called for tighter integration of medical education systems with health care delivery systems and anchoring desired educational outcomes to evolving societal needs.[17] To meet current social needs, Berwick and Finkelstein advocated that students must be prepared to work in, and contribute to the continual improvement of, health care systems: "Physicians should not be mere participants in, much less victims of, such systems. Instead, they ought to be prepared to help lead those systems toward ever-higher-quality care for all."[21] Addressing the movement toward competency-based approaches (standardized outcomes), Hodges validated the importance and challenges of authentic workplace-based assessment of performance and the merits of individualized pathways, yet cautioned that the professional identity formation of learners not be neglected in shifting paradigms: "There could be no more 'see one, do one, teach one.' Rather the phrase would have to be updated to something like 'watch until you are ready to try, then practice in simulation until you are ready to perform with real patients, then perform repeatedly under supervision until you are ready to practice independently'."[22] Nora addressed the critical need for health systems and academic centers to invest in faculty development: "Faculty members must be given the release-time and the tools necessary for

success, with the understanding that they must use these resources appropriately and meet the expectations of their roles."[23]

Despite these repeated calls for change and relatively strong agreement on key elements to be addressed, only marginal progress was made in transforming medical education. Recognizing that significant change may lie beyond the scope of individual institutions, the AMA stepped in to serve as a guiding body to build consensus, identify best practices, and provide both financial and moral support for the challenging work to be done. By committing significant financial resources to this initiative, the AMA generated a sense of urgency among medical educators and administrators.

ACE OBJECTIVES AND PROCESS

Based upon the previously outlined international medical education discourse, the following core objectives were established for ACE:

Objective 1: Developing new methods for teaching and/or assessing key competencies for medical students and fostering methods to create more flexible, individualized learning plans.

Objective 2: Promoting exemplary methods to achieve patient safety, performance improvement, and patient-centered team-based care.

Objective 3: Improving medical students' understanding of the health care system and health care financing.

Objective 4: Optimizing the learning environment.

With objective 1, the AMA endorsed competency-based medical education (CBME), which explicitly aligns curricular offerings and assessment of student performance with the desired outcomes of the educational program. Since CBME has been embraced in graduate medical education (GME), supporting its implementation in UME would promote alignment across the continuum of training. Competency-based approaches enhance attention to areas of performance beyond the traditional focus on medical knowledge and clinical skills. Because each student possesses differing strengths and educational needs, fully fostering this breadth of competency requires flexible, individualized pathways.[23]

Objectives 2 and 3 were quickly identified by the consortium's membership as closely related. Collaboration among the ACE institutions ultimately resulted in articulation of the larger construct of health systems science, identified as the "third pillar" of medical education alongside the traditional focus on basic science and clinical skills. Objectives 2 and 3 are jointly referred to as "health systems science (HSS)" in subsequent sections of this report.[24-26]

Objective 4 acknowledged our AMA's concerns regarding physician burnout. Additional drivers supporting attention to the environment in which students learn include cognitive science about the learning process; a desire to promote the success of a diversity of students; and emerging evidence of "imprinting," or persistence throughout a physician's later career, of certain dimensions of the health system(s) in which one trains (such as quality, cost, and professionalism behaviors).

The ACE program was planned to function at two levels. Grants were awarded to individual institutions to complete local projects aligned with one or more of the initiative's objectives. Additionally, the program was structured to promote organic collaboration among institutions, resulting in amplification and acceleration of the change process.

The AMA's initial request for proposals in 2013 generated an overwhelming response: 119 letters of intent were received, representing 80% of eligible U.S. medical schools. Of those letters of intent, 31 applicants were invited to submit full proposals. To assure attainment of the objectives, successful applicants were required to describe a significant commitment from the relevant associated clinical system. Of the 31 applicants, 11 institutions were selected, each funded at $1 million over a five-year period (see Appendix A, Table A-1). In addition to this funding, the AMA supported two face-to-face meetings of consortium members each year of the grant. Common themes quickly emerged and resulted in collaboration across institutions. Multiple interest groups were established, for which ACE staff provided administrative support and project management, and the AMA convened in-person thematic meetings to propel key shared initiatives. Throughout the process, national partners were engaged to facilitate innovation, including the Association of American Medical Colleges (AAMC), LCME, ACGME, National Board of

Medical Examiners (NBME), American Osteopathic Association (AOA), American Association of Colleges of Osteopathic Medicine (AACOM), and the Josiah Macy Jr. Foundation. Many of the outcomes reported here were generated by such inter-organizational efforts.

In 2015, the AMA recognized the opportunity to further propagate the work undertaken by the first cohort of ACE grantees and to address gaps in existing programs. New partners were solicited under a revised request for proposals, offering more modest funding, and the opportunity was expanded to osteopathic as well as allopathic medical schools. Of 108 applications, twenty-one additional schools were funded at $75,000 over a three-year commitment. (see Appendix A, Table A-1).[1]

At the time of the writing of this report, all Phase 1 grant commitments have been successfully completed. While the consortium continues to operate under a new structure, described later, the remainder of this report focuses on the outcomes of the ACE Consortium's initial five-year phase.

OUTPUTS OF ACE

The ACE member institutions from both funding cohorts implemented significant programs at their sites. Additionally, collaborative efforts among sites served to accelerate and amplify productivity. This section provides an overview of outputs and the major activities that were undertaken in the initiative; the impacts of those changes are described in the following section.

Institutional Outputs

Site-based Projects

Each funded institution implemented site-specific projects aligned with local needs and capacity. Schools defined key objectives for their projects and submitted two progress reports per year. School-based initiatives contributed to the shared ACE objectives of fostering competency-based approaches and individualized pathways, promoting education in HSS, and improving the learning environment. The scope of the projects ranged from a targeted intervention to support a specific theme (such as training in HSS) to sweeping curricular overhauls that addressed multiple objectives. As anticipated, some sites revised their objectives over the life of the grant. Despite these recalibrations, core themes persisted. See Appendix A, Table A-1 for a brief description of each school's project and its relationship to the overarching ACE objectives.

Common Changes to Curricular Content and Structure

Each institution was queried regarding the implementation of curricular content areas of interest to the AMA. Topics that generally moved from contemplation to implementation included elements of HSS (related to objectives 2 and 3); systems thinking; leadership and change agency; clinical informatics and health information technology; value-based care; health care economics; quality improvement; patient safety; teamwork and interprofessional care; and health care policy.

A similar query was made regarding changes in structural frameworks supporting student education. Common programmatic changes supported competency-based medical education (objective 1), including flexible individualized learning plans and deliberate assessment of readiness for internship, as well as optimization of the learning environment (objective 4), including medical student coaching and medical student wellness programs.

See Appendix B, Tables B-1 and B-2 for more detailed information regarding common shifts in curricular content and structure in local institutional projects.

Collaborative Outputs

A significant benefit of convening consortium members twice per year was the sense of community that quickly developed. Institutions striving to implement bold ideas were able to share their strategies and, importantly, share their struggles and failures (an uncommon practice in traditional academic environments). This resulted in a deep, shared commitment to the difficult work of creating the medical schools of the future and spurred rapid dissemination of solutions among consortium members and the academic community.

Table 1, below, presents areas of shared efforts across consortium members. Appendix C provides a more detailed description of these topics.

Table 1

Topic Area	Corresponding ACE Objective(s)	Shared Curricular Efforts
Competency-Based Medical Education and Individualized Pathways	Objective 1: Developing new methods for teaching and/or assessing key competencies for medical students and fostering methods to create more flexible, individualized learning plans.	Competency assessments Readiness for residency Individualized learning plans Flexible curricula
Health Systems Science	Objective 2: Promoting exemplary methods to achieve patient safety, performance improvement, and patient-centered team-based care. Objective 3: Improving medical students' understanding of the health care system and health care financing.	Value-added roles for medical students Medical students embedded in the community Patient safety and quality improvement Social determinants of health Chronic disease
Optimizing the Learning Environment	Objective 4: Optimizing the learning environment.	Well-being Master adaptive learner[28] Coaching Technology Evaluation

IMPACT OF ACE

At the formative stage of the consortium, several tiers of potential impact were envisioned, as described in Figure 1. Multiple measures tracked over the life of the initiative reflect the successful implementation of bold innovations across the 32 medical schools, and document the significant impact on member institutions, their constituents, and stakeholders beyond the consortium.

Figure 1

AMA Accelerating Change in Medical Education (ACE)
Strategic Initiative Outcomes Map
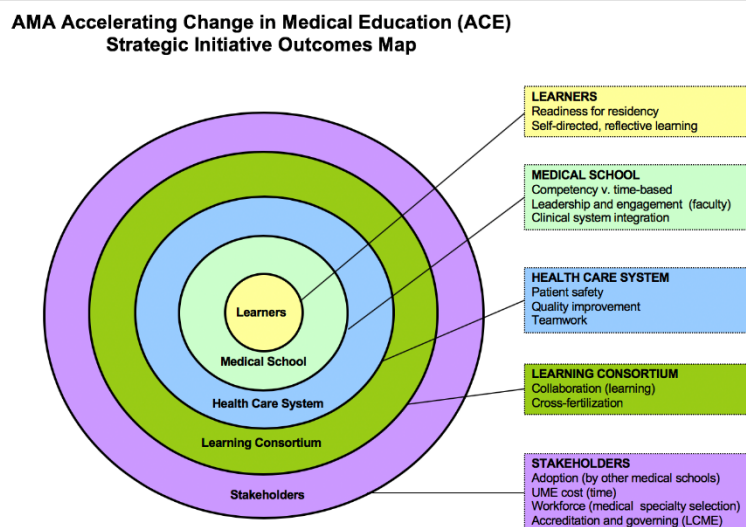
Impact on ACE Learners

Students at consortium schools benefited from direct interventions that included the addition of specific content (such as HSS)[24-26] as well as processes to enhance learning outcomes (such as competency-based approaches and coaching).[23,28]

Grantees reported anticipated enhanced student readiness for residency and anticipated improvements in graduates' competency in patient-centered care, communication, interprofessional collaboration, patient safety, quality improvement, value-based health care, addressing social determinants of health, telemedicine, and electronic health records. Many sites applied ACGME milestones[29] and AAMC Core Entrustable Professional Activities (EPAs)[30] to measure student progress, and the NBME HSS exam provides evidence of the acquisition of new knowledge in these areas.[31] At the time of this report, most member institutions were just starting to graduate cohorts of students affected by changes in programming. Downstream evidence to assess the actual performance of ACE graduates will include graduate surveys, program director surveys, and analyses of ACGME milestone outcomes during residency.

The consortium contributed to a culture change within institutions and the creation of processes to support more precise education. Greater attention to assessment in the workplace generated more timely, actionable feedback for students. Individualized, student-centered, and in some cases accelerated pathways provided greater alignment of learning experiences to learning needs and opportunities for reduced time in school, reduced tuition expenses, and reduced need to repeat material for which the learner is already demonstrably competent.

Professional identity formation was enhanced by many of the grant interventions. Consortium school faculty and students reported that real-life simulations, coaches (as opposed to traditional advisers), and population-centered care frameworks taught students how to care for individual patients and collaborate across specializations to improve health care systems. As one medical student from A.T. Still University-School of Osteopathic Medicine in Arizona offered:

> *As a former student who was permitted to participate in several community health projects while in medical school, I can report on the tremendous impact it has had on my appreciation of community health. Medicine is quite sterile in academia, which is very difficult to escape - even during highly structured clinical years. However, community-based projects seem to breathe life into our profession, allowing us as students to more fully appreciate elements such as specific socioeconomic factors that keep people from pursuing care, or how HIV is experienced in rurality. As a family medicine resident, it is striking how many students seem to find their "purpose" in medicine after a community project inspired some shift in career paths altogether. The common denominator is that deeper connection to a community, which is just so hard to get with the abbreviated time we have in traditional medical school curricula.*

Students also benefitted from participation in leadership and scholarship consortium projects, participating as active partners in designing and refining curricular interventions at many institutions.[32] As seen in Appendix D, novel and disruptive educational methods, such as near-peer mentoring among students, contributed to learning and facilitated successful curricular transition. Students were exposed to various presentation and publication opportunities and, as active leads and co-leads of experience-based scholarship, developed problem-solving skills and adaptability through innovation and creativity.

Impact on ACE Medical Schools

Participating institutions experienced an overarching impact beyond the direct effect of the grant projects. In their final reports to the AMA, grantees were asked to reflect on what had been the most significant contribution of the grant at their institution. The responses were broad, ranging from improvement in specific areas of curriculum (such as interprofessional care and electronic health records) to impacts on institutional culture and prestige.

The magnitude of change that ACE projects demanded involved multiple institutional challenges, including confronting established approaches to education and skepticism about the need for change; senior decision-makers who were resistant to innovation and/or changing the educational status quo; significant in-kind resources needed to implement and sustain changes (including resources to support administrative burden, the need for feasible and motivating compensation models, and new technological platforms); policies, both state and institutional, that did not immediately permit innovation; and the need to develop mechanisms to provide effective and sufficient communication to all stakeholders.

Several schools noted that the prestige of the grant and the consortium provided credibility for their educational mission, which facilitated successful implementation of their grant project and led to changes in their institution's fundamental approach to education. Grant funding and consortium participation stimulated increased collaboration among institutional stakeholders, including students, faculty, and the affiliated health system. Additionally, the grant conferred external validation on institutions as leaders in educational innovation. A sampling of schools' feedback on the initiative provides a glimpse into these opinions:

For the AMA to fund our initiatives was confirming, accelerating, consolidating, the push that we needed.
Vanderbilt University School of Medicine

The ongoing recognition and attention of the project accomplishments continues to facilitate visibility and the sense of culture change.
East Carolina Brody School of Medicine

The grant provided important validation of our vision.
University of California, San Francisco School of Medicine

For some schools, the AMA grant spurred additional funding. Schools received supplemental funding for their projects from universities, regional foundations, states, and health systems. Consortium schools received over $16 million in Health Resources and Services Administration grants related to ACE projects, and two schools received gifts related to medical student education totaling $700 million. In addition, ACE schools received grants from the Kern Institute, Josiah Macy Jr. Foundation, Robert Wood Johnson Foundation, Substance Abuse and Mental Health Services Administration, ACGME, and the National Institutes of Health.

Impact on ACE Faculty

ACE grants prompted significant changes in faculty roles and expertise. Grantees reported that curricular innovations resulted in the creation of new positions or the repurposing of existing positions. Across the 32 schools, 900 faculty positions were affected, and a total of 87 full-time equivalent (FTE) positions were redistributed as novel educational formats drove new faculty roles. The most common new roles included small group facilitators, coaches, and faculty trained to teach HSS and mentor student-led quality improvement projects.[33] These transformative impacts on funded faculty roles are projected to continue even now that AMA grant funds have ceased to support site-based projects.

Faculty challenges related to the change process included faculty and other health professionals' engagement; buy-in for new collaborations; time demands of design and implementation; building and maintaining a team of educators to resolve necessary changes in staffing and facilities; a lag between implementation of novel teaching or assessment methods and faculty comfort with leading them (an unavoidable gap in depth and breadth of expertise); funding for, and leadership of, sustainable faculty training and development; turnover of dedicated faculty or administrators; and providing effective and sufficient communication across all stakeholders.

Despite these challenges, grantees reported that faculty increased their own knowledge areas and expertise. New curricular content areas, such as patient safety and quality improvement, demanded faculty training, which in turn was reported to affect faculty members' own clinical practices. Changes in process also required faculty development. Competency-based methods encouraged faculty members to focus on student development rather than grades, reminding faculty of their critical role in serving the needs of future patients.[34,35] Faculty learned how to develop data-driven curricula and teaching in support of diverse patient care and reported a greater shared sense of purpose across departments and professions. Looking to the future, institutions anticipate expanded faculty knowledge and mentoring, increasing the value that students bring to patients and communities through multiple pathways (e.g., direct patient care and interprofessional teamwork).

Additional faculty impacts included enhanced opportunities for academic advancement. Schools reported that consortium activities stimulated scholarship that would not have occurred otherwise, as well as cross-institutional and cross osteopathic/allopathic collaborations. The resulting manuscripts[24,28,31,33,36-50] were more competitive for publication, improving a key metric for faculty advancement. Sites cited an increase in faculty participation in national and international presentations over the course of the grant, and reported that grant activities led to a total of 71 promotions (reported by 31 of 32 schools) and 99 appointments to named positions within their institution (reported by 29 of 32 schools). Additionally, schools shared that the national prestige associated with consortium membership

allowed them to cast a wider net in recruiting top faculty and administrators to their institutions. Further examples regarding the benefits to faculty of consortium participation may be seen in Appendix E.

Impact on ACE-affiliated Health Care Systems

The most direct impact of consortium activities on affiliated health systems resulted from the deliberate incorporation of HSS training, focusing on how health care is delivered, how health care professionals work together to deliver that care, and how health systems can improve patient care and health care delivery. Some schools designed experiences for students to learn leadership, work in their community, or team up with interprofessional colleagues; others implemented rigorous quality improvement and patient safety training.[51-60] For example, the University of California San Francisco Health System and School of Medicine partnered in 2016 to embed 80 first-year medical student teams as active participants in health systems improvement efforts to address problems aligned with the health system's True North pillars of quality, safety, and value. Meanwhile, at the Pennsylvania State University School of Medicine, students were trained to serve as patient navigators who guide patients through a complex health care continuum.

To capture the impact of such student roles and student-led projects, the AMA launched the Health Systems Science Student Impact Competition in 2018. Forty-six students submitted descriptions of their work. Eligible projects addressed one of the HSS domains, such as leadership, patient safety, quality improvement, or population health. The winning entry was submitted by Kevin Tyan, a student at Harvard Medical School, who implemented strategies to protect patients and health workers from the Ebola epidemic and health care-associated infections. The second-place winner was Richard Lang, a student from Rutgers Robert Wood Johnson Medical School, a student-veteran who drew upon his military experience to improve teamwork training in medical education. The third-place submission was from Jasmyne Jackson, a student at the University of Michigan Medical School who developed a tiered mentorship program to address diversity pipeline issues, engaging pre-medical and medical students who are underrepresented in medicine to promote professional development and empowerment.

Other ACE objectives affected health systems in indirect ways. Competency-based efforts at many schools were designed to better align student training with the needs of patients and populations. The deliberate preparation of students for their responsibilities as interns was a focus at many sites, which is projected to improve the function of the health care system at the time of transition. Similarly, changes to the student learning environment impact all members of the clinical team, including residents, faculty, nurses, and other professionals.[1] Encouraging a system in which all learners work and all workers learn supports an ethos of shared learning and improvement that may mitigate emotional exhaustion and depersonalization.[61]

The ACE application process was structured to require that schools collaborate closely with their health care system, creating a shared understanding of roles, values, and learning needs of participating students. Health system leaders were included in curricula, especially surrounding the development of HSS experiences. For example, Pennsylvania State University College of Medicine notes that:

> *Collaboration with our health system on educational initiatives over the life of the grant includes the following health systems leaders and professionals who have contributed to the design and implementation of the HSS curriculum (UME, GME, faculty development): dean and CEO of the College of Medicine and Health System, vice dean for educational affairs, chief financial officer, chief operating officer, vice president and chief quality officer, vice president of operational excellence, vice president of population health, director of ambulatory nursing, chief information officer, clinical and basic science faculty, advanced care practitioners, nurse educators, allied health professionals, social workers, librarians.*

Impact on the ACE Learning Consortium: Fostering a Community of Innovation

During the lifespan of the grant, relationships naturally spread across disciplinary lines in the consortium into a collegial, snowballing network spanning multiple topics, purposes, and depths. Although very difficult to quantify, consortium schools reported valuing this outcome tremendously and anticipated the continuation of these relationships into the future.

When asked to note the most significant contribution of the consortium, grantees repeatedly cited interaction with other educators and learning from innovations at other sites. Recurrent themes are well articulated by the following excerpts:

The ACE Consortium serves as a catalyst for innovation. Through conferences, online discussions, and incubator projects, it unifies a variety of experienced American medical school innovators. Through this process, members gain a shared mental model, learn best practices, discuss complex issues in learning communities, and reference a common evidence base.

Faculty, Brody School of Medicine at East Carolina University

The consortium has provided us the opportunity to share ideas, ask for help and have the status/gravitas as a consortium member to implement innovations. Our collaborations have led to deeper understandings of how to educate well and deeply and have caused us to continue to question and reform what we do. We also continue to develop ways to enact our vision of having students be value-added members of the patient care team and have seen the fruits of our past labor with our students' successful entry into their clerkships.

Faculty, CUNY School of Medicine

This consortium reinforces the truth that we are all responsible for the future of health care and that we are teammates, not competitors.

Faculty, A.T. Still University-School of Osteopathic Medicine in Arizona

The single greatest contribution of the consortium may not have been anticipated but was fully realized because of the openness that the AMA demonstrated to ensuring the 'whole was greater than the sum of our parts'. In other words, the Innovation Ecosystem that resulted from the work together in the consortium was the single greatest benefit we realized from our participation in this grant program.

Faculty, University of Michigan Medical School

In just five years, the consortium has become the home of medical education in the United States.

Faculty, New York University School of Medicine

Grantees also credited the following with facilitating the accomplishment of grant project objectives: endorsement by the AMA through the national consortium; internal and external networking that resulted in strong partnerships; consortium membership as a place to seed ideas, learn new approaches to similar problems, and receive professional validation; and financial support, including that from the AMA for travel and consortium meetings.

Consortium grants also led to the creation of environments supportive of student engagement with and partnership in scholarly endeavors. Student debriefings about interventions served as valuable and powerful ways to impact future faculty development. Students expressed their appreciation for being included in this community:

As a first-year medical student, I had the opportunity to attend the AMA consortium annual conference. It was here that I was first introduced to the community of medical educators. This community represented a shift in my medical school journey to one being centered about medical education. It was also the place where I found inspiration, learned the power of collaboration between institutions, and was encouraged to pursue my own contributions to the field. However, the most important of the community was the people I had the opportunity to meet. They will serve as role models to me as I continue my career in academic medicine.

Medical Student, University of Michigan Medical School

I was excited to see such a broad group of medical education professionals exploring ways to shake the status quo of traditional medical curricula through engagement with student perspectives and new technologies. The consortium offers an opportunity for rapid and sustainable change of long-held but flawed standards that currently prevent students from reaching their highest learning potential.

Medical Student, Warren Alpert Medical School of Brown University

Impact on the broader medical education landscape: scholarship and dissemination

Scholarship related to ACE educational innovations has been an important vehicle for dissemination. Over the five-year grant period, consortium members authored 168 publications, which to date have been cited by over 1,000 subsequent manuscripts. Ninety-two of these publications related to HSS, and 30 related to competency assessment. Fifty-three papers were published in *Academic Medicine*. Over 270 abstracts have been presented by consortium members in regional, national, and international venues.

The collaborative interest groups of the consortium generated significant dissemination of scholarship in non-traditional ways. The most productive interest group concentrated on defining the domains of HSS, advocating for its status as the third pillar of medical education complementing basic science and clinical skills.[24-25] This group adopted multiple modalities to promote the teaching and assessment of HSS. The resulting textbook[26] has sold over 4,000 copies internationally, and online modules are scheduled to be released in 2019. Additionally, HSS subject matter experts collaborated with the NBME to create a subject examination in HSS[31] to be administered by medical schools. In a January 2019 editorial, *Academic Medicine* Editor-in-Chief David Sklar, MD, reinforced the value of teaching HSS as the third pillar of medical education and cited HSS curricula as a potential marker of school excellence.[62] Another ACE collaborative group focused on medical student coaching created a handbook that has been downloaded more than 7,000 times from the AMA website.[27] A monograph self-published by the AMA outlining the impact of scholarship generated by consortium activities has been downloaded nearly 9,000 times.[63]

Furthering scholarly impact, grantees also served as consultants to other institutions embarking on change processes. As stated previously, the consortium served as a safe space for educators to articulate the many challenges associated with educational innovation, including negotiating accrediting requirements that do not readily allow for innovation; modernizing inflexible educational technologies; forging new collaborations across the health system; managing competing demands on student attention which may detract from the benefits of innovations; addressing students' concerns that systems thinking may lie beyond their stage of development; coping with challenges of scheduling innovative experiences within required traditional medical education cycles; building effective and sufficient communication; sustaining interventions as students from innovative undergraduate programs transition to GME; measuring educational outcomes and creating evaluation and assessment plans; and handling the complexity of linking educational interventions to patient outcomes.

The strategies that emerged from individual institutions and from consortium activities were of value to schools outside the consortium seeking to innovate. Consultations served to amplify the impact of the ACE initiative into the broader educational community, thus accelerating widespread change. Consortium members reported advising other institutions to use validated tools whenever possible; consider implementing models that already exist rather than creating new ones; increase collaborations with other departments early on in the change process; plan ahead to gather meaningful outcomes data; and ensure that there are supportive systems, processes, and administration in place before committing to such an undertaking. Over the course of the grant, collaborations of ACE schools with one another and with non-consortium institutions exceeded 600 interactions involving over 250 institutions and organizations, reflecting the sense of authority afforded to ACE members in the medical education community.

Member institutions have cooperated with accrediting agencies and governing bodies to enable innovation by removing regulatory and legal barriers. The University of California, Davis, School of Medicine worked with the state legislature of California to alter the required minimum time of training so that students committed to primary care could complete a three-year track aimed at enhancing diversity of the physician workforce. Other interventions promise a potential to reduce the costs of UME: for example, via its competency-based assessment process, Oregon Health & Science University (OHSU) School of Medicine was able to graduate 25 percent of its students a semester early, resulting in an average tuition cost reduction of $17,000. Dialogue in consortium sessions amplified national concerns about scoring for the USMLE, prompting the NBME, in collaboration with the AMA and other influential organizations, to host discussions with subject matter experts to explore this issue more deeply.

Impact on the AMA

Despite the AMA's longstanding investment in medical education, the launch of the ACE initiative represented a bold step into the UME sphere. The investment of significant resources gained initial attention, and the subsequent successful efforts of the consortium have anchored the AMA as a hub for innovation in medical education. As a consortium member school put it, "In just five years, the consortium has become the home of medical education innovation in the United States" (New York University).

In a qualitative study conducted in 2015 by consulting firm Penn Schoen Berland, 31 medical school deans who were not members of ACE were interviewed to solicit their perspectives on educational innovation and the AMA's ability to lead in that space. For several, the ACE initiative changed their view of the AMA: "It's unexpected coming from a trade organization that the AMA has been in the past. It really speaks to the present—the AMA has a different vision, which I am delighted about. I think it's very exciting."

The ACE initiative garnered significant external attention for the AMA, and it is interesting to track how earned media coverage has evolved since the ACE initiative launch in 2013. Initially, ACE coverage mainly appeared in trade publications; this is not unusual for a new initiative, as reporters often prefer to cover results and concrete milestones. ACE's visibility and reach have grown over the past five years, however, as evidenced by media coverage in national mainstream publications, including the *Wall Street Journal*,[64] National Public Radio,[65] and the *New York Times*.[66] Mentions of ACE work in more prominent, high-impact publications also have grown over time and are often synched to major announcements, such as the launch of the HSS textbook and the electronic health record (EHR) designed for educational settings. The additional uptick in the quality of journal placements was also the result of exposure to consortium meetings, relentless media team pitching, and access to press conference calls with James Madara, MD, Executive Vice President and CEO of the AMA, and Dr. Skochelak. Finally, in 2018, impressions were derived from a significant push to earn attention for the first graduating classes from consortium schools and the five-year anniversary of ACE. Increasingly, the storyline around ACE and the need for reimagining medical education have moved from health trade publications into the public consciousness. See Appendix F, Table F-1 for a listing of top *AMA Wire* articles about ACE.

To capitalize on the interest in ACE activities and expand our reach beyond consortium members, the medical education unit launched a new national conference, ChangeMedEd®, which welcomes both consortium and non-consortium members and medical education stakeholders. The inaugural 2015 conference attracted 273 participants (226 of whom were non-members); attendance rose to 363 in 2017 (including 265 non-members). Additionally, digital platforms have been exploited to create other interactions and stretch engagement to an international scale. Webinars and asynchronous discussions have been offered, with 1,000 participants across seven webinars and over 2,000 participants across 17 asynchronous discussions. More details about virtual-session topics and participation in the webinars are provided in Appendix F, Tables F-2 and F-3.

Other critical AMA initiatives have benefited from direct access to the medical educators and UME curricula affiliated with the ACE Consortium. For example, collaboration with ACE member institutions propelled efforts of the AMA's Improving Health Outcomes unit to address chronic disease by piloting a new structure of the patient history and physical to target the needs of patients with chronic illness.[49] Similarly, synergy exists between the goals of the AMA's Professional Satisfaction & Practice Sustainability unit and ACE efforts to empower students to attack the dysfunction in the health care system by training them in HSS.[61] Such empowerment is expected to enhance a sense of control and well-being, supplementing education's recent focus on individual resilience and wellness.

The myriad activities that comprise the ACE initiative have secured the AMA's position as the leading home for purposeful innovation in medical education.

Impact on patients

The ultimate goal of the ACE initiative is to improve patient care. The impacts of the ACE objectives on learners, faculty members, medical schools, health systems, and the broader medical education community outlined in this report culminate in physicians who are better trained, more satisfied, and poised to shape the constantly evolving health care system—in short, as the AMA mission states, "to promote the art and science of medicine and the betterment of public health."

FUTURE STEPS

The ACE initiative has taken great strides toward creating the medical school of the future. Institutional members of the consortium have offered case studies in accomplishing a variety of needed reforms, and collaborative efforts across sites have identified techniques that can be generalized to other schools. Significantly, all 32 participating schools have committed to continue as members of the consortium despite the cessation of direct funds to support site-based initiatives. AMA ACE staff will continue to convert developing ideas into tangible products that can be adopted broadly. Ongoing smaller innovation grants and targeted memberships in the consortium will be offered to promote strategic areas of focus. Traditional academic venues will be complemented with alternative modes of dissemination to propagate change. To support the ultimate vision of a dynamic learning health system, the ACE unit will continue to monitor emerging trends affecting educational processes (such as artificial intelligence) and continue to partner with other agencies to incorporate new objectives into ongoing innovation efforts.

Building on its work to accelerate change in UME, the AMA recently established the Reimagining Residency initiative—a new five-year, $15 million grant program to address challenges associated with the transition from UME to GME and the maintenance of progressive development through residency and across the continuum of physician training. The goal of the initiative is to align residency training with the needs of patients, communities, and the rapidly changing health care environment. Grants are intended to promote systemic change in GME and support bold, creative innovations that provide a meaningful and safe transition from UME to GME, establish new curricular content and experiences to enhance readiness for practice, and support well-being in training. With a focus on collaboration, the initiative aims to inspire cooperation among the distinct entities responsible for oversight of GME, including medical schools, GME sponsors, and health systems. Furthermore, Reimagining Residency grant recipients will join the ACE Consortium, further expanding the AMA's community of innovation to allow for broad collaboration and dissemination of ideas across the medical educational continuum, as well as providing an independent focus on creating the residency programs of the future.

THE NEED FOR CONTINUED AMA SUPPORT OF MEDICAL EDUCATION

The ACE initiative has served to anchor the AMA as a leading force in UME innovation, and the forthcoming, unprecedented investment in GME is expected to echo and amplify that impact. Yet much work remains. Medical education is a complex process involving interaction among multiple systems with competing drivers. Systematic change requires a voice that advocates across stakeholder groups in order "promote the art and science of medicine and the betterment of public health." The success of past initiatives and the potential for future innovation speak to the need for ongoing attention to educational trends and support for innovative educational initiatives.

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APPENDIX A - Consortium schools (cohorts 1 and 2) and school projects

Table A-1 Consortium member institutions, brief descriptions of site-based projects, and alignment with ACE objectives.

School	Description of project	Competency-based	Health systems science	Learning Environment
Joined the consortium in 2013				
Brody School of Medicine at East Carolina University	Designed and created its Teachers of Quality Academy. Graduates have become a cohort of master educators on patient safety and quality improvement.		X	X
Indiana University School of Medicine	Developed a novel virtual health systems curriculum framed by the structures, policies, and evaluative mechanisms of its health system partners and grounded in a common e-patient panel accessed through the Regenstrief EHR Clinical Learning Platform.		X	X
Mayo Clinic Alix School of Medicine	Developed a four-year health systems science blended learning curriculum. Amplified efforts in student well-being.		X	X
New York University School of Medicine	Created "Health Care by the Numbers," a flexible, technology-enabled curriculum to train medical students in using big data.		X	X
Oregon Health & Science University School of Medicine	Implemented a novel, rigorous, learner-centered competency-based curriculum that allows students to pursue a broader array of interests, shifting the focus toward what students learn rather than what appears on a given exam.	X		X
Pennsylvania State University College of Medicine	Launched a curriculum combining a course in health systems science with an immersive experience as a patient navigator.		X	X

University of California, Davis, School of Medicine	Established a model three-year education track and implemented it in close collaboration with the largest health care provider in the region.			X
University of California, San Francisco, School of Medicine	Created a three-phase, fully integrated curriculum, crafted to enable students to contribute to improving health care outcomes as they learn to work within complex systems and advance science.	X	X	X
University of Michigan Medical School	Assigns students to an M-Home learning community for their four years of medical school. Students achieve competency in leadership through activities integrated with other core curricular components—all while developing change management experience in health care scholarly concentrations.	X		X
Vanderbilt University School of Medicine	Established "Curriculum 2.0," which uses flexible, competency-based pathways to create master adaptive learners trained in health systems science, able to adapt to the evolving needs of their patients and the health care system throughout their careers.	X	X	X
Warren Alpert Medical School of Brown University	Developed nine new courses that constitute the basis for a Master of Science degree in population medicine for its medical students.		X	
Joined the consortium in 2016				
A.T. Still University-School of Osteopathic Medicine in Arizona	Promotes early exposure to health care needs and social determinants by embedding medical students in urban and rural community federally-qualified health centers across the country and empowering student-led systems solutions.		X	X
Case Western Reserve University School of Medicine	Places students in interprofessional teams where they manage and assess the needs of patients at high-performing patient-centered medical homes.		X	X
CUNY School of Medicine	Created a combined a seven-year BS/MD program, preparing students to become primary care physicians in medically underserved areas.			X
Dell Medical School at the University of Texas at Austin	Designed and implemented a curriculum focused on servant and collaborative leadership along with training in health systems science and adaptive expertise.		X	X
Eastern Virginia Medical School	Teaches health systems science, along with basic and clinical sciences, through a case-based, integrated approach using a virtual community of culturally diverse families and associated electronic health records.		X	X
Emory University School of Medicine	Standardized instruction on quality improvement and patient safety across the medical education continuum, including all medical students, residents, fellows, faculty, affiliated physicians, and interprofessional colleagues.		X	X
Florida International University Herbert Wertheim College of Medicine	Created a program where students are assigned to an interprofessional team comprised of students from nursing, social work, and/or physician assistant studies. Competency-based assessments using EPAs to monitor readiness for residency.	X	X	X
Harvard Medical School	Reorganized its entire curriculum using active-learning models, creating a mastery-oriented culture as opposed to a performance-oriented culture.			X
Michigan State University College of Osteopathic Medicine	Launched its "First, Do No Harm" curriculum that incorporates patient safety concepts longitudinally across undergraduate and graduate medical education.		X	X

Morehouse School of Medicine	Increased its class size and its community-based sites, and established learning communities designed to ensure the development of strong longitudinal faculty-student and student-student interactions to facilitate the professional transition process.			X
Ohio University Heritage College of Osteopathic Medicine	Launched "Value-Based Care," an innovative, competency-based program that integrates primary care delivery and medical education.	X	X	X
Rutgers Robert Wood Johnson Medical School	Incorporates medical students and other health-profession learners into care coordination teams at an affiliated health system's accountable care organization.		X	X
Sidney Kimmel Medical College at Thomas Jefferson University	Implemented the Regenstrief EHR Clinical Learning Platform and interprofessional health care delivery team educational experiences.		X	X
University of Chicago Pritzker School of Medicine	As part of its patient safety and health care quality curriculum, created a "Room of Horrors" simulation, in which students must recognize common hazards to patient care.		X	
University of Connecticut School of Medicine	Created a curriculum that incorporates the Regenstrief EHR Clinical Learning Platform and brings teams of medical students together across all four years with dental students and other interprofessional partners to learn core skills.		X	X
University of Nebraska Medical Center College of Medicine	Moving interprofessional education beyond the traditional classroom setting and into clinical training environments where it can be applied for the benefit of patients and populations.		X	X
University of North Carolina School of Medicine	Instructs students in quality improvement techniques focused on specific common clinical problems, positioning students to complete quality improvement projects benefiting the clinics in which they train.		X	X
University of North Dakota School of Medicine and Health Sciences	Incorporates advanced simulation and telemedicine into education about providing care to those in rural or remote communities.		X	X
University of Texas Rio Grande Valley School of Medicine	Incorporates tablet computers into a curriculum that nurtures communication skills specific to working with disadvantaged populations.			X
University of Utah School of Medicine	Adapting tools proven effective at bending the cost curve of health care to create a new educational model that emphasizes cost reduction and improves undergraduate medical educational outcomes.		X	X
University of Washington School of Medicine	Implemented a new curriculum structure across its sites in Washington, Wyoming, Montana, Alaska, and Idaho, enhancing clinical training during the basic science years and basic science in the clinical years.			X

APPENDIX B - Common curricular changes at member institutions

Principal investigators at all 32 schools were asked about common curricular interventions, including content and structural elements. Respondents indicated the state of each element prior to, and at the conclusion of, the grant, with the following response options:
• Absent, no plans to implement
• Absent, but plans underway to implement
• Newly implemented
• Progressing implementation

- Mature implementation
- Abandoned implementation (only one incident was reported of abandoning a topic)

The tables provide the most common response (mode) for each topic at pre- and post-grant.

Table B-1

Curricular Element	Most common pre-grant status	Most common post-grant status
Leadership and change agency	Absent, no plans	Progressing implementation
Health care economics	Absent, no plans	Progressing implementation
Clinical informatics and health information technology	Absent, no plans	Progressing implementation
Value-based care	Absent, no plans	Progressing implementation
Systems thinking	Absent, no plans	Progressing implementation
Master adaptive learner skills	Absent, no plans	Progressing implementation
Patient safety	Newly implemented	Mature implementation
Quality improvement	Newly implemented	Progressing implementation
Teamwork/inter-professional care	Newly implemented	Progressing implementation
Health care policy	Progressing implementation	Mature implementation

Table B-2

Structural Element	Most common pre-grant status	Most common post-grant status
Med student coaching	Absent, no plans	Absent, but plans underway to implement
Flexible individualized learning plans	Absent, no plans	Progressing implementation
Competency-based education	Absent, but plans underway to implement	Progressing implementation
Assessment readiness for internship	Absent, but plans underway to implement	Progressing implementation
Optimizing the learning environment	Absent, but plans underway to implement	Progressing implementation
Medical student wellness	Newly implemented	Mature implementation

APPENDIX C - Collaborative outputs of ACE

This appendix provides more detailed descriptions of collaborative efforts and institutional exemplars of implementation.

Health systems science
One of the earliest innovations to emerge from the work of the consortium was the articulation of the concept of health systems science (HSS) as the third pillar of medical education, complementing the traditional focus on basic sciences and clinical skills. ACE members recognized that learners must understand how health systems deliver care to patients, how patients receive and access that care, and how to improve those systems. Experts from consortium member schools collaborated to write the *Health Systems Science* textbook, published by Elsevier in December 2016 (see text users in tables 5 and 6 below). ACE members collaborated with the National Board of Medical Examiners to create a HSS subject exam and to incorporate this content into the USMLE Step exams. A student-led thematic meeting in support of the HSS construct, "Patient-Centered Care in the 21st Century-Health Systems Science Through the Medical Education Continuum," was held at Penn State College of Medicine in August 2018. A total of 87 students, residents, faculty members and staff from 27 consortium schools attended.

Table C-1
Users of the Health Systems Science textbook

Consortium member schools	
The Warren Alpert Medical School of Brown University	Required for the Primary Care-Population Medicine program
Case Western Reserve University School of Medicine	Used throughout the MD curriculum.
CUNY School of Medicine	Used in the longitudinal clinical experience
Morehouse School of Medicine	Fundamentals of Medicine (supplement)
Oregon Health & Science University	MD Program, required
Pennsylvania State University College of Medicine	Required for Science of Health Systems courses

University of California, San Francisco, School of Medicine	Clinical and Systems Applications, supplementary text
University of Nebraska Medical Center	Longitudinal Health Systems Sciences course
University of Utah	Pathway in value/health systems
University of Washington	Reference text for the Ecology of Medicine course.
Vanderbilt University	Foundations of Health Care Delivery (FHD); all four years; also used for the pediatric GME program
Vanderbilt University Medical Center	Health Policy, supplementary. (business school)
Non-consortium medical schools, other educational institutions, and other entities	
Arizona College of Osteopathic Medicine-Midwestern University	Required for a Health Systems/Health Policy Research elective
Boise State University	Used in a nursing course
California State University, Long Beach	HCA 416 Management & Info Systems
Cedars-Sinai Medical Center	GME/Epidemiology, required
Columbia University	Supplementary, Leading Quality Improvement in Healthcare
Drexel University	Frontiers IV (recommended)
Jacobs School of Medicine and Biomedical Sciences at the University at Buffalo	AOA Leadership Track, year 2 curriculum - understanding health systems
Lock Haven University	Professional Topics Seminar/PA program
MITRE Corporation	Resource for members of the health care consulting unit
Rosalind Franklin University	Patient Safety Elective Course/Supplemental reference text used in parts in various courses, M1 and M2 years.
San Antonio Uniformed Services Health Education Consortium	Supplement to the Introduction to Quality Improvement and Patient Safety
Shenandoah University/Byrd School of Business	Health business courses
St. Anthony Hospital	GME/required
TDC Labs	Resource for entrepreneurs
Uniformed Services University F. Edward Hebert School of Medicine	Medical courses
University of Kansas Medical Center	Not used in a course; used as a resource for Scholarship and Enrichment week
University of South Carolina School of Medicine, Greenville	Integrated Practice of Medicine, used as faculty resource
Western Michigan University Homer Stryker MD School of Medicine	Residency training
William Carey University	Doctoring Skills & Clinical Science (recommended textbook)
Wright State University	Upstream Medicine

Value-added roles for medical students

Incorporating pragmatic experiences regarding HSS into curricula enhances opportunities for students to add value to the health system. At Penn State College of Medicine, students spend nine months as patient navigators embedded in transitional care programs, primary care clinics, specialty-based clinics, underserved free clinics, and nursing homes. Student navigators guide patients through the complex health continuum, providing information, patient education, emotional support and coordinating community care. Student navigators use the resulting insights to assist in implementing new processes to enhance safety, efficiency, and the patient experience.

Case Western Reserve University School of Medicine modified Penn State's patient-navigator model to work with specific populations and focus more on care coordination. Rutgers Robert Wood Johnson Medical School incorporated medical students and other health-profession learners into care coordination teams at the Robert Wood Johnson Partners Accountable Care Organization (ACO). Medical students at the University of California, San Francisco are immersed in a longitudinal, interprofessional and authentic clinical microsystem and play a role in improving patient experience and health care quality while learning and applying clinical skills.

Medical students embedded in the community

Students at CUNY School of Medicine are embedded at numerous federally-qualified health centers. During the first year, students shadow physician preceptors and develop their clinical history-taking skills. They also learn about team-based care and rotate with nurses, dieticians, and social workers in order to understand how each professional contributes to patient care. Medical students are trained as health coaches and help patients implement health-related behavioral changes, such as exercise and diet changes. Students return to the same health centers during the following two years of their longitudinal clinical experience and assist with value-added tasks, such as medication reconciliation and developing and disseminating patient education tools. Students act as navigators accompanying patients through all points of their clinic visit and begin to identify the multiple points of care, the various

members of a health team and their specific roles, ranging from the front desk, to nursing/triage staff, the physician, pharmacists, social workers, and nutritionists.

A.T. Still University-School of Osteopathic Medicine in Arizona has partnered with the National Association of Community Health Centers to place second through fourth-year medical students in 12 rural and urban community health centers. These longitudinal experiences provide contextual learning about the social determinants of health and other aspects of HSS as well as the basic and clinical sciences.

Florida International University Herbert Wertheim College of Medicine (FIU) built on its "Green Family Foundation Neighborhood Health Education Learning" program (NeighborhoodHELP™). During the second, third, and fourth years, students become part of teams of interprofessional students going into households to take care of underserved families. FIU was host to "Community Medical Education: From Engagement to Development," a thematic meeting attended by 47 people from 28 consortium schools.

Patient safety and quality improvement

Patient safety and quality improvement are two other key topics included within HSS, and several schools developed a sharp focus on these domains. The University of Chicago Pritzker School of Medicine incorporates active learning in patent safety and health care quality into all four years of medical school and uses novel technological tools to do so. These tools include an online microblogging learning community with trained faculty coaches, point-of-care applications on mobile devices and a "Room of Horrors" filled with some of the scariest hazards to patient care. The Room of Horrors has been replicated by at least five medical schools and was featured at a sold-out event during Chicago Ideas Week, September 2018.

Students at Vanderbilt University School of Medicine have completed over two hundred quality improvement projects. Identifying needs over the course of their clinical experience, students complete a mentored process under the guidance of quality experts to create interventions with defined outcome metrics to ensure alignment with the priorities of the health care system. Recognizing that similar improvement efforts were occurring at multiple consortium sites, the AMA sponsored a student impact challenge in 2018. Over 40 high-impact projects were submitted, and cash prizes were awarded to 3 students.

But before medical students can be taught the competencies associated with patient safety and quality improvement, medical school faculty must learn how to teach these relatively new areas of focus in medicine. Brody School of Medicine at East Carolina University designed and created its Teachers of Quality Academy (TQA). Those who have graduated from the program have become a cohort of master educators on patient safety and quality improvement and have helped advance these subjects across the campus and health system. Emory University School of Medicine implemented a faculty development program around patient safety and quality improvement that offers multiple options for engagement. Quality improvement training and related projects can be used to meet maintenance of certification requirements. The AMA launched a Health Systems Science Faculty Academy in September 2018 with 39 participants. In the future, the Academy will be open to consortium and non-consortium schools.

Social determinants of health

Social determinants of health, one of the domains of HSS, is a focus at some consortium member schools. The University of California, Davis, School of Medicine launched a three-year education track, the Davis Accelerated Competency-based Education in Primary Care (ACE-PC) program, in close collaboration with Kaiser Permanente of Northern California, the largest health care provider in the region. Addressing social determinants of health is central to the program's mission and curriculum. UC Davis ACE-PC students are embedded into Kaiser Permanente's integrated health care delivery system and patient-centered medical home model from the first week of medical school. Davis was the host of "Health Equity & Community-based Learning: Students as Advocates," a student-led thematic, in August 2016 that was attended by over 200 medical education leaders, medical students, and students from other health professions.

Chronic disease

In recognition of the fact that medical care is increasingly focused on chronic disease rather than acute conditions, several consortium projects have focused on shifting medical education in this direction. For example, the medical students incorporated into the ACO at Rutgers Robert Wood Johnson Medical School augment care for patients with multiple chronic conditions. Chronic disease management is a core component of the ACE-PC program at Davis. The curriculum at Eastern Virginia Medical School includes a focus on care for patients with multiple chronic conditions. The Accelerating Change in Medical Education initiative has held several meetings with Improving Health Outcomes, another of the AMA's strategic focus areas, to work toward developing medical school coursework on chronic disease.

Competency-based Medical Education and Individualized Pathways

Member institutions of ACE had varying levels of engagement in implementing competency-based approaches. At some sites, changes were limited in scope to specific interventions such as establishing intern-prep courses or defining competencies in specific curricular realms such as HSS. A subset within the consortium, however, worked closely together to advance more significant implementation of CBME and individualized pathways. Interestingly, four of the ten schools invited to the AAMC's national pilot

of the Core Entrustable Professional Activities for Entering Residency (Core EPAs) were ACE Consortium schools (FIU, OHSU, NYU and Vanderbilt).

Although ACE members have not yet achieved time-variable advancement to GME, several sites did create the capacity for individualized pathways informed by competency development. At Vanderbilt, students receive feedback in all competency domains starting in the first weeks of school and complete evidence-driven personalized learning plans in a structured process supported by faculty coaches. The requirements of the post-clerkship phase can be adjusted to match the competency needs of the individual, with some students requiring more clinical skill development and others focusing on foundational sciences, while students who have attained all competency expectations are permitted full flexibility to pursue personal goals. In a similar structure, OHSU utilized competency evidence and coaches to permit some students to graduate early. Although these students were not able to immediately enter GME, they did reduce their tuition burden. Michigan uses the analogy of a tree's trunk and branches to illustrate the relationship of core competencies expected of all students to the individualized pathways that prepare students for future leadership roles.

These sites serve as important exemplars for a challenging implementation process. Their collective experience has positioned the AMA and ACE to contribute with authority to the international call for a greater focus on educational outcomes over educational process.

Optimizing the Learning Environment

The consortium has not just been focused on what medical students learn, but also how they learn. The learning environment includes several components: personal, social, organizational, and physical / virtual.[67] ACE schools have implemented changes at all these levels to promote student success.

Well-being

Concerns for student well-being was a shared priority among members of the consortium. Many of the curricular innovations implemented across ACE sites are designed to enhance the learner's experience and thus mitigate against the dehumanizing impact of traditional training. However, it was also acknowledged that adjusting to new models can be distressing to students. Mayo Clinic Alix School of Medicine has been a leader in the realm of physician and student wellness and lead an inventory across consortium schools to identify current practices. Consortium members attacked this issue from several perspectives: assessing student distress, implementing supportive programs, defining the competencies students need to effectively manage wellness throughout their careers. Importantly, the group facilitated a shift to focus beyond the individual to align with the AMA's vision that wellness is a structural issue. Training in HSS and master adaptive learning techniques will prepare students to take control of their practice environments in the future.

Master adaptive learner

Although entering medical students may consider themselves expert learners, their prior environments were structured, with learning objectives and outcomes defined by their teachers. Successful lifelong learning requires differing strategies to juggle learning alongside the competing demands of daily practice. To illustrate this point, experts from several consortium schools such as Vanderbilt University School of Medicine, University of Michigan Medical School, Oregon Health & Science University School of Medicine (OHSU) and New York University School of Medicine developed the conceptual model of the *master adaptive learner*. Physicians who are master adaptive learners adapt to the evolving needs of their patients and the health care system throughout their careers by engaging in guided self-assessment and cyclical learning plans. Several sites introduced this model to their students and implemented authentic workplace-based opportunities to practice identifying and addressing individual learning needs.

Coaching

Coaching and the use of coaches is a key factor that supports the development of master adaptive learner. Unlike an adviser or a mentor, an academic coach may or may not have expertise in the realm of the self-identified need(s) in their learner but is skilled at helping the learner accurately reflect on their performance, their needs for growth, and gain insight into desired outcomes. Coaches help learners improve their own self-monitoring. In order to disseminate the coaching concept, the consortium published Coaching in Medical Education, A faculty handbook on the AMA website and made it freely available (log-in required). A total of 7,457 components of this book were downloaded from the website. More than a thousand copies were mailed to medical schools for distribution. A thematic meeting focused on coaching was offered in October 2018 and attended by 81 people from 30 consortium schools.

Technology

Very little of the innovations described throughout this report could happen without the best technology infrastructure. Many of the ACE schools implemented new learning management systems to better support interactive and team-based learning. Digital platforms are critical to assemble and display the performance evidence that supports competency-based approaches to medical education. For example, at Vanderbilt, a rich informatics and technology infrastructure collects learner experiences and assessments

in the learning portfolio and aggregates and displays performance data in a way that facilitates interpretation and decision-making for personalized learning plans. At OHSU, competency milestones achieved by medical students are tracked in a web-based personal portfolio, and students receive badges for their achievements. Learners can monitor their progress toward preparing for the expectations of internship in real time and can track relative progress across various domains of competency.

Training students to effectively use technology in practice is also critical. Indiana University School of Medicine (IUSM), in conjunction with the Regenstrief Institute, developed the Regenstrief EHR Clinical Learning Platform. This EHR, designed specifically for teaching, is a clone of an actual clinical EHR, using de-identified and misidentified real data on more than 10,000 patients. This platform allows medical students, starting in week one of medical school, to write notes and orders, view data on patients, and access just-in-time information links. It provides a safe and realistic health system environment from which to learn and practice clinical decision-making skills and is a resource to address learning gaps and assist students in meeting competency-based expectations. Students work within a virtual health system and use the Regenstrief EHR to identify errors and patient safety issues; initiate quality improvement and measure the success of these efforts; explore the potential for personalized medicine; and gain comfort in comparing their own practice patterns with those of their peers. Students "care" for a panel of e-patients and, blinded to the real care provided, have the ability to compare their diagnosis and treatment recommendations to those of their health student colleagues and to the actual attending provider, as well as experience firsthand the utility, power, versatility, and challenges of using health information technology to deliver cost-effective, quality health care.

The Regenstrief EHR Clinical Learning Platform was adopted by consortium and non-consortium schools, including several who built up and expanded upon this tool. The University of Connecticut School of Medicine, a consortium member, incorporated the Regenstrief EHR Clinical Learning Platform into its new "MDelta" curriculum and expanded the IUSM registry of real de-identified and misidentified patients with its collection of virtual patients and families. Sidney Kimmel Medical College at Thomas Jefferson University integrated the Regenstrief EHR Clinical Learning Platform into an interprofessional health care delivery team educational experience that all Jefferson College of Medicine, College of Nursing, College of Pharmacy, and College of Health Professions students participate in during their first two years.

New York University School of Medicine created "Health Care by the Numbers," a flexible, technology-enabled curriculum to train medical students in using big data—extremely large and complex data sets—to improve care coordination, health care quality and the health of populations. This three-year blended curriculum is founded on patient panel databases derived from de-identified data gathered from NYU Langone's outpatient physician practices and government-provided open data from the 2.5 million patients admitted each year to New York State hospitals. A total of over five million de-identified patient level records are available for student projects. Students can explore every inpatient admission by DRG code, providers, charges, or hospitals. The data set is continually expanded and refined. The technology infrastructure for the NYU Health Care by the Numbers curriculum is open to the public at: http://ace.iime.cloud.

Evaluation

Evaluation has been a pivotal piece of the AMA's Accelerating Change in Medical Education initiative since its inception. The objectives of the overall initiative and the work at each site are founded upon current educational theory. Significant resources have been invested in the interventions that have been implemented, and consortium members acknowledge the duty to critically appraise outcomes. In addition to the internal evaluation plans at each site, experts from the member institutions collaborated to determine measures of success for the collective. The group has committed to advancing educational scholarship. The following section elaborates on these outcomes.

APPENDIX D - Impact on Learners

Case Western Reserve University Medical School

Twenty medical student navigators were partnered with refugee families at Neighborhood Family Practice, a federally qualified community health center on Cleveland's west side, during the current grant year. These students all forged relationships with their families over the course of the year, however 4 pairs of students have served as inspirations to all of us, demonstrating how care should be provided for all patients. They partnered with families who escaped war in Syria, Afghanistan, and Ethiopia. Each of these 3 medical student navigator pairs partnered with a newly arrived refugee family facing serious health issues in addition to transitioning to a new country, culture, and language. They embraced the notion of creating authentic trusting relationships by employing cultural humility and gaining the trust of their partner families. These students approached each family with kindness and attentiveness to their most pressing needs in order to eventually address health needs and promoted well-being. Additionally, they seamlessly integrated themselves into the primary care team, becoming trusted among colleagues and even consistently documenting in the electronic medical record.

Two medical student navigators partnered with a mother and adult daughter from Afghanistan who experienced serious trauma as a result of war. While the mother had been dismissed by some physicians as having "somatic complaints," the navigators attended specialty and primary care appointments to articulate all of her concerns in the context of her past trauma, living situation, and profound social determinants of health. The students facilitated treatment for a bedbug infestation in their home, new health insurance when she and her daughter were dis-enrolled, and coordinated with the pharmacy when multiple medication were not

filled due to insurance and communication errors. They also helped the family obtain clothes and food when those basic resources were scarce and advocated for transition to a new case manager and trauma therapist when they determined her case had been sub-optimally handled by one agency. They ultimately assisted in making the diagnosis of rheumatoid arthritis leading to more effective systemic treatment options rather than continued dismissal as trauma related somatic complaints. They accomplished all of this while using an interpreter to communicate in Dari. This family has repeatedly shared their gratitude for the role the navigators have played in this difficult transition to the U.S.

<u>University of North Dakota School of Medicine and Health Sciences</u>

From a student in the program:

I felt nervous but excited to attend the simulation. I did not know what to expect. When I walked into the room, the role play began immediately. I was thinking there would have been a brief discussion of roles, but it started right away, which turned out to work out. I introduced myself to the granddaughter, and the patient in the nursing home. During the first two role plays, I felt like I did really well about talking directly with Sandra, the patient in the nursing facility, and then also talking to the granddaughter and explaining resources. I felt like that was good to do to get a better understanding of the client's cognitive level of functioning, and awareness, but also to maintain her dignity and respect by talking to her. During the second session role play, I felt like I didn't do as good of a job interacting specifically with the patient, but was more focused on the granddaughter, and learning her coping skills, supports, and informing her of services and supports.

One thing I did initially think about was that as a social worker, I typically have several resources available to give out. I was pretending to give the granddaughter brochures to review during the role play. I know I learn better from both hearing about things, but also being able to look at things, and reflect on it, and let it sit, rather than make a decision in a minute. I think in real life, without providing too much as to overwhelm the person, social workers would have resources available for the person to review. I thought about if it would be helpful to have a sample DNR to have at the simulation to review, and to tell the family, there are different types available, but that these are some of the typical questions and things to consider.

I think I need to get better with physical touch. I am really mindful about use of self and touch, and some people don't like it, while others really do, and I think in a hospital setting, depending on the situation, touch may be important. Touch, I can see, would be challenging when using telemedicine/teleconferencing in this setting. This simulation made me thing about doing telecounseling, and what that may look like, and how there could be ways to create connections depending on the population. For example, when working with youth, after rapport is established, to do a soft fist bump or something to the screen at the same time, in lieu of a handshake, or other techniques to help make a "physical connection."

Lastly, one thing I didn't say during the role play, but thought of after when talking with a classmate was that I regret not mentioning or bringing up if there was any cultural, religious, or spiritual practices that they wanted us to be aware of. I think that is really important to be cognizant of. Along those same lines, I also think it is important to be aware of how individuals learn. I know that is one thing the nurses locally have been asking is how people prefer to learn new things/learn to take their medications/learn how to do their own treatment, whether it is reading written information, watching demonstrations, or hearing/being told how to do something. I think this is important to ask so we know we are getting the client and family the information in inclusive ways.

I really enjoyed the simulation, and I would be open to participating in others. I liked how there was one session without the OT and then how the next one the OT was there. It gave me and the team good insight about what their role was. I wonder how it would be if there was one simulation without a social worker, and then the next one with a social worker, and how the team would see the difference. This role play did peak my interest in hospital social work and prompted me to do more learning on advanced directories and living wills for myself, and also for people I may work with.

APPENDIX E - Impact on Faculty

Researchers at the Brody School of Medicine at East Carolina University created the Redesigning Education to Accelerate Change in Healthcare (REACH) program, comprised of three separate but interconnected parts: 1) Teachers of Quality Academy (TQA); Leaders in Innovative Care (LNC); Longitudinal Core Curriculum (LCC). The TQA is a faculty development program that has been designed to increase the pedagogical and leadership capacity of faculty in HSS, specifically within the areas of quality improvement, patient safety, population health, and interprofessional education. Focusing upon both content and process across the medical education continuum, the TQA aims to achieve excellence in health care delivery through dedicated training and application of team-based, patient-centered care.

To date, there have been 78 graduates from the Academy, 18 of whom have received promotions. There have been opportunities for interinstitutional collaboration – for example, between Brody, Penn State, and Case Western – resulting in a draft health systems science assessment tool and refinement of a health systems science longitudinal curriculum. An annual quality improvement and medical education symposia series have been established as well as seminars, cross campus collaborations, opportunities for mentoring, and clinical experiential applications. TQA graduates shared their personal philosophies which include:

I want to be known for being an approachable, optimistic, trustworthy leader so that I can deliver innovative, productive, and compassionate care.

I want to be known for being respectfully decisive and sincerely optimistic so that I can deliver meaningful results based on competent analysis.

One graduate summarized the experience in the following way:

TQA was one of the most comprehensive learning experiences I've participated in. Learned much more than I expected. Collaboration with others in the group was a great benefit learned. Thank you to the leaders and course coordinators.

APPENDIX F - Impact on the AMA

Table F-1

Top 10 AMA Wire titles	Pageviews
Not your grandfather's med school: Changes trending in med ed	8,610
3 big ethical issues medical school doesn't prepare you for	6,279
New textbook is first to teach "third pillar" of medical education	6,023
Video games are changing medical education	5,683
Why medical schools are building 3-year programs	5,647
Pre-residency boot camps prep med school grads for new realities	4,420
Tailor-made plans help M4s get more out of last year before GME	4,221
At these 3 med schools, health systems science is core component	4,040
New approach equips med school grads for tomorrow's health system	4,016
Advice for a med student's must-have—a sound night's sleep	3,920
Total page views from 10/26/16 to 9/28/18	193,992

Table F-2

2017 Webinars	Date (2018)	Participants
Inter-Professional Education	Jan 29	250
Student Wellness	March 19	296
Student Leadership	May 21	171
Student Portfolios	July 30	178
Health Systems Science in MedEd (US/South Africa)	Aug 13	77
Value-Added Roles for students	Sept 17	89
Leadership in HSS (US/South Africa)	Nov 1	46
Total Participants: 1107		
2018 Webinars	Date (2018)	Participants
Regenstrief Teaching Virtual EHR	4/24/2017	204
Educause Collaboration	6/5/2017	N/A
Big Data for Population Health	8/21/17	199
Health Systems Science	10/23/17	186
Inter-Professional Education	1/29/18	250
Student Wellness	3/19/18	296
Student Leadership	5/21/18	171
Student Portfolios	7/30/18	178
Health Systems Science in MedEd (US/South Africa)	8/13/18	77
Value-Added Roles for students	9/17/18	89
Leadership in HSS (US/South Africa)	11/1/18	46
Total Participants: 1696		

Table F-3

Virtual Discussion	Date	Participants
Teaching Virtual EHR	4/24/17	51
Transforming education: Leading innovations in health professions education	5/29/17	74
Interprofessional Education: Challenges and Solutions	7/13/17	76
Reflections on the ACE Student Leadership Meeting	8/3/17	24
Using Big Data to Teach Population Health	8/17/17	36

ChangeMedEd® 2017 Discussion Forum	9/13/17	62
Health Systems Science – The Third Pillar of Medical Education	10/17/17	91
Implementing a Successful Academic Coaching Program for your Learners	12/4/17	135
Sexual Harassment of Learners in the Clinical Environment	1/16/18	111
Interprofessional Education: Using technology to teach team-based care	1/29/18	130
Medical Student Wellness and Beyond: Creating a Healthy Culture for All	3/19/18	264
Recruiting for Diversity: Recognizing Visible and Invisible Strengths	4/23/18	133
Developing the Next Generation of Physician Leaders	5/21/18	139
Enhancing Medical Student Experiences in Light of the New CMS Policy for EHR Documentation	6/11/18	213
Portfolios and Dashboards: Leveraging Data for Student Success	7/30/18	194
How Can Medical Students Add Value to Patient Care in the Health System?	9/17/18	115
MedEd Makeover: Making Room in a Crowded Curriculum	10/22/18	170
Total Participants: 2018		

6. STUDY OF MEDICAL STUDENT, RESIDENT, AND PHYSICIAN SUICIDE (RESOLUTION 959-I-18)

Reference committee hearing: see report of Reference Committee C.

**HOUSE ACTION: RECOMMENDATIONS ADOPTED AS FOLLOWS
                   IN LIEU OF RESOLUTIONS 959-I-18, 307 AND 310
                   REMAINDER OF REPORT FILED**
                   See Policies D-345.983 and D-345.984

AMA Policy D-345.984 (1), "Study of Medical Student, Resident, and Physician Suicide," asks:

> That our American Medical Association (AMA) determine the most efficient and accurate mechanism to study the actual incidence of medical student, resident, and physician suicide, and report back at the 2018 Interim Meeting of the House of Delegates (HOD) with recommendations for action.

Recognizing the importance and timeliness of this topic, the Council on Medical Education agreed that appropriate resources should be dedicated to identifying mechanisms for study, noting that meaningful and constructive review of this issue, and of the work done to date by other organizations, required additional time. Accordingly, this report was moved to the 2019 Annual Meeting.

This report also addresses Resolution 959-I-18, "Physician and Medical Student Mental Health and Suicide," introduced by the Indiana Delegation and referred by the AMA HOD; it asks:

> That our AMA create a new Physician and Medical Student Suicide Prevention Committee with the goal of addressing suicides and mental health disease in physicians and medical students. This committee will be charged with:
> 1. Developing novel policies to decrease physician and medical trainee stress and improve professional satisfaction.
> 2. Vociferous, repeated, and widespread messaging to physicians and medical students encouraging those with mood disorders to seek help.
> 3. Working with state medical licensing boards and hospitals to help remove any stigma of mental health disease and to alleviate physician and medical student fears about the consequences of mental illness and their medical license and hospital privileges.
> 4. Establishing a 24-hour mental health hotline staffed by mental health professionals whereby a troubled physician or medical student can seek anonymous advice. Communication via the 24-hour help line should remain anonymous. This service can be directly provided by the AMA or could be arranged through a third party, although volunteer physician counselors may be an option for this 24-hour phone service.

BACKGROUND

Burnout in physicians, residents, and medical students has been widely reported in recent years in both the lay and scholarly press, and incidence of depression and suicide is greater in medical students, residents, and physicians than the general population.[1-7] A recent study conducted by the AMA, Stanford University School of Medicine, and Mayo Clinic shows rates of physician burnout in 2017 declined to 44 percent from 54 percent in 2014.[8] While burnout may have declined to levels present in 2011, the proportion of physicians screening positive for depression has modestly increased to nearly 42 percent.[8] Medical school and residency are stressful periods of physician training, each with their own dynamic. Many medical students experience substantial distress, which contributes to a decline in mental health and well-being. The American Medical Student Association reports that medical students are three times more likely to commit suicide than the rest of the general population in their age range in other educational settings.[4] Residents and practicing physicians also experience depression and burnout, and because they often lack a regular source of care, face barriers to the prompt diagnosis and treatment of behavioral disorders.[9] Stress, depression, and burnout are risk factors for suicidal ideation and suicide deaths.[9]

Resources such as hotlines exist for individuals experiencing suicidal ideation and are available from a number of reputable local, state, and national sources. In a recent Medscape report, based on a survey of more than 15,000 physicians in 29 specialties, 14 percent of respondents indicated that they had felt suicidal, and one percent had attempted suicide.[10] More than half of physicians who had thoughts of suicide told someone (therapist, family member, friend/colleague), but only two percent who had thoughts of suicide used a suicide hotline.[10]

Institutions and physician associations have begun to recognize the scope of this critical issue and are moving to address the problem.[11-12] The National Academy of Medicine's Action Collaborative on Clinician Well-Being and Resilience is exploring recommendations in this regard, working with more than 150 health care organizations to raise visibility about clinician burnout and developing a commentary that calls on health systems to consider hiring chief wellness officers.[13]

QUANTIFYING THE RATES OF PHYSICIAN SUICIDE

As early as the late 19th century,[14-18] and throughout the 20th and 21st centuries, reports quantifying the rates of physician suicide have been presented in health care journals and industry publications, and more recently in mainstream media. Studies of physician suicide rates compared to the general U.S. population have resulted in conflicting conclusions—some indicating physicians are more prone to suicide, and others demonstrating no significant difference. Medical student and resident/fellow deaths have been studied in more recent years. Inclusion of a literature review in this report is important to demonstrate the various modes of study and sources of data over time, and the implications of study methods for future efforts to quantify physician, resident/fellow, and medical student suicide rates.

In the late 1800s and into the 20th century, the primary source of data on physician deaths used by researchers was the AMA's Deceased Physicians file, which provided information on hundreds of thousands of deceased physicians from the early 19th century to the mid-1960s.[19-21] The cause of death listed in the records was obtained by various means, including *JAMA* obituaries, which cited death certificates and autopsy reports.[22-23] For example, one study published in 1926 concluded from AMA's data that the suicide rate of white male physicians in the U.S. was 45.4 out of 100,000.[24] Another study, using AMA's records from 1967 to 1972, showed the rates of suicide in American female physicians was 40.7 per 100,000, higher than male physician suicides during the same time range.[25] A study of death certificates in California from 1959 to 1961 found that physicians and health care workers were twice as prone to commit suicide when compared to the general population.[20] A 1977 *JAMA* article claimed that physicians took their own lives at a rate equivalent to one medical school class each year, but cited no specific number or source for this information.[26]

In the later part of the 20th century, researchers began using the National Occupational Mortality Surveillance (NOMS) database to identify causes of death for physicians, which was deemed a more accurate and reliable source than the AMA information.[27-28] The data in NOMS is sourced from state vital records (death certificates) and lists the proportionate mortality ratio for the total population.[29] The Social Security Death Index, another source of mortality information used by researchers, records the deaths of anyone in the U.S. who was issued a social security number. The Centers for Disease Control and Prevention (CDC) has several databases featuring varying degrees and descriptions of mortality and manner of death information. The CDC in 2016 published a study of suicides in 17 states

using cause of death information from the National Violent Death Reporting System. This limited study concluded that the suicide rate for health care practitioners was 17.4 per 100,000 population.[30] This study was later found to have included erroneous data, however, and the authors are reanalyzing the findings.

Most of these studies call out limitations in the availability, reliability, and consistency of the data used to identify causes of death and occupation. A test of accuracy of the *JAMA* obituaries was conducted on a small sample, and it was determined that only half of the causes of death listed were accurate when compared with records from the state's department of health computerized records.[19] *JAMA*'s editor, in a quoted communication, alluded to the incompleteness of the obituary data and acknowledged that this was in part because some suicides may be listed on a death certificate or autopsy report as something other than suicide, such as respiratory failure.[31] *JAMA* also would not include the cause of death if requested by the family of the deceased physician, further limiting the completeness of the records.[28] Even death certificates, the primary vital record used by secondary sources, are not 100 percent consistent, accurate, or complete. Studies have found errors in manner of death certification in approximately 33 percent to 41 percent of cases.[32-34] Other studies have demonstrated variance in how different medical examiners interpret facts surrounding a decedent's death and how they ultimately report manner of death.[35-36]

SOURCES FOR COLLECTING DATA TO STUDY SUICIDE STATISTICS IN THE UNITED STATES

The databases and reports shown in Table 1 were identified as sources for collecting data to study suicide statistics in the United States.

Table 1. Sources for Data on Suicide Statistics in the United States

Source	Type of Data
Centers for Disease Control and Prevention	Fatal Injury Reports Leading Cause of Death Reports Mortality Reports National Vital Statistics System National Violent Death Reporting System National Occupational Mortality Surveillance Wide-ranging Online Data for Epidemiologic Research National Death Index
American Medical Association	JAMA Obituaries Deceased Physicians Masterfile (1906-present) Directory of Deceased American Physicians Vols. 1 & 2 (1804-1929)
World Health Organization	Compiled from member state local databases
Department of Defense	Department of Defense Suicide Event Annual Reports
Department of Veterans Affairs	National Suicide Data Report
Bureau of Justice Statistics	Suicide and Homicide in State Prisons and Local Jails
Social Security Administration	Social Security Death Index
Other	State and Local Vital Records; Legacy Obit

Although generally reliable, some inconsistency also exists in the recording of a deceased person's primary occupation, somewhat limiting the ability of researchers to accurately determine rates of suicide among specific populations, such as physicians, residents, or medical students. Occupation has long been a captured data point on death certificates, but it has not always been codified, utilized, and monitored the way it is today.[37] More recently, occupation and industry information have become more reliable.[38] Occupation information can now be recorded in most electronic health records (EHRs), helping to capture accurate information on the death certificates, but it is not required, and evidence shows it may not be consistently used.[39-41]

Studies have shown that suicide is likely under-reported due to a lack of systematic approaches to reporting and assessing the statistics.[42] Experts have also observed that cultural attitudes toward suicide determine how suicide is defined and how "intention to die" is legally interpreted.[43] These effects, as well as differing procedures for obtaining evidence about the death, cause coroners to vary in their definitions and reporting processes. Some believe this

variation makes official statistics valueless and too unreliable to compare the suicide rates of countries, districts, or of demographic and other groups; to discern trends; or to investigate the social relations of suicide. However, other researchers disagree and have concluded that, despite inconsistency, the statistics still have utility.[44]

RELEVANT WORK OF OTHER ORGANIZATIONS

Accreditation Council for Graduate Medical Education

In 2017 the Accreditation Council for Graduate Medical Education (ACGME) studied the number and causes of resident deaths by matching their deceased resident data with cause of death information obtained from the National Death Index (NDI), a comprehensive database managed by the CDC. From this research they identified suicide as the leading cause of death for male trainees, the second leading cause for female trainees, and the second leading cause of death overall.[45] The cause of death data sourced from the NDI produced a 94 percent match to records in the ACGME's database, suggesting that these data represent an accurate and reliable source that could be used for future study.

National Academy of Medicine

The National Academy of Medicine's Action Collaborative on Clinician Well-Being and Resilience recently launched the Clinician Well-Being Knowledge Hub. The Hub is intended to provide resources to help organizations learn more about clinician burnout and solutions.[13] The repository contains peer-reviewed research, toolkits, and other resources for health system administrators and clinicians.

American Foundation for Suicide Prevention

The American Foundation for Suicide Prevention (AFSP) has developed an Interactive Screening Program (ISP), which is in place for use by institutions of higher education, including undergraduate and medical schools, and which has been customized for use by workforces in multiple industries.[46] This initiative identifies individuals who may be at risk for suicide by offering them the opportunity to participate in an anonymous online screening.

UC San Diego Health Education Assessment and Referral Program

The UC San Diego Health Education Assessment and Referral (HEAR) Program, in collaboration with the AFSP, also provides a program of ongoing education and outreach, which encourages medical students, residents, and faculty, as well as pharmacists, nurses, and other clinical staff, to engage in an online, anonymous, interactive screening program.[47] The AFSP program model has been adopted by many schools of medicine and is used by clinicians of all disciplines.

Other Organizations

The AMA, American Osteopathic Association, and state and specialty medical associations are also positioned to help alleviate physician stress and burnout. CME Report 1-I-16, "Access to Confidential Health Services for Medical Students and Physicians,"[48] provides an overview of potential solutions by several key stakeholders including accrediting agencies, medical schools, residency/fellowship programs, employers, hospitals, and professional associations, including the AMA.

RELEVANT WORK OF THE AMA

The AMA has studied the mental and physical toll that medical education exacts on medical students and resident/fellow physicians as they seek to balance their personal lives with the need to master a growing body of knowledge and develop the skills required to practice medicine. Specific AMA policy mandates and recommendations related to this topic are shown in the Appendix. AMA policy also addresses the long-standing and deeply ingrained stigma against physicians and students who seek care for either physical or behavioral health issues, partly due to concerns of career and licensure implications.

Work of Professional Satisfaction and Practice Sustainability (PS2) and STEPS Forward™

The AMA is already taking steps to decrease physician and medical student/trainee stress and improve professional satisfaction through resources such as the STEPS Forward™ practice improvement module, "Preventing Physician Distress and Suicide," which offers targeted education for practicing physicians seeking information about how to help their physician colleagues who may need support. The AMA is also developing an education module that will help physicians, residents, and medical students learn about the risks of physician suicide, identify characteristics to look for in patients who may be at risk of harming themselves, and recognize the warning signs of potential suicide risk in colleagues. The module, to be offered with continuing medical education credit on the AMA's Ed Hub™, will also provide tools and resources to guide learners in supporting at-risk patients and colleagues.

In addition to education resources for physicians, the AMA works with organizations to help them understand the incidence of burnout in their workplaces. Using the validated Mini-Z assessment tool, organizations are assigned a burnout score, along with targeted data on culture and workplace efficiency factors that can lead to stress and burnout for physicians. These data enable the AMA to work with the organizations to identify solutions, helping improve environmental, organizational, or cultural factors that, if not addressed, could lead to heightened stress or suicide risk for some.

Accelerating Change in Medical Education

Schools in the AMA's Accelerating Change in Medical Education Consortium formed a student wellness interest group to share ideas across schools about best practices to ensure wellness and counter burnout. The results of a wellness survey conducted among medical school consortium members showed that 81 percent of respondents employ an individual tasked with focusing on student wellness to at least some extent; these roles range from program coordinators to graduate assistants to deans who also serve as wellness directors. Most schools had dedicated wellness committees, with budgets up to $7,000 annually.

DISCUSSION

Overall, the available literature suggests that obtaining both accurate manner of death and specific occupation information is the most reliable means of quantifying rates of suicide among physicians. However, most researchers still face challenges with this approach. Primary barriers include:

- Cost and limitations of obtaining and using the data from reliable sources;
- Irregular/restricted access to mortality information, including date, cause, and manner of death;
- Inconsistency in medical examiner interpretation of cause/manner of death;
- Lack of standard physician and medical examiner/coroner training on completion of the death certificate;
- Possible underutilization of standard code-sets to report manner of death;
- Social or cultural stigma associated with reporting a death as a suicide;
- Underutilization of "occupation" field in electronic heath records; and
- Inaccurate or inconsistent assignment of occupation upon death.

Physician-focused Programs and Resources

Resolution 959-I-18 asks the AMA to create a committee tasked with establishing a 24-hour mental health hotline for physicians and medical students to access when in need. Establishing and maintaining a mental health hotline is resource intensive, requiring investments in staffing, infrastructure, management, training, costs of licensing, and accreditation to operate. Operating the Crisis Call Center, a backup center for the National Suicide Prevention Lifeline, costs approximately $1.1 million per year.[49] A smaller, Louisiana based non-profit operation, which also fields calls directed from the national lifeline, operates on $350,000 per year.[49] Most of the funding for local services comes from county and city sources, as well as in-kind and private donations. Accredited programs may receive a small stipend from the Substance Abuse and Mental Health Services Association. Due to limited available funds, many programs rely on volunteers more than paid staff.[50-51] In addition to substantial costs, establishing a new, physician-focused mental health line may introduce potential liabilities for the AMA. Considering the extensive resources involved, the potential for liability, and demonstrated low rates of usage,[10] it is not recommended that the AMA pursue an independent mental health hotline at this time. However, the AMA has evaluated Employee Assistance Program (EAP) service providers to explore the option of piloting a service to AMA members as a membership benefit. Some EAP

services provide participants with 24/7 telephone or video access to qualified and trained counselors, wellness services, and critical incident support. This evaluation is in its early stages, and a decision to pursue various options will be considered.

Removing the Stigma Associated with Behavioral Health Treatment

Resolution 959-I-18 also asks the AMA to create a committee to work with state medical licensing boards and hospitals to help remove any stigma of behavioral health and to alleviate physician and medical student fears about the consequences of behavioral health treatment on their medical license and hospital privileges. In addition to multiple policies expressing the AMA's commitment to resolving this issue, CME Report 6-A-18, "Mental Health Disclosures on Physician Licensing Applications," adopted at the 2018 Annual HOD Meeting, addressed concerns that have been raised about the presence and phrasing of questions on licensing applications related to current or past impairment. These questions may be discouraging physicians from seeking appropriate treatment because of fear of stigmatization, public disclosure, and the effect on one's job due to licensing or credentialing concerns.[52] Many medical and osteopathic licensing boards recognize that the manner in which they evaluate the fitness of potential licensees has the potential to create a barrier that prevents licensees from seeking help. Some state boards, such as the Oregon and Washington State Medical Boards, have taken steps to address these barriers. In addition, the Federation of State Medical Boards has established a Workgroup on Physician Wellness and Burnout. The workgroup is addressing symptoms that arise from the practice of medicine for which physicians may be reluctant to seek treatment due to concern about the presence and phrasing of questions on licensing applications about behavioral health, substance abuse, and leave from practice. The workgroup is also seeking to draw an important distinction between physician "illness" and "impairment" as well as determine whether it is necessary for the medical boards to include probing questions about a physician applicant's behavioral health on licensing applications in the interests of patient safety.

Current and Planned AMA Efforts

Updating the AMA Physician Masterfile for Research

The AMA's Deceased Physician database, which includes records of deceased physicians dating back to 1804, includes 242,541 physicians (as of January 2019). Currently only 107 records have a manner of death listed. This information is not made available on a consistent basis by the sources the Masterfile team relies on for mortality information. To capture the manner of death information needed to pursue relevant research, the Masterfile needs to be supplemented with third-party information that is made available at the individual level. To advance research in quantifying rates of physician suicide, as well as to identify patterns, risk factors, and methods by which to prevent suicides, the AMA is exploring options to enhance its Physician Masterfile data by collecting and maintaining manner of death information for physicians listed as deceased.

The AMA is partnering with a leading academic medical institution to conduct a pilot study using data from the National Death Index (NDI) to identify manner of death for a subset of the AMA Masterfile population. The goals of this initial research are to study and quantify incidence of suicide among physicians, residents, and medical students, and to evaluate the quality and reliability of the NDI data to determine if they represent a viable and cost-effective source for further, long-term study. Results from this research are anticipated by the end of 2019. In addition to staffing, establishment of processes, and ongoing data security requirements, there are financial costs for the procurement of these data from the NDI. Obtaining the data for the planned 2019 study will cost between $65,000 and $80,000. Obtaining NDI data for all individuals whose date of death occurred from 1979 through 2017 (the years for which NDI data is available) would require approximately $600,000. Based on the average number of records updated as deceased in the Masterfile each year, requesting future NDI data every year for long-term study would cost approximately $30,000 per year.

This research, planned for broad dissemination through publication in a peer-reviewed journal, will assist the AMA in identifying opportunities to better help physicians, residents, and medical students reduce factors that contribute to suicidal ideation and ultimately could help reduce the number of lives lost each year. This analysis could also include comparison to the general US population, comparison to rates of physician burnout, and longitudinal evaluation for various cohorts, as well other variables allowed by the data. The manner of death data could also enable additional study into physician mortality trends, such as patterns of other disease states or geographic variations.

Other data sources were explored during the preparation of this report, including the National Occupational Mortality Surveillance, Social Security Administration Death Index, National Violent Death Reporting System, National Association for Public Health Statistics and Information Systems, and the CDC Wide-ranging OnLine Data for Epidemiologic Research. While these sources are valuable for observing aggregate data, none allows access to the individual-level information needed to match records in the Masterfile or conduct research rigorous enough to accurately quantify the incidence of suicide among physicians.

Ongoing Data Collection

Collecting manner of death information on an ongoing basis will be important should the AMA choose to continue long-term study of physician suicide. In addition to the NDI data previously outlined, the AMA is continuously exploring sources and potential new mechanisms through which the Masterfile team can obtain the manner of death information for ongoing updates.

At its 2018 Interim Meeting, the AMA adopted policy that urges the Liaison Council on Medical Education (LCME) and the ACGME to collect data on medical student and resident/fellow suicides to enable these organizations and the AMA to better identify patterns that could predict, and ultimately prevent, further suicides. In response, the LCME voted at its February 2019 meeting not to participate in the data-gathering requested through the AMA policy, in that the LCME felt that such data gathering and analysis was beyond its purview. A current LCME standard requires medical schools to include programs that promote student well-being. The AMA will continue to monitor progress made by the AAMC and ACGME on this and related objectives.

Creating a Physician and Medical Student Suicide Prevention Committee

Resolution 959-I-18 asks the AMA to create a committee with the goal of addressing suicides and behavioral health in physicians and medical students. As noted above, the AMA has already carried out extensive and sustained work in developing policy, communications, and resources to decrease physician and medical trainee stress, improve professional satisfaction, and decrease the stigma associated with mental illness that physicians may face when applying for licensure and hospital privileges. As also noted above, the AMA has explored the establishment of a 24-hour mental health hotline for physicians and medical students and is currently exploring EAP service providers that provide 24/7 access to counselors, wellness services, and critical incident support. For these reasons, the formation of a new committee would duplicate existing AMA efforts, and the Council on Medical Education believes that such a body is not necessary at this time.

SUMMARY AND RECOMMENDATIONS

The routine occurrence of burnout, depression, and suicide in physicians, residents/fellows, and medical students warrants continued study. Several recommendations have been offered to collect data on the actual incidence of physician and physician-in-training suicide. The Council on Medical Education therefore recommends the following recommendations be adopted in lieu of Resolution 959-I-18 and the remainder of this report be filed.

1. That our American Medical Association (AMA) explore the viability and cost-effectiveness of regularly collecting National Death Index (NDI) data and confidentially maintaining manner of death information for physicians, residents, and medical students listed as deceased in the AMA Physician Masterfile for long-term studies.

2. That our AMA monitor progress by the Association of American Medical Colleges and the Accreditation Council for Graduate Medical Education (ACGME) to collect data on medical student and resident/fellow suicides to identify patterns that could predict such events.

3. That our AMA supports the education of faculty members, residents and medical students in the recognition of the signs and symptoms of burnout and depression and supports access to free, confidential, and immediately available stigma-free mental health and substance use disorder services.

4. That our AMA collaborate with other stakeholders to study the incidence of and risk factors for depression, substance misuse and addiction, and suicide among physicians, residents and medical students.

5. That Policy D-345.984, "Study of Medical Student, Resident, and Physician Suicide," be rescinded, as having been fulfilled by this report and through requests for action by the Liaison Committee on Medical Education and ACGME.

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APPENDIX: RELEVANT AMA POLICIES

E-9.3.1, "Physician Health & Wellness"
When physician health or wellness is compromised, so may the safety and effectiveness of the medical care provided. To preserve the quality of their performance, physicians have a responsibility to maintain their health and wellness, broadly construed as preventing or treating acute or chronic diseases, including mental illness, disabilities, and occupational stress.
To fulfill this responsibility individually, physicians should:
(a) Maintain their own health and wellness by:
(i) following healthy lifestyle habits;
(ii) ensuring that they have a personal physician whose objectivity is not compromised.
(b) Take appropriate action when their health or wellness is compromised, including:
(i) engaging in honest assessment of their ability to continue practicing safely;
(ii) taking measures to mitigate the problem;
(iii) taking appropriate measures to protect patients, including measures to minimize the risk of transmitting infectious disease commensurate with the seriousness of the disease;
(iv) seeking appropriate help as needed, including help in addressing substance abuse. Physicians should not practice if their ability to do so safely is impaired by use of a controlled substance, alcohol, other chemical agent or a health condition.
Collectively, physicians have an obligation to ensure that colleagues are able to provide safe and effective care, which includes promoting health and wellness among physicians.
(Issued: 2016)

D-345.984, "Study of Medical Student, Resident, and Physician Suicide "
Our AMA will: (1) determine the most efficient and accurate mechanism to study the actual incidence of medical student, resident, and physician suicide, and report back at the 2018 Interim Meeting of the House of Delegates with recommendations for action; and (2) request that the Liaison Committee on Medical Education and the Accreditation Council for Graduate Medical Education

collect data on medical student, resident and fellow suicides to identify patterns that could predict such events. (Res. 019, A-18 Appended: Res. 951, I-18)

H-295.858, "Access to Confidential Health Services for Medical Students and Physicians"
Our AMA will ask the Liaison Committee on Medical Education, Commission on Osteopathic College Accreditation, American Osteopathic Association, and Accreditation Council for Graduate Medical Education to encourage medical schools and residency/fellowship programs, respectively, to: A. Provide or facilitate the immediate availability of urgent and emergent access to low-cost, confidential health care, including mental health and substance use disorder counseling services, that: (1) include appropriate follow-up; (2) are outside the trainees' grading and evaluation pathways; and (3) are available (based on patient preference and need for assurance of confidentiality) in reasonable proximity to the education/training site, at an external site, or through telemedicine or other virtual, online means; B. Ensure that residency/fellowship programs are abiding by all duty hour restrictions, as these regulations exist in part to ensure the mental and physical health of trainees; C. Encourage and promote routine health screening among medical students and resident/fellow physicians, and consider designating some segment of already-allocated personal time off (if necessary, during scheduled work hours) specifically for routine health screening and preventive services, including physical, mental, and dental care; and D. Remind trainees and practicing physicians to avail themselves of any needed resources, both within and external to their institution, to provide for their mental and physical health and well-being, as a component of their professional obligation to ensure their own fitness for duty and the need to prioritize patient safety and quality of care by ensuring appropriate self-care, not working when sick, and following generally accepted guidelines for a healthy lifestyle.
Our AMA will urge state medical boards to refrain from asking applicants about past history of mental health or substance use disorder diagnosis or treatment, and only focus on current impairment by mental illness or addiction, and to accept "safe haven" non-reporting for physicians seeking licensure or relicensure who are undergoing treatment for mental health or addiction issues, to help ensure confidentiality of such treatment for the individual physician while providing assurance of patient safety.
Our AMA encourages medical schools to create mental health and substance abuse awareness and suicide prevention screening programs that would:
be available to all medical students on an opt-out basis;
ensure anonymity, confidentiality, and protection from administrative action;
provide proactive intervention for identified at-risk students by mental health and addiction professionals; and
inform students and faculty about personal mental health, substance use and addiction, and other risk factors that may contribute to suicidal ideation.
Our AMA: (a) encourages state medical boards to consider physical and mental conditions similarly; (b) encourages state medical boards to recognize that the presence of a mental health condition does not necessarily equate with an impaired ability to practice medicine; and (c) encourages state medical societies to advocate that state medical boards not sanction physicians based solely on the presence of a psychiatric disease, irrespective of treatment or behavior.
Our AMA: (a) encourages study of medical student mental health, including but not limited to rates and risk factors of depression and suicide; (b) encourages medical schools to confidentially gather and release information regarding reporting rates of depression/suicide on an opt-out basis from its students; and (c) will work with other interested parties to encourage research into identifying and addressing modifiable risk factors for burnout, depression and suicide across the continuum of medical education.
Our AMA encourages the development of alternative methods for dealing with the problems of student-physician mental health among medical schools, such as: (a) introduction to the concepts of physician impairment at orientation; (b) ongoing support groups, consisting of students and house staff in various stages of their education; (c) journal clubs; (d) fraternities; (e) support of the concepts of physical and mental well-being by heads of departments, as well as other faculty members; and/or (f) the opportunity for interested students and house staff to work with students who are having difficulty. Our AMA supports making these alternatives available to students at the earliest possible point in their medical education.
Our AMA will engage with the appropriate organizations to facilitate the development of educational resources and training related to suicide risk of patients, medical students, residents/fellows, practicing physicians, and other health care professionals, using an evidence-based multidisciplinary approach. (CME Rep. 01, I-16 Appended: Res. 301, A-17 Appended: Res. 303, A-17 Modified: CME Rep. 01, A-18 Appended: Res. 312, A-18)

H-295.927, "Medical Student Health and Well-Being"
The AMA encourages the Association of American Medical Colleges, Liaison Committee on Medical Education, medical schools, and teaching hospitals to address issues related to the health and well-being of medical students, with particular attention to issues such as HIV infection that may have long-term implications for health, disability and medical practice, and consider the feasibility of financial assistance for students with disabilities. (BOT Rep. 1, I-934 Modified with Title Change: CSA Rep. 4, A-03 Reaffirmed: CME Rep. 2, A-13)

H-295.993, "Inclusion of Medical Students and Residents in Medical Society Impaired Physician Programs"
Our AMA: (1) recognizes the need for appropriate mechanisms to include medical students and resident physicians in the monitoring and advocacy services of state physician health programs and wellness and other programs to prevent impairment and burnout; and (2) encourages medical school administration and students to work together to develop creative ways to inform students concerning available student assistance programs and other related services. (Sub. Res. 84, I-82 Reaffirmed: CLRPD Rep. A, I-92 Reaffirmed and appended: CME Rep. 4, I-98 Reaffirmed: CME Rep. 2, A-08 Modified: CME Rep. 01, A-18)

H-310.907, "AMA Duty Hours Policy"
Our AMA adopts the following Principles of Resident/Fellow Duty Hours, Patient Safety, and Quality of Physician Training:
3. Our AMA encourages publication and supports dissemination of studies in peer-reviewed publications and educational sessions about all aspects of duty hours, to include such topics as extended work shifts, handoffs, in-house call and at-home call, level of supervision by attending physicians, workload and growing service demands, moonlighting, protected sleep periods, sleep deprivation and fatigue, patient safety, medical error, continuity of care, resident well-being and burnout, development of professionalism, resident learning outcomes, and preparation for independent practice. (CME Rep. 5, A-14 Modified: CME Rep. 06, I-18)

D-310.968, "Physician and Medical Student Burnout"
Our AMA recognizes that burnout, defined as emotional exhaustion, depersonalization, and a reduced sense of personal accomplishment or effectiveness, is a problem among residents, and fellows, and medical students.
Our AMA will work with other interested groups to regularly inform the appropriate designated institutional officials, program directors, resident physicians, and attending faculty about resident, fellow, and medical student burnout (including recognition, treatment, and prevention of burnout) through appropriate media outlets.
Our AMA will encourage the Accreditation Council for Graduate Medical Education and the Association of American Medical Colleges to address the recognition, treatment, and prevention of burnout among residents, fellows, and medical students.
Our AMA will encourage further studies and disseminate the results of studies on physician and medical student burnout to the medical education and physician community.
Our AMA will continue to monitor this issue and track its progress, including publication of peer-reviewed research and changes in accreditation requirements.
Our AMA encourages the utilization of mindfulness education as an effective intervention to address the problem of medical student and physician burnout.
(CME Rep. 8, A-07 Modified: Res. 919, I-11)

H-405.957, "Programs on Managing Physician Stress and Burnout"
Our American Medical Association supports existing programs to assist physicians in early identification and management of stress and the programs supported by the AMA to assist physicians in early identification and management of stress will concentrate on the physical, emotional and psychological aspects of responding to and handling stress in physicians' professional and personal lives, and when to seek professional assistance for stress-related difficulties.
Our AMA will review relevant modules of the STEPs Forward Program and also identify validated student-focused, high quality resources for professional well-being, and will encourage the Medical Student Section and Academic Physicians Section to promote these resources to medical students. (Res. 15, A-15 Appended: Res. 608, A-16)

H-405.961, "Physician Health Programs"
Our AMA affirms the importance of physician health and the need for ongoing education of all physicians and medical students regarding physician health and wellness. (CSAPH Rep. 2, A-11 Reaffirmed in lieu of Res. 412, A-12 Reaffirmed: BOT action in response to referred for decision Res. 403, A-12)

D-405.990, "Educating Physicians About Physician Health Programs"
1) Our AMA will work closely with the Federation of State Physician Health Programs (FSPHP) to educate our members as to the availability and services of state physician health programs to continue to create opportunities to help ensure physicians and medical students are fully knowledgeable about the purpose of physician health programs and the relationship that exists between the physician health program and the licensing authority in their state or territory; 2) Our AMA will continue to collaborate with relevant organizations on activities that address physician health and wellness; 3) Our AMA will, in conjunction with the FSPHP, develop state legislative guidelines addressing the design and implementation of physician health programs; and 4) Our AMA will work with FSPHP to develop messaging for all Federation members to consider regarding elimination of stigmatization of mental illness and illness in general in physicians and physicians in training. (Res. 402, A-09 Modified: CSAPH Rep. 2, A-11 Reaffirmed in lieu of Res. 412, A-12 Appended: BOT action in response to referred for decision Res. 403, A-12)

H-345.973, "Medical and Mental Health Services for Medical Students and Resident and Fellow Physicians"
Our AMA promotes the availability of timely, confidential, accessible, and affordable medical and mental health services for medical students and resident and fellow physicians, to include needed diagnostic, preventive, and therapeutic services. Information on where and how to access these services should be readily available at all education/training sites, and these services should be provided at sites in reasonable proximity to the sites where the education/training takes place. (Res. 915, I-15 Revised: CME Rep. 01, I-16)

H-275.970, Licensure Confidentiality
1. The AMA (a) encourages specialty boards, hospitals, and other organizations involved in credentialing, as well as state licensing boards, to take all necessary steps to assure the confidentiality of information contained on application forms for credentials; (b) encourages boards to include in application forms only requests for information that can reasonably be related to medical practice; (c) encourages state licensing boards to exclude from license application forms information that refers to psychoanalysis, counseling, or psychotherapy required or undertaken as part of medical training; (d) encourages state medical societies and specialty societies to join with the AMA in efforts to change statutes and regulations to provide needed confidentiality for information

collected by licensing boards; and (e) encourages state licensing boards to require disclosure of physical or mental health conditions only when a physician is suffering from any condition that currently impairs his/her judgment or that would otherwise adversely affect his/her ability to practice medicine in a competent, ethical, and professional manner, or when the physician presents a public health danger.

2. Our AMA will encourage those state medical boards that wish to retain questions about the health of applicants on medical licensing applications to use the language recommended by the Federation of State Medical Boards that reads, "Are you currently suffering from any condition for which you are not being appropriately treated that impairs your judgment or that would otherwise adversely affect your ability to practice medicine in a competent, ethical and professional manner? (Yes/No)."

CME Rep. B, A-88 Reaffirmed: BOT Rep. 1, I-93 CME Rep. 10 - I-94 Reaffirmed: CME Rep. 2, A-04 Reaffirmed: CME Rep. 2, A-14 Appended: CME Rep. 06, A-18

D-295.319, Discriminatory Questions on Applications for Medical Licensure
Our American Medical Association will work with the Federation of State Medical Boards and other appropriate stakeholders to develop model language for medical licensure applications which is nondiscriminatory and which does not create barriers to appropriate diagnosis and treatment of psychiatric disorders, consistent with the responsibility of state medical boards to protect the public health. (Res. 925, I-09)

D-275.974, Depression and Physician Licensure
Our AMA will (1) recommend that physicians who have major depression and seek treatment not have their medical licenses and credentials routinely challenged but instead have decisions about their licensure and credentialing and recredentialing be based on professional performance; and (2) make this resolution known to the various state medical licensing boards and to hospitals and health plans involved in physician credentialing and recredentialing.
(Res. 319, A-05 Reaffirmed: BOT action in response to referred for decision Res. 403, A-12)

7. FOR-PROFIT MEDICAL SCHOOLS OR COLLEGES

Informational report; no reference committee hearing.

HOUSE ACTION: FILED

American Medical Association (AMA) Policy D-305.954, "For-Profit Medical Schools or Colleges," states:

> That our American Medical Association study issues related to medical education programs offered at for-profit versus not-for-profit medical schools, to include the: (1) attrition rate of students, (2) financial burden of non-graduates versus graduates, (3) success of graduates in obtaining a residency position, and (4) level of support for graduate medical education, and report back at the 2019 Annual Meeting.

This policy resulted from Resolution 302-A-18, introduced by the Illinois Delegation. During the hearing, the reference committee heard testimony in favor of conducting this study.

The Council on Medical Education recognizes the importance and timeliness of this topic and agrees that appropriate resources and data collection are needed to study this issue and prepare the report. However, meaningful and constructive review of this issue and the data collection will require additional time. The Council therefore will present a report on this issue at the 2019 Interim Meeting of the House of Delegates.