





Ensuring an Effective Physician Workforce for America

Recommendations for an Accountable Graduate Medical Education System

Proceedings of a Conference Chaired by **Michael M.E. Johns, MD** October 2010 Atlanta, Georgia

April 2011 | Revised November 2011

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October 2010 Atlanta, Georgia

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PREFACE

GEORGE E. THIBAULT, MD

The term "graduate medical education" (GME) refers to the portion of physician training between medical school and practice, and it is what largely determines the number, specialty mix, and skill of the physicians entering practice in the United States. GME has evolved from a loosely structured apprenticeship system to a large, complicated enterprise with complex governance and a large amount of public financing. In spite of the many notable accomplishments of our GME system, every decade since the 1950s has brought calls for reform by professional societies, government groups, blue ribbon panels, and private foundations. Twice the Josiah Macy Jr. Foundation (with the publication of *Graduate Medical Education: Present and Prospective, A Call for Action,* 1980; and *Taking Charge of Graduate Medical Education is* needs in the 21st Century, 1993) has participated in these calls for reform. While some notable changes have occurred in the system in the past decades, there continues to be a feeling in many quarters that the GME system has not been able to change rapidly enough to keep pace with changing societal needs and the changing practice of medicine.

For these reasons we thought it timely for the Macy Foundation once again to engage the issue of GME reform in the hope that, with the help of experts and the commissioned work of scholars in the field, we could reach conclusions and make recommendations that would better align our GME system with contemporary medical needs. Changing national demographics, the prospect of dramatic increases in healthcare coverage, and the probability of sweeping changes in the organization, delivery, and financing of healthcare in this country make this a propitious time for such an undertaking.

We posed a number of questions as we prepared for this effort, and among those were the following:

- Are we producing the right number of physicians, in the right specialties, and with the right distribution? And if not, what would create the means and incentives for changing the numbers and distribution?
- Is the current mechanism for paying for GME adequate to assure the numbers of

physicians we need, and does it create the correct incentives to produce the kinds of physicians we need?

- Does the governance of GME promote or inhibit the changes that might be necessary?
- Are GME programs optimally structured in duration and assessment to most efficiently produce the most highly qualified physicians for practice and leadership?
- Has new content necessary for practice in our changing work been sufficiently introduced into GME programs?
- Are the sites of GME training sufficiently diverse to prepare physicians for all careers?
- Are the diverse needs and potential career pathways of our trainees being met by the current system?

We decided on a two-pronged approach to this complex problem. First, we would address the financing and regulatory issues, and then we would address the pedagogical and content issues for GME reform. This monograph reports on the first activity, which was a conference entitled "Optimizing the Structure, Support, Oversight, and Accountability of GME to Best Meet the Needs of the American People," held at the Emory Conference Center in Atlanta on October 24-25, 2010. We were pleased that the Association of Academic Health Centers (AAHC), under the leadership of Steven Wartman, agreed to cosponsor this event with us. We were also very fortunate that the conference was skillfully chaired by Michael Johns, Chancellor of Emory University, and that the 22 conferees who agreed to participate represented a wealth of experience as leaders in academic medicine, health policy, and education. The second phase of this Macy initiative will occur in May 2011 with a conference in Atlanta entitled "Reforming Graduate Medical Education to Meet the Needs of the Public."

For the October conference, four original papers were commissioned, and they are reproduced in entirety in this monograph. Michael Whitcomb wrote a history of GME governance in the United States to provide everyone with a common understanding of how our current system evolved and he highlighted some of the prior calls for reform. Clese Erikson and colleagues from the AAMC provided a detailed description and analysis of the numbers of medical residents and residency programs in the United States over the past decade so that we all could understand these trends and analyze their potential impact. Norman H. Edelman and Jamie Romeiser outlined the current sources of funds to finance GME in this country, and the AAHC performed a very helpful analysis of the elements of the 2010 Patient Protection and Affordable Care Act that are potentially relevant to the governance and financing of GME.

On the first day, the conferees heard testimony from the leaders of six organizations that have various roles in governing, financing, or advising the GME system. These individuals offered their assessments of the current state of the GME system and their thoughts about any future changes. Their presentations are reproduced in this monograph with the highlights of the question and answer sessions that followed each presentation.

The conferees then met for a full day by themselves to discuss the papers, the presentations, and their ideas about reform. They met in small groups and in plenary sessions. The highlights of these rich discussions are captured in this monograph. This process led to a series of consensus conclusions and recommendations that were widely circulated in February 2011 and are reproduced here. As is the case with all Macy conferences and reports, the conferees were participating as individuals and not as representatives of their organizations. Their organizations were not asked to approve or modify the conference conclusions or recommendations.

The guiding principles that the group agreed should drive these recommendations are that GME is a public good and that, as a public good that is largely financed with public dollars, it must be accountable to meet the needs of the public. The medical profession and the government, therefore, share the responsibility of assuring that the GME system produces the correct number and mix of physicians with the requisite competencies and skills to meet that public need. The recommendations developed by the group are derived from these principles and are aimed at assuring that we have a more accountable GME system.

It was a stimulating and productive meeting and process. I know all the participants are committed to participating in the work that will be necessary to make the recommendations come to reality. I want to thank Mike Johns and Steve Wartman for their leadership in this effort, the planning committee for its insights in both the planning and the writing processes, and the staffs of the Macy Foundation and the AAHC for the hard work that made all of this possible, with particular thanks to Nick Romano at Macy and Mindy Steinberg and Audra Franks at the AAHC.

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George E. Thibault, MD President, Josiah Macy Jr. Foundation



INTRODUCTION

MICHAEL M.E. JOHNS, MD CONFERENCE CHAIR CHANCELLOR, EMORY UNIVERSITY

Graduate Medical Education (GME), also known as residency training, prepares physicians for the independent practice of medicine. This advanced and intensive training not only inculcates essential clinical knowledge and skills but also shapes physician behaviors, attitudes, and values. American programs of GME attract and train our nation's physicians as well as those from many other nations. Individuals, communities, and even whole societies depend on the quality of our 8,734 accredited residency programs in 130 specialties and subspecialties (as of 2008).¹ This makes it imperative that GME be the focus of continuous and relentless improvement. Sharpening and refining that focus is the subject of this report, which is part of a larger Josiah Macy Jr. Foundation project on the future of GME.

GME has been a formal and formative part of medical education and training for over 60 years. It was built on top of the "undergraduate" medical education system pioneered at the Johns Hopkins Hospital, which Abraham Flexner identified as the model that all medical schools should follow. When GME began, it consisted of programs of young physician apprenticeship developed according to the knowledge and practices of particular senior physicians and hospitals. GME as we now know it was formally established in the 1950s according to guidelines promulgated by the Council on Medical Education and Hospitals of the American Medical Association (AMA).² Residency programs evolved significantly, responding to the prodigious growth of medical knowledge and technology, and to revolutions in diagnostic and therapeutic tools. Many new fields and programs of specialization and subspecialization have been established. The evaluation and accreditation of GME programs, originally the exclusive purview of individual specialty boards and medical societies has, since 1981, been consolidated within the Accreditation Council for Graduate Medical Education (ACGME), a private nonprofit council. Its forerunner had been the Liaison Committee on Graduate Medical Education, which had been

2 Swanson AG. The genesis of the Coordinating Council on Medical Education and the Liaison Committee on Graduate Medical Education. *Bull N Y Acad Med.* 1974;50:1216-1221.

¹ ACGME. Available at: http://www.acgme.org/acWebsite/newsRoom/newsRm_acGlance.asp

established in 1972. What were once entirely localized programs have become increasingly interconnected and proactive in adopting shared professional standards and in anticipating and responding to larger societal trends and needs. Under the aegis of the ACGME, program-specific accreditation and specialty certification standards continue to be refined as common ground on larger issues of professional and societal imperatives continues to be explored.

It is no secret that much about GME and its programming has been contentious for many years. This should come as no surprise. Since the 1920s, when it became clear that universities and their medical schools had little interest in taking responsibility for this portion of post-doctorate medical training, medical societies and hospitals stepped in and did their best to develop rigorous programs. Many succeeded very well. But, as advances in knowledge and technology pushed medicine beyond local standards and accountability, the process of aligning and finding common ground among all of these disparate programs proved both necessary and challenging. Important and creative tensions between and among specialty-specific and broader professional and societal goals continue to factor into GME training and policy.

Over the coming decade we are challenged not simply by the ongoing march of knowledge and technology in healthcare but additionally by the implementation of the Patient Protection and Affordable Care Act. Creative tensions in GME will grow in a number of important areas. Among these are some as fundamental as the content, duration, and financing of GME. All of these will be affected by health system reforms that promise expanded access to care for approximately 30 million people, better healthcare systems, and a higher quality of care for all. Expansion of accountable and networked systems of care will require appropriate new skills and training. Demographic trends indicate that we will need more providers trained in care for older individuals and later stages of life. An important related issue is the growing consensus about the need to expand, realign, and/or augment the overall physician workforce.³

These and many more issues in GME pose urgent and important topics in health policy. I believe I speak for all of those who are contributing to this Macy Foundation project when I say that we hope that this report and ongoing work will make a worthwhile contribution to the goal of continuous and relentless improvement in GME.

³ For instance, as Christiansen and colleagues have suggested, "Rather than ask complex, high-cost institutions and expensive, specialized professionals to move down-market, we need to look at the problem in a very different way. Managers and technologies need to focus instead on enabling less expensive professionals to do progressively more sophisticated things in less expensive settings." Christensen CM, Bohmer R, Kenagy J. Will disruptive innovations cure healthcare? *Harvard Business Review.* 2000; Sept-Oct:105-106.









EXECUTIVE SUMMARY

The graduate medical education (GME) system in this country is largely responsible for the nature of the physician workforce that exists today. Over the years, the system has produced a workforce composed of physicians who are well prepared to enter clinical practice in the specialty of their training, and one that has generally been considered to be appropriate both in its size and its specialty mix to meet the needs of the American public for medical care.

More recently, concerns have been expressed from both within and outside the profession that the training being provided within the GME system is not adequately preparing residents for practice in the modern healthcare system. At least four major specialties—internal medicine, pediatrics, family practice, and surgery—have been engaged throughout most of the past decade in initiatives intended to redesign the nature of residency training provided in their specialty to better prepare their residents for practice. Furthermore, several federal government agencies and advisory bodies [i.e., Agency for Healthcare Research and Quality (AHRQ), Medicare Payment Advisory Commission (MedPAC), and Council on Graduate Medical Education (COGME)] have called for modifications of the training being provided. These reports have focused attention on the need to ensure that residents are being trained to provide safe, evidence-based, highquality healthcare; that they learn the importance of providing team-based care that incorporates the participation of nurses, nurse practitioners, pharmacists, social workers, physician assistants, and other healthcare professionals in the care of patients; and that they learn to work in integrated delivery systems that focus on the care of populations as well as individuals. Finally, the Institute of Medicine (IOM) and a number of foundations have issued reports expressing concerns that residency programs are not adequately covering certain issues that relate to how the country's healthcare system functions. To date, while these efforts have led to some changes, substantive reforms in training are required.

In addition there are concerns that the GME system may no longer be optimally configured to create a workforce that will be able to meet the population's need for medical care. Changes occurring in the health status of the population due to aging and other factors contributing to the incidence of chronic disease, as well as a substantial increase in the number of insured individuals as a result of the Patient Protection and Affordable Care Act, suggest that the size and specialty mix of the workforce will become increasingly insufficient over time.

Recent reports issued by the Health Resources and Services Administration (HRSA), COGME, the U.S. Department of Labor, and the Association of American Medical Colleges (AAMC) project that the current supply of new physicians entering practice each year (those completing residency training) is not adequate to avoid a significant physician shortage in the years ahead. A recent report from the Association of Academic Health Centers (AAHC) calls for substantial changes in healthcare workforce training to better meet the needs of patients and society. There are also a variety of reports indicating that the specialty mix of the physicians entering practice is not in keeping with the needs of the population. Due to a number of driving forces, physicians currently being trained and those that are entering the workforce are increasingly choosing to pursue subspecialties rather than the core specialties of general internal medicine, family practice, general pediatrics, and general surgery. In the past decade, the number of those training in subspecialties has grown at five times the rate of those training in core specialties.

The Josiah Macy Jr. Foundation designed a series of two conferences to develop recommendations regarding the future of GME in the United States. The first conference, held in October 2010 and jointly sponsored by AAHC, was entitled "Optimizing the Structure, Support, Oversight, and Accountability of GME to Best Meet the Needs of the American People." The goal of the meeting, which was held at the Emory Conference Center in Atlanta, Georgia, was to review the current status of GME from a policy perspective, including the regulation, financing, and "sizing" of GME. Because a second conference in May 2011 will focus on the content and format of GME, these topics were not discussed in detail. The October 2010 conference was chaired by Michael M.E. Johns, MD, Chancellor of Emory University. Twenty-two invited individuals, representing a cross section of the academic community, participated in the conference.

The conference began with individuals holding leadership positions in the Accreditation Council for Graduate Medical Education (ACGME), MedPAC, COGME, AMA, AAMC, and the U.S. Department of Veterans Affairs (VA), who provided the perspectives of their respective organizations on the state of the GME system. Following these presentations, meeting participants gathered to discuss the experts' testimony and the background papers that had been commissioned for the conference. The larger group then broke into small groups to discuss potential ways for creating a more accountable GME system and then reconvened to discuss and synthesize their findings. The conclusions and recommendations of the group are summarized below.

CONCLUSIONS

Conclusion I » GME is a public good.

The GME system serves the public interest in two extremely important and distinct ways. First, it is responsible for ensuring that medical school graduates are prepared to provide high-quality care in one of the specialties of medicine when they complete their residency training, thereby contributing to the overall quality of the medical care provided in the country. Second, the system is the critical determinant of the number and specialty mix of the cohort of physicians that enter practice each year, thereby contributing to the size and composition of the physician workforce that is required to meet the public's needs for medical services.

Conclusion II » Because GME is a public good and is significantly financed with public dollars, the GME system must be accountable to the needs of the public.

The medical profession and the federal government share the responsibility for ensuring that the GME system is meeting the public's needs in the following ways: ensuring the competency and skills of its trainees to care for a diverse patient population with an increasing burden of chronic disease and their readiness to practice in a changing healthcare environment; ensuring that the training of physicians involves a broad range of patients with appropriate supervision by experienced faculty in settings that mirror the healthcare venues and models in which they will practice (for example, ambulatory settings and team-based care); and providing a specialty mix and distribution of physicians that meets the public's needs.

Conclusion III » There is a need to ensure that an adequate number of physicians are trained.

The magnitude of the physician workforce shortages projected in several reports emphasizes that there is a need to determine how best to restructure the GME system in order to increase physician supply, particularly in targeted core specialties. Although the number of medical students being trained in the United States is increasing due to the opening of new medical schools and expansion of class size in existing schools, no increase in the number of practicing physicians will occur unless the number of residency positions is increased. The number of entry-level positions in the country's GME system [Post-graduate Year 1 (PGY1)] is the critical determinant of physician supply in this country. Thus, an increase in the number of PGY1 positions will not actually have an impact on physician supply for a period exceeding 4 years—the average time required for the residents filling the new PGY1 positions to complete training to first board eligibility and enter practice. Consequently, in recognition of the need to increase the size of the physician workforce, it would be highly desirable to begin the process immediately without waiting for an agreement on the ultimate number needed.

Conclusion IV » There is a need for an independent review of the governance and financing of the GME system.

Because prior calls for the reform of the GME system have not been effective in bringing about sufficient change and because the needs for the alignment of the system with the public's needs are greater than ever, there is an urgent need for an external, independent review of the GME system, including its governance, financing, and regulatory functions. The goal of such a review would be to produce an accountable GME system—one that allows for flexibility and facilitates innovation in order to ensure that it is responsive to the public's needs.

RECOMMENDATIONS

Recommendation I » An independent external review of the governance and financing of the GME system should be undertaken.

Members of Congress should charge the IOM to perform the review, and public and private entities should be requested to provide the funds required by the IOM to ensure that the IOM is able to complete its duties. This IOM committee should review and make recommendations as to the structure and function of the accreditation body (ACGME) and accreditation process. In addition it should provide ongoing guidance and assessment of the number of residency positions, appropriate training sites, and optimal funding mechanisms, including Medicare GME funding recommendations, public accountability mechanisms, and accreditation performance.

The IOM Study Committee would be composed of medical professionals, medical educators, other health professionals, healthcare delivery systems experts, health economists, distinguished members of the public, and appropriate government officials who would conduct the external review, which should include the components that are necessary to achieve recommendations II to V.

Recommendation II » Enabling GME redesign through accreditation policy.

The external review should make recommendations to ACGME to ensure that the accreditation process is structured and functions in a way that best serves the interest of the public, the training programs, and the trainees.

Given the challenges facing the GME system, it is critically important that the program and institutional requirements adopted by the ACGME for accreditation purposes are not excessively burdensome, and that they result in residents being trained in the most efficient way possible to provide high-quality care in the modern healthcare system. It is similarly important that attention be paid to the specific clinical experiences that programs are required to provide, and the impact that individual requirements have on the length of training. Special attention should be focused on the evaluation of whether there is a continued need for the transitional year program or the preliminary year experiences required by some specialties. In addition, the ACGME should ensure that existing requirements encourage the

development of innovative approaches for training residents, which might lead to more efficient or effective ways of preparing residents for practice, regardless of their specialty. Furthermore, the composition of the Resident Review Committees that determine the requirements for the program accreditation should be optimized. The certification requirements of the specialty boards should be responsive to the accreditation process and the recommendations of the external review.

Recommendation III » Ensuring adequate numbers and distribution of physicians: implications for funding of GME.

A thorough review should be conducted of the policies that determine how GME is currently being financed for the specific purpose of developing recommendations for how the GME funds provided by the Medicare program and other funders (e.g., VA, states, and others) can be better used to address the current challenges facing the GME system.

A major challenge facing the GME system, and how it will be structured and function in the coming years, is determining how resident physician training is to be financed. It is important for all involved to understand that, given the country's current financial situation and the political pressure for decreasing Medicare expenditures, growth in the Medicare funds used to support GME is unlikely. Indeed, Congress took steps to control GME spending by including in the 1997 Balanced Budget Act (BBA) provisions that effectively capped the number of GME positions that Medicare would fund. This policy has also effectively limited the growth of the number of practicing physicians in the United States. Accordingly, a clear, persuasive, and rational argument must be developed for how Medicare and other funders should contribute to the financing of GME and other health professions education in the future.

Possible new sources of funding for GME should be considered, including mechanisms proposed by a variety of stakeholders over the past 10 years. Amid growing concern that an effective physician workforce may not be possible absent new methods for funding GME, new proposals need to be considered. Calls have been made to consider all-payer systems or other alternatives to the current Medicare-based approach. For example, private insurance companies could be required to explicitly fund GME. In a very real sense, many companies do contribute to GME financing by virtue of the payments they agree to make to teaching hospitals for patient care services. It might be possible to have all companies contribute to a financing pool if the companies were allowed to include the contribution in their medical loss ratio.

Many state governments already contribute some funds to support specific GME needs. The states might be able to contribute more if the funds were directed to meet local needs and mechanisms were in place to allow them to recover the funds on an ongoing basis.

Given the limitations imposed on increasing physician supply by the 1997 BBA caps on GME positions and the magnitude of the impending physician workforce shortages projected in a number of reports, it is essential that the consideration of these new approaches proceed with a sense of urgency.

Recommendation IV » Providing trainees with needed skill sets: innovative training approaches and sites.

We propose the beginning of a process that promotes and encourages innovation in the creation of new GME programs and in existing programs, with the goal of better serving the needs of the public and better preparing trainees for a changing practice environment. To better meet the public need, eligible sponsoring institutions for new programs should be broadened to include healthcare systems, accountable care organizations, teaching health centers, and other new organizational structures that are created to deliver patient-centered, coordinated, inter-professional, and interdisciplinary care. It will be essential that appropriate educational oversight be preserved in these new environments. In order to achieve these goals, we believe a funding mechanism is necessary to incentivize innovation. Some funding is already available to work toward this goal, but other potential sources should be investigated.

Recommendation V » Ensuring a workforce of sufficient size and specialty mix.

Given the impending physician shortage and the changing and growing needs of the public, we recommend an increase in GME slots at numbers that will approach the goal of maintaining the current ratio of approximately 250 doctors for every 100,000 people. This recommendation is made with the recognition that an increased role of other health professionals in the delivery of care may change the target ratio in the future as healthcare delivery systems evolve. Understanding the current limitations of the available data and resources, and recognizing potential changes in the delivery system, we concur with the recommendation from COGME¹ in its sixteenth report for a one-time increase of 3,000 entry-level GME positions in selected disciplines, with a commitment to support the training of those individuals through to completion of requirements for the first board certification.

It is understood that the task of increasing the supply of certain needed disciplines is more complex than simply creating more training slots (though that is a necessary first step). It is also understood that meeting the needs of the public will require increasing the number and skills of other health professionals, such as nurses, nurse practitioners, and physician assistants. Other interventions, including improving the practice environment and infrastructure to make certain disciplines more attractive, improving the educational process, reducing the administrative burden for providers, and addressing the inadequate compensation of physicians in some specialties, will also be necessary.

We recommend that these new positions be added in a targeted fashion to begin to correct the current misalignment of the specialty mix with societal need. While there are data to suggest that there will be shortages in many specialties, we believe the most urgent need is currently in adult primary care (family practice and general internal medicine), general surgery, and psychiatry. However, in recognition that those needs will change over time, we suggest that the targeted disciplines be reassessed at least every 5 years, using data that will then be available from the National Healthcare Workforce Commission and the National Center for Healthcare Workforce Analysis. Based on these data, additional funding or other incentives may be put in place over time to promote more or different positions, and disincentives or limits may be put into place for certain programs where there is demonstrated excess production.

We recommend that Medicare at least partially fund some new positions by reallocating some of the current Medicare GME funds to the targeted new positions. For example, Congress could decide that Medicare should provide funds to support specialty training in the areas of highest need (e.g., primary care and general surgery) and those subspecialty positions specifically justified based on need, such as geriatrics. Congress could also decide (and provide notice) that it intends to

¹ Council on Graduate Medical Education. *Sixteenth Report: Physician Workforce Policy Guidelines for the United States,* 2000-2020. Rockville, MD: Department of Health and Human Services, Health Resources and Services Administration: 2005.

decrease funding for transitional year or preliminary year programs. To some extent, this would be consistent with the decision made over 30 years ago to discontinue internships. Thus, there are possible approaches for providing some of the funds that would be required to fund new PGY1 positions.

SUMMARY

Achieving a healthcare system that is patient-centered, efficient, effective, and adaptable to the ever-changing needs of a diverse population is not possible without an adequate health professions workforce. The impending shortage of physicians, particularly in adult primary care specialties, requires immediate action. A crucial—indeed rate-limiting—step in creating that workforce is the process by which medical school graduates are trained for independent practice in our GME system. Given this, an initiative is needed to encourage the development of a more accountable GME system—that is, a system that functions primarily to serve the public interest.

After careful consideration of the information provided by the expert panelists and the content of the four background papers, meeting participants developed the recommendations above to enable the current GME system to be more responsive to patient care and trainee needs in an environment of changing demography and healthcare delivery. We emphasize that the responsibility for reshaping the GME enterprise does not rest with a single entity. Governments, accrediting bodies, certifying bodies, training institutions, educators, and trainees themselves will have to work together to bring about the changes we believe are necessary to develop a physician workforce equipped to meet the healthcare challenges of this century.

CONFERENCE PARTICIPANTS

Michael M.E. Johns, MD* Chancellor, Emory University Chair

Molly Cooke, MD

Professor of Medicine, Director of the Academy of Medical Educators University of California, San Francisco

Linda Cronenwett, PhD, RN, FAAN Professor, The University of North Carolina at Chapel Hill

Norman H. Edelman, MD*

Professor of Preventive and Internal Medicine Stony Brook University Health Sciences Center

Julie Ann Freischlag, MD Professor and Director, Department of Surgery Johns Hopkins Medical Institutions

Carl J. Getto, MD Senior Vice President, Medical Affairs, Associate Dean, Hospital Affairs University of Wisconsin Hospital and Clinics

Jennie Chin Hansen, RN, MS, FAAN Chief Executive Officer, American Geriatrics Society

Eve J. Higginbotham, SM, MD Senior Vice President and Executive Dean for Health Sciences Howard University John K. Iglehart Founding Editor, Health Affairs National Correspondent, New England Journal of Medicine

Michael Karpf, MD Executive Vice President for Health Affairs University of Kentucky

Kenneth M. Ludmerer, MD, MA Mabel Dorn Reeder Distinguished Professor of the History of Medicine Professor, Department of Medicine Washington University in St. Louis

Claire Pomeroy, MD, MBA Chief Executive Officer, UC Davis Health System, Vice Chancellor, Human Health Sciences Dean, School of Medicine, University of California, Davis

Paul G. Ramsey, MD Chief Executive Officer, UW Medicine, Executive Vice President for Medical Affairs, Dean of the School of Medicine University of Washington

Wayne Joseph Riley, MD, MPH, MBA, FACP President and Chief Executive Officer, Meharry Medical College

William Roper, MD, MPH Vice Chancellor for Medical Affairs, Chief Executive Officer, UNC Healthcare System, Dean, School of Medicine, The University of North Carolina at Chapel Hill

Larry J. Shapiro, MD

President, Washington University Medical Center, Executive Vice Chancellor for Medical Affairs, Dean, School of Medicine, Washington University

Kenneth I. Shine, MD Executive Vice Chancellor for Health Affairs The University of Texas System

Elliot J. Sussman, MD, MBA President and Chief Executive Officer Lehigh Valley Hospital and Health Network

George E. Thibault, MD* President, Josiah Macy Jr. Foundation

Steven Wartman, MD, PhD, MACP* *President/Chief Executive Officer,* Association of Academic Health Centers

Debra Weinstein, MD* Vice President for Graduate Medical Education Partners Healthcare System, Inc.

Michael E. Whitcomb, MD* Professorial Lecturer in Health Policy School of Public Health and Health Services George Washington University

EXPERT PANELISTS

Malcolm Cox, MD Chief Academic Affiliations Officer U.S. Department of Veterans Affairs

Mark E. Miller, PhD Executive Director MedPAC

Thomas J. Nasca, MD, MACP *Chief Executive Officer* Accreditation Council for Graduate Medical Education

John E. Prescott, MD Chief Academic Officer Association of American Medical Colleges

Russell G. Robertson, MD Chair, Council on Graduate Medical Education, Chair, Department of Family and Community Medicine Northwestern University

Paul Rockey, MD, MPH Director, Division of Graduate Medical Education American Medical Association

*Planning Committee Member



AGENDA

Optimizing the Structure, Support, Oversight, and Accountability of GME to Best Meet the Needs of the American People

SUNDAY, OCTOBER 24, 2010 EXPERT PANELS

12:30 PM » Registration

1:00 PM » Welcome and Introductions

- Michael M.E Johns, MD, Chancellor, Emory University, Program Chair
- George E. Thibault, MD, President, Josiah Macy, Jr. Foundation
- Steven A. Wartman, MD, PhD, MACP, President and CEO, Association of Academic Health Centers

1:30 PM » Expert Testimony Panel #1 (format: 20 minute presentation & 20 minute discussion each)

- Thomas J. Nasca, MD, MACP, Chief Executive Officer, Accreditation Council for Graduate Medical Education
- Mark E. Miller, PhD, Executive Director, MedPAC
- Russell G. Robertson, MD, Chair, Council on Graduate Medical Education, Chair, Department of Family and Community Medicine, Northwestern University

4:00 PM » Expert Testimony Panel #2 (format: 20 minute presentation & 20 minute discussion each)

- Paul Rockey, MD, MPH, Director, Division of Undergraduate/Graduate Medical Education, American Medical Association
- John E. Prescott, MD, Chief Academic Officer, Association of American Medical Colleges
- Malcolm Cox, MD, Chief Academic Affiliations Officer, U.S. Department of Veterans Affairs

6:00 PM » Reception and Dinner

MONDAY, OCTOBER 25, 2010 WORKGROUP MEETING

8:30 AM » Presentation of Highlights from Background Papers & Discussion

Michael M.E. Johns (Moderator)

Discussants:

- Michael E. Whitcomb (Graduate Medical Education in the United States)
- Norman H. Edelman (Financing of GME)
- George E. Thibault (Trends in Graduate Medical Education)
- Steven A. Wartman (AAHC Paper on Health Reform and GME)

10:00 AM » Discussion of Expert Presentations & Audiences to Target

Recommendations Michael M.F. Johns and all

Michael M.E. Johns and all

11:30 AM » Four Breakout Groups: (2 on Finances/Funding & 2 on Governance/Regulation)

1:30 PM » Reports from Breakout Groups
2:30 PM » Discussion of Findings and Recommendations
Michael M.E. Johns and all

4:30 PM » Next Steps 5:00 PM » Adjourn

Emory Conference Center Hotel Atlanta, GA





PRESENTATIONS

THOMAS J. NASCA, MD, MACP Chief Executive Officer, Accreditation Council for Graduate Medical Education

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MARK E. MILLER, PHD Executive Director, MedPAC (NOT FINAL)



RUSSELL G. ROBERTSON, MD Chair, Council on Graduate Medical Education, Chair, Department of Family and Community Medicine, Northwestern University



PAUL ROCKEY, MD, MPH *Director*, Division of Undergraduate/Graduate Medical Education, American Medical Association



JOHN E. PRESCOTT, MD Chief Academic Officer, Association of American Medical Colleges



MALCOLM COX, MD Chief Academic Affiliations Officer, U.S. Department of Veterans Affairs Accreditation Council for Graduate Medical Education

Optimizing the Structure, Support, Oversight and Accountability of Graduate Medical Education in the United States

Thomas J. Nasca MD MACP Chief Executive Officer Accreditation Council for Graduate Medical Education Professor of Medicine Jefferson Medical College





- What are the most important issues from your organization's viewpoint concerning Graduate Medical Education that need to be addressed? Why?
- Do you perceive the need for your organization to address quantity issues (the numbers and types of trainees) in addition to quality issues?
- What do you see as the "ideal" Graduate Medical Education "system"?

What are the most important issues from your organization's viewpoint concerning Graduate Medical Education that need to be addressed? Why?

- The Organization and Oversight of Medical Education
 The "Fraying" of the Social Contract between the Profession and the Public

 The absence of a formal interface between the Profession and the Public

 Managing the Transition from Circumstantial Practice to Intentional Practice in Graduate Medical Education
 Internationalization of Graduate Medical Education
 - · Discuss in comment period if there is time

Do you perceive the need for your organization to address quantity issues (the numbers and types of trainees) in addition to quality issues?

- No formal response from the ACGME is appropriate due to Anti-Trust related limitations of scope
- There are no restraints placed by the ACGME on the number and distribution of specialty and subspecialty programs and positions, other than the assessment of the demonstrated resources and ability of those requesting accreditation to comply with standards and deliver quality education (increasingly measured by outcomes as well as process)
- I will provide you with data...

What do you see as the "ideal" Graduate Medical Education "system"?

It depends upon the context

The Legacy of Graduate Medical Education Oversight in the United States

- The ACGME has evolved over nearly 60 years from:
 - independent individual specialty review committees (1940's)
 - through a Council housed within the AMA (1980)
 - to an independent, 501,(c), (3) corporation (2000)
- Mission is the advancement of health through enhancement in Graduate Medical Education
- The authority of the Review Committees is delegated by the ACGME Board of Directors to each Committee
- The ACGME Board of Directors is responsible to the public for the oversight of the work of each of its committees
Evolution of Markets, Products, and Institutions





How do we currently manage the interface between GME/Profession and the Public?

- The Public manipulates through payment mechanisms, usually out of desperation
- The Profession resists, often under the guise of "professional self regulation," which is often interpreted within the Profession to mean "autonomy"







Cambridge University Press. 2009

THOMAS J. NASCA, MD, MACP ≪



What were the historical "Contracts" that are derived from our commitment?

Contracts between:

"the profession" and "society" "the institution" and "society" "the institution" and "the patient" "educators" and "the institution" "educators" and "the patient" "educators" and "the trainees" "the trainees" and " the patients"

What are among recent events/factors that have caused these "educational social contracts" to be modified?

- Medicare and Medicaid Programs (and yet to be determined impact of 2010 health insurance reform)
- Prospective Reimbursement, introduction of risk of survival to institutional "not-for-profit" providers
- "Privatization" of intellectual property derived from federally funded research
- Influence of industry on clinical and research missions
- I.L. 372 and related PATH Audits
- Medical Liability Insurance Crisis
- Willingness of members of the profession to "advertise" using partial scientific data
- Chronic "Overpromising and Under-delivering"
- Resident Duty Hour Standards

What are among recent events/factors that have caused these "educational social contracts" to be modified?

Changing expectations of the American Public:

- Expectations of translation of scientific advances
- Impact/influence of "To Err is Human"
- Zero tolerance for error
- Movement towards a consumer vendor relationship with "providers" (the profession) for "medicalized" services
- Devaluation of "value" of "Primary Care"
- Erosion of trust in "trusted agents"

The Drivers of the Fraying of the Social Contracts

- The complexity and dramatic expansion of medical science
- The fractionation of specialties
- The "delivery system" responses (often unintended) to environmental factors
- Reaching (or perhaps surpassing) the limits of society to afford the range of services provided (in our current configuration)
- The expectations of the public and physicians
- The Biomedicalization of Society¹

¹ Beck, S. **Medicalizing Culture(s) or Culturalizing Medicine(s).** In Burri, RV, Dumit, J. Biomedicine as Culture. pgs. 17-35. Routledge. New York. 2010.

The result

 An environment that requires a redesign of our graduate medical education delivery systems































Accreditation Council for Graduate Medical Education

International Accreditation in Graduate Medical Education

Discuss in comments, if desired





PRESENTATION Q&A

THOMAS J. NASCA, MD, MACP (ACGME)

- Q» My question is twofold. One is, what is the time period from application for a program to its accreditation, and has that changed as a consequence of the number of new programs that are being developed and the whole accreditation process? In the event that there were some rather dramatic changes proposed, what capacity does the ACGME have to respond to that?
- DR. NASCA » Is your question how long does it take for the process of accreditation, or how long does it take for an institution to ramp up to meet our needs?
- **Q**» It's the first question, the time from actual notification to accreditation.
- DR. NASCA » Well, it depends on the specialty, and the issue there is how frequently does the RRC meet? In the generalist disciplines, I am not just talking about primary care here, but all of the generalist disciplines, they meet three times a year or more, and so, probably from the time an application is submitted, it is about 9 months.

It takes about 2 to 3 months to have the site visit scheduled and conducted, another month for the information to be collated and then sent out to the reviewers, and then the timing of the meeting becomes the driver. Certainly within a year of application, they are accredited and can accept residents.

- Q» That was really helpful, and this concept that the pipeline programs haven't increased, but the dramatic increases have been in the subspecialty specialists, I think is one that we really need to grapple with, and obviously, that seems not in concert with society's healthcare needs at this point. So I am interested in your personal (since maybe the ACGME can't speculate) speculation as to the drivers of that.
- DR. NASCA » Well, I don't want you to draw the conclusion that the increase in subspecialization is not in society's interest. In other words, heart failure medicine is important. The question is one of motivation: why do institutions do it? Well, they do it based on their own enlightened self-interest,

and some of that is to serve the needs of the public that presents themselves to their doors. Some of it is programmatic development, some of it is supportive faculty that they would like to recruit, and there is a whole range of motivations that go into an individual decision.

Now, if you were to ask me if I were given a limited set of resources and told to choose, then I might choose a different path, but what I have reported is just the integrated sum of the individual institutional and even departmental decisions that have been made over the course of the last decade. What I would say is it makes it very hard to argue that there is no money to expand GME when we just did it, and we did it with institutional money.

- Q» It just seems that the enlightened self-interest is to develop an available workforce, a cheap workforce, which is what GME sometimes is in these institutions for the programs that currently get the maximal reimbursement.
- DR. NASCA » I have no data with regard to institution by institution resources to either affirm or refute that contention. I will tell you though, that the major driver in making (or being unable to make) change in graduate medical

education is the cost of replacing residents at the bedside. Our healthcare delivery model in teaching hospitals has evolved around residents as the core physician caregivers at the bedside, extending the reach of the faculty. Every hour of resident time spent in efforts that remove them from the bedside incurs the cost of replacement.

Q» I would like to ask what you have seen and perhaps learned about the public's understanding of GME since you have been in your role. It seems to me that at the federal level, because of a major focus on the GME cap, our representatives of the public in Congress have at least some understanding of GME, knowing that at least academic medicine wanted to increase the cap. It is also my experience at the state level that until, for example, in the Northwest, we made a concerted effort to have communication with the governors and the state legislature, I don't believe that the representatives of the public at the state level had a beginning of understanding of the role of GME and the continuum of the preparation of the health professional.

> Since our task is going to be to consider changes in the regulatory and financial aspects of GME,

it strikes me that we will need a clear communication with the representatives of the public not just in Washington, DC but also at the state level, and if my experience in the five states in the Northwest generalizes, I think there is a major educational hurdle to cross to have good communication with the public.

DR. NASCA » Well, I would agree with you 100%, and if the national duty hours discussion that just took place teaches us anything, it is that there is very little insight on the part of the public into graduate medical education, and that there really is no societal contract or social contract with the general public around graduate medical education, and some of the concepts (such as graded authority and responsibility) that are the hallmark of American GME.

Q» I would like to pick up the question on the public side, perhaps defining public in a much more patient or consumer side of it. How does that public get behind this understanding when their access points are affected, especially with the Medicare side, let alone probably the newer populations who will come into the system by 2014? DR. NASCA » While it is true that residents provide direct clinical service to large numbers of patients in the course of their education, I believe that we need to stop thinking of GME programs as access points as their primary purpose. We are preparing them to provide access in the future. I am bringing this perspective from the position of the accreditor of GME programs as opposed to the accreditor of healthcare delivery systems. When it comes to expansion of GME through new programs, we (the ACGME) are receptive in this set of, for want of a better word, transactions. We receive applications. We don't foster applications for new programs; we don't recruit applications for new programs. We are not a granting organization that stimulates interest in creation of new programs through funding initiatives; we are an accrediting body. So unless someone (an institution) comes to us and wants to start a new family medicine residency, it does not get started.

Now, we can facilitate the processes once the application is envisioned, we can make it as easy as possible, assuming that we can maintain high standards, which we must to protect the public, but we are receptive in this domain. So what we need is others in the delivery system side to see their responsibility to provide the training environment, and then foster the development of additional training programs in order to do that.

Q» Tom, since we are going to be talking about governments as one of the two topics, what would you consider the really core accomplishments of the ACGME, particularly in the last decade, where we have gone to competencies and then obviously the duty hours have started to look at the essence of what residents are and the whole issue of service versus education versus the professional contract, what do you see as the really core things that we would not want to lose if we were to make recommendations?

DR. NASCA: We have a 501c3 corporate entity that is responsible to the public; it is not responsible directly to the profession. Its purpose is the improvement of the health of the public by improving graduate medical education through accreditation. It is a manifestation of Franklin and Tocqueville's vision of a private entity doing the public good. We have a significant number of public members and at-large members on the Board of Directors of the ACGME, as well as representatives

of CMS and our Veterans Affairs Hospitals, that we did not have just 5 years ago. We are moving towards a model of accountability to the public, but we have not identified exactly how to effectively provide that accountability to the public. We don't know who to provide it to other than just broadcast information. I am loathe to provide it just to the payers, such as CMS, because I don't know that that represents the public, but I need direction from the public. These are rhetorical questions that need to be asked and answered, and the ACGME can't answer them itself; it needs the advice of the public and the profession in order to do this effectively, in order to maintain and enhance the trust of the public.

Now, the other thing that I believe we should not lose is that outcomes-based evaluation of individual trainees and integrated outcomes evaluation should be an essential component but not the only component of evaluation of the programs. Our move towards continuous accreditation versus episodic accreditation needs to be continued, and we are in the process of working with the board to finalize that whole set of structures. This is the next step in the development of the competencies, which the

ACGME and ABMS brought to the profession and the public.

• What recommendations do you think we should make about increasing the degree of latitude that programs have to be able to experiment with new ways of educating residents? I understand that you don't have the authority to turn back a program because we don't need it, that if you can train another electrophysiologist and you can prove that you can do it, do it but would you favor legislation that would give you that authority? And if not, who do you think should have that authority.

DR. NASCA: Let me answer the second one first: I think if the profession and the public felt that that was the most appropriate thing to do (limit subspecialty program or position development), then we would do it. (It would likely require an anti-trust waiver in order to make it acceptable from a legal perspective). Now, let me go to the experimentation question. This is very frustrating for me because for about 7 years, we have, both at the RRC level and at the board level, opportunities for people to apply to waive specific requirements to innovate. Longer ago than I want to think, I started a program called the Educational Innovations Project

in Internal Medicine, which had a less restrictive set of program requirements, and any program requirement could be waived. That project is now a decade old. In the institutional requirements, a clause permits applications for waiver of common program requirements, and any program or group of programs can petition the board to have a specific requirement waived. You know how many programs that have requested a non-duty hour waiver of standards to accomplish an innovation? A handful - Nearly Zero. I think that these are straw men thrown up because people don't want to change or don't know how to innovate, and the convenient excuse is that the ACGME precludes them from innovation.

That said, I believe that when we can move to continuous tracking of milestones and other outcome variables (within the next 2 years or so), we will be able to remove many of the process oriented standards, providing greater flexibility to quality programs to innovate while still providing the accountability to the public for the quality of outcomes in our residents and fellows.



Graduate Medical Education Payments: Focusing on Educational Priorities

Mark Miller, PhD Executive Director October 24, 2010

MECIPAC

About MedPAC

- Independent, nonpartisan Congressional support agency
- 17 national experts selected for expertise
- Appointed by Comptroller General for 3year terms (can be reappointed)
- Make recommendations to the Congress and the Secretary of HHS
- Vote on recommendations in public

MECIPAC

Directions for delivery system reform

Payment accuracy

-Fiscal pressure on providers to constrain costs

 Price accuracy for physician, hospital, and imaging services
Measuring resource use

- Payments that encourage efficient health plans Information for patients and providers

-Public reporting of quality

 Comparative effectiveness research

-Disclosure of physician financial relationships Quality and coordination

- Payments for primary care
- Medical home
- Pay for performance
- -Target readmissions
- Gainsharing
- Bundled payments
- -Accountable Care Organizations

Graduate Medical Education

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Selected issues in MedPAC reports

- June 2008 Primary Care Bonus, Medical Home
- June 2009 Challenges and Opportunities in GME
- June 2010 Recommendations for improving GME to support a reformed delivery system

MECIDAC

Commission assessment

- Our GME system is not aligned with the delivery system reforms essential for increasing the quality and value of health care in the U.S.
- We cannot accomplish delivery system reform without ensuring the providers we need have the skills to:
 - Integrate care across settings
 - Improve quality, and
 - Use resources efficiently
- FFS payment signals affect physician career choices, among other factors

MECIPAC

Key principles and areas of concern

- Key principles
 - Decouple GME payment from hospital admissions and inpatient volume
 - Ensure that GME subsidies are focused on achieving medical education goals
- Areas of concern
 - Workforce mix (e.g., trends in specialization, limited socioeconomic diversity)
 - Education and training in skills needed for improving the value of our health care delivery system (e.g., working in care coordination teams)

MECIDAC

Recommendation #1: Establish performance-based payments for GME

- The Congress should authorize the Secretary to establish a performance-based incentive program with payments to institutions contingent on reaching desired educational outcomes and standards
 - A panel of individuals and stakeholders with expertise and relevant perspectives should advise the Secretary
 - Eligible institutions to include teaching hospitals, medical schools, and other entities sponsoring residency programs
 - Funding should come from reducing IME payments to eliminate the amount paid above empirical IME costs
 - Goal: Foster greater accountability for Medicare's GME dollars and reward education and training that will improve the value of our health care delivery system

MECIPAC

Recommendation #2: Increase the transparency of Medicare's GME subsidies

- The Secretary should annually publish a report that shows, by hospital, the amount of funding received in Medicare GME payments and associated costs
 - Interpreting reported cost data may require some caveats
- Goal: Encourage collaboration between educators and institutions on residency program funding decisions and recognize Medicare's significant investment in residency (and some nursing) training and education

MECIPAC

Performance-Based Incentive Program

- The Secretary should consult with organizations and individuals with the necessary expertise and perspectives to propose such criteria
- Eligible institutions would include teaching hospitals, medical schools, and other entities that may sponsor residency programs
- Funding for this initiative should come from reducing IME payments to eliminate the amount currently paid above empirically justified IME costs

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Recommendations for 3 studies

- Identify workforce needs for a high-value, affordable health care delivery system
- Analyze how residency programs affect the financial performance of their affiliated institutions and whether Medicare should support programs in all specialties equally
- Determine a strategy for increasing the diversity of our health professional workforce; report on what programs are most effective to achieve this pipeline goal

MECIPAC

PRESENTATION Q&A

MARK E. MILLER, PHD (MEDPAC)

Q» Some of us have argued for a long time that a portion of the GME money needs to go to medical schools and not to hospitals, that once you have a hospital controlling all of the money, residents are going to be hospital based, and you can try to change the curriculum and do a variety of things, but hospital administrators are terrific at manipulating that. Hospitals themselves are the biggest single impediments to the experimentation that George is talking about because they have a very clear notion as to what they want from the residency programs, and they see that it happens.

> At the same time, if resources were to be divided, as you suggest is possible in order to get curriculum changes, you then still have the problem that you would expose residents to a better balance, for example, of ambulatory versus inpatient activities, which is again one of the big criticisms that all of us have of the current GME practices, but without all of the other solutions, namely, the reimbursement for primary care, student debt, all those things, you

could expose people to ambulatory experiences and they still want to be neurosurgeons, given the economics of it.

So in your looking at the workforce needs, are you also looking at how the reimbursement system would have to change in order to make the opportunity to provide primary care or continuity, the things that you are interested in, actually attractive to people?

Dr. MILLER: Yes. The Commission has made a series of recommendations to improve the valuation of primary care services in Medicare and in doing so, make the practice of primary care more attractive to physicians. For example, in recognition of primary care practitioners' critical role in the healthcare workforce, in 2008 the Commission recommended increasing payment for primary care relative to specialties. They have also discussed changes to the healthcare delivery system: medical homes, bundled payments, and accountable care organizations, where the role of primary care physician would be central.

However, it is important to note that if the changes that Medicare makes to make primary care more attractive are not complemented by similar efforts among private payers, medical students may still be drawn financially to subspecialties and away from primary care.

- **Q**» Years ago when these kinds of issues would come up in Q&A sessions about Medicare, people would say, we need more money for this or less money for that or whatever else, I would say, tell me what the public policy argument is for spending public resources to train people for high-paying professions, most of which are already in excess supply. And I have yet to have anybody ever rise to the occasion. Maybe that is just so offthe-wall as to not merit a response, but it seems to me if we are talking about philosophical underpinnings, there is an argument for using public resources, and that is what Part A revenue is for: training more engineers and schoolteachers and whatever. Mark, does that kind of thing ever come up do you know?
- Dr. MILLER: The Commission considered whether federal subsidies for GME should be removed from Medicare and instead distributed through general revenues. Although a case could

be made for this approach – considering that GME is thought by many to be a public good that benefits the nation as a whole – ultimately, the Commission determined that significant improvements can be accomplished through adjustments to current Medicare policy.

Currently, some GME payments are calculated as a percentage add-on to Medicare's inpatient hospital admissions and others are calculated based on Medicare's share of patient days. Neither of these methods is an effective means for encouraging the kind of teaching and training that are needed to address the nation's healthcare needs. That is why the Commission recommended, where possible, decoupling Medicare's subsidies for GME from payments for services and instead directed towards educational goals.

Q » We have had two very highly ethical, highly principled presentations from leaders who clearly have the best interests of the American public in mind, I think none of us in this room would doubt that, yet both of them have made a point of telling us they have lost their friends. What does that tell you about the process that we are undertaking today? Mark, what are your observations about organizations, associations, legislative groups, lobbyists, etc. that made GME such a high priority for you rather than letting it work through another process outside of MedPAC?

Dr. MILLER: Despite the tremendous advances that our GME system has brought to modern healthcare, the Commission found it was not consistently producing physicians and other professionals who can become leaders in reforming our delivery system to substantially improve its quality and value. Because the GME system is influenced by Medicare subsidies and the ways that Medicare and other insurers pay for healthcare services, it seemed particularly relevant for MedPAC to enter the conversation.







Optimizing GME Positions: Council on Graduate Medical Education Past, Present, and Future Considerations

Russell G. Robertson MD Chair: Council on Graduate Medical Education Professor and Chair Department of Family and Community Medicine Northwestern University Feinberg School of Medicine

COGME Update

COGME is expected to impanel nine new members

•There is a reasonable expectation that we will meet in January

- •While we are pleased that the National Workforce Commission has been impaneled, at the present there are no appropriated funds to support its work
- •Pending the comments made by the members of this Macy convened group, I would be willing to invite members from this meeting to the next COGME meeting to review prospective recommendations and to ask the members to consider those as the theme for our next report

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Shortage of Primary Care Physicians

32% of all US physicians are primary care providers (PCPs):

- 12.7% are family physicians
- 10.9% general internal medicine
- 6.8% pediatricians
- 1.6% in general practice

Shortage of PCPs, particularly those capable of caring for adults with chronic disease, overshadows deficits in all other specialties

In the context of health care reform objectives that will increase the need for PCPs, this shortage is especially critical

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ONLY GETTING WORSE?

Shortage of PCPs is in jeopardy of accelerated decline because of decreased production and accelerated attrition

Only 17% of all 2008 medical school graduates made any of the primary care specialties their first choice¹

The net total percentage was 27% when student's first residency choice was not realized

1.Altarum: 2008 review of questionnaires administered to all 2008 allopathic and osteopathic medical school graduates

Graduate Medical Education and Physician Shortages

• Two efforts have been made in the context of the Health Care Bill to add 15,000 Medicare funded new GME positions with an emphasis on primary care

- The net cost associated was presumed to be \$3 billion annually
- This was deemed as unaffordable and both requests failed
- There are between 1000-1300 currently vacant GME positions that are being re-apportioned mostly to rural states
- New osteopathic and allopathic medical schools continue to open, but without new GME positions, the net output of physicians will remain flat
- HRSA recently funded new PCP residency positions as follows:
- 175 new residency slots
- 5 years of funding at 80k per resident per year (almost \$1m per residency slot)
- roughly 75 family medicine, 60 internal med and 35 pediatrics
- While the amount of money is significant, funding covers only resident salaries with no additional support for faculty or infrastructure.

Physician Workforce Policy Guidelines for the United States, 2000-2020 : The 16th Report

- To meet the future physician workforce demand and need in the U.S., COGME recommends that:
- The number of physicians entering residency training each year be increased from approximately 24,000 in 2002 to 27,000 in 2015
- The distribution between generalists and non-generalists should reflect ongoing assessments of demand; therefore, COGME does not recommend a rigid national numerical target
- Increase total enrollment in U.S. medical schools by 15 percent from their 2002 levels over the next decade
- Phase in an increase in the number of residency and fellowship positions eligible for funding from Medicare to parallel the increase in U.S. medical school graduates recommended above.

Enhancing Flexibility in Graduate Medical Education: The 19th Report

1) Align GME with future healthcare needs

Increase funded GME positions by a minimum of 15%, directing support to innovative training models which address community needs and which reflect emerging, evolving, and contemporary models of healthcare delivery.

 Broaden the definition of "training venue" (beyond traditional training sites)

Decentralize training sites

Create flexibility within the system of GME which allows for new training venues while enhancing the quality of training for residents

Enhancing Flexibility in Graduate Medical Education: The 19th Report

3) Remove regulatory barriers limiting flexible GME training programs and training venues

Revise current Centers for Medicare & Medicaid Services (CMS) rules that restrict the application of Medicare GME funds to limited sites of care

Use CMS's demonstration authority to fund innovative GME projects with the goal of preparing the next generation of physicians to achieve identified quality and patient safety outcomes by promoting training venues that follow the Institute of Medicine's (IOM) model of care delivery

Assess and rewrite statutes and regulations that constrain flexible GME policies to respond to emergency situations and situations involving institutional and program closure.

Enhancing Flexibility in Graduate Medical Education: The 19th Report

 Make accountability for the public's health the driving force for GME

Develop mechanisms by which local, regional or national groups can determine workforce needs, assign accountability, allocate funding, and develop innovative models of training which meet the needs of the community and of trainees

Link continued funding to meeting pre-determined performance goals

Alter Title VII in order to revitalize support for graduate medical education.

Advancing Primary Care: The 20th Report

The Council on Graduate Medical Education (COGME) met in November 2009 and April 2010 to examine these challenges and develop recommendations in five categories:

The number of primary care physicians

Mechanisms of physician payment for primary care

The premedical and medical school environment

The graduate medical education environment

The geographic and socioeconomic maldistribution of physicians

The Premedical and Medical School Environment

<u>RECOMMENDATION</u>: Medical schools and academic health centers should foster a physician workforce of 40% primary care physicians by strategically focusing and improving their choices of medical students and residents and the design of educational environments

Medical Schools and Academic Health Centers should:

- Develop an accountable mission and measures of social responsibility for academic medicine to improve the health of all, collaborate with local communities and distribute resident training accordingly, reduce physician income disparities, and lead in the development of new models of practice
- 2. Allocate resources to:
- Increase the involvement of primary care physicians in the first 2 years of medical school
- Fund primary care interest groups
- Recruit, develop, and support community physician faculty members
- Require student participation in rural, underserved, and global health experiences

The Premedical and Medical School Environment

Medical Schools and Academic Health Centers should (cont.)

3.Expand medical school class size strategically to address the primary care physician deficit and maldistribution issues

4.Reform admission processes to increase the number of qualified students more likely to choose a primary care specialty and to serve medically vulnerable populations

5.Require block and longitudinal experiences of sufficient length that medical students clearly understand the essential functions of primary care and the medical home

The Premedical and Medical School Environment

Medical schools, Academic Health Centers, the AAMC, the Accreditation Council for Graduate Medical Education, Congress, regulatory and licensing agencies should:

6.Reform the continuum of medical education, from premedical training through continuing education, to impart general competencies most efficiently and promote the choice of careers in primary care

Federal and state governments should:

7.Provide increased incentives for physicians who practice primary care or other critical specialties in designated shortage areas.

8.Substantially enhance funding for scholarships, loans, loan repayment, and tuition waiver programs to lower financial obligations for students who plan and choose careers in primary care

Graduate Medical Education

<u>RECOMMENDATION</u>: GME payment and accreditation policies and a significantly expanded Title VII program should support the goal of producing a physician workforce that is 40% primary care, measured by assessing physician specialty in practice.

This will require a doubling of current primary care production from residency training for a decade or more

Congress, the Administration, Department of Health and Human Services, accrediting agencies, and private insurers should:

 Increase the number of new primary care GME positions and programs to accommodate the increased production of medical school graduates and respond to the need for a workforce made up of 40% primary care physicians

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Graduate Medical Education

Congress, the Administration, Department of Health and Human Services, accrediting agencies, and private insurers should (cont):

2.Increase training in ambulatory, community, and medically underserved sites by:

•Removing all regulatory disincentives including the community preceptor ruling

•Promoting educational collaboration between academic programs and Federally Qualified Health Centers (FQHCs), RHCs, and the National Health Service Corps (NHSC)

•Implementing new methods of funding to include reallocation of existing GME funding, new GME funding that is not calculated according to Medicare beneficiary bed-days, and substantial expansion of Title VII funding specifically for community-based training

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Graduate Medical Education

- 3. Provide financial incentives for GME that:
- directly provide GME funding to primary care residency programs and non-hospital community agencies to provide the proper incentive for ambulatory and community-based training
- explore augmenting payments for primary care residents, including differentially higher salaries and early loan repayments, to decrease the negative impact of educational debt on primary care specialty choice
- fund all primary care residency programs at least at the 95th percentile level of funding for all programs nationally
- reward teaching hospitals, training programs, and community agencies financially on the basis of number of primary care physicians produced
- 4. Change Accreditation Council for Graduate Medical Education (ACGME) regulations to support more training in outpatient settings and experimentation with practice models to prepare residents appropriately for an evolving health care environment (Teaching Health Centers)

The Geographic and Socioeconomic Maldistribution of Physicians

<u>RECOMMENDATION</u>: So long as inequities exist, policies should support, expand, and allow creative innovation in programs that have proven effective in improving the geographic distribution of physicians serving medically vulnerable populations in all areas of the country

Congress and the Administration should:

- 1. Increase funding of the National Health Service Corps to \$540 million to
 - recruit more PCPs
 - provide greater support of scholars
 - create special learning opportunities and networks for scholars and early loan repayers
 - forge formal affiliations with academic institutions and training programs
- 2. Increase the funding for Title VII, section 747, to \$560 million in Primary Care Medicine and Dentistry cluster grants

Report to the Congress Aligning Incentives in Medicare/MedPAC

- The Congress should authorize the Secretary to change Medicare's funding of graduate medical education (GME) to support the workforce skills needed in a delivery system that reduces cost growth while maintaining or improving quality.
- The Secretary should establish the standards for distributing funds after consultation with representatives that include accrediting organizations, training programs, health care organizations, health care purchasers, patients, and consumers.
- The standards established by the Secretary should, in particular, specify ambitious goals for practice-based learning and improvement, interpersonal and communication skills, professionalism, and systems-based practice, including integration of community-based care with hospital care.

Report to the Congress Aligning Incentives in Medicare/MedPAC

- Performance-based GME funding under the new system should be allocated to an institution sponsoring GME programs only if that institution meets the new standards established by the Secretary, and the level of funding would be tied to the institution's performance on the standards.
- The indirect medical education (IME) payments above the empirically justified amount should be removed from the IME adjustment and that sum would be used to fund the new performance-based GME programs.
- To allow time for the development of standards, the new performancebased GME program should begin in three years (October 2013).

Low Diagnostic Yield of Elective Coronary Angiography¹

- A total of 398,978 patients were included in the study.
- The median age was 61 years.
- 52.7% of the patients were men.
- At catheterization,149,739 patients (37.6%) had obstructive coronary artery disease.
- No coronary artery disease (defined as <20% stenosis in all vessels) was reported in 39.2% of the patients.

1) Patel MR, Peterson ED, Dai D, et al. Low diagnostic yield of elective coronary angiography. N Engl J of Med. 2010;362:886-95.

"PRIMARY HEALTH CARE – NOW MORE THAN EVER"1

- Task Shifting: The report suggests a re-ordering of the performance of health care services and procedures stating that "specialists may perform tasks that are better managed by general practitioners, family doctors or nurses."^{1,2,3}
 - 1) The World Health Report 2008 Primary Health Care Now More Than Ever
 - Williams J, Russell I, et al. Effectiveness of nurse delivered endoscopy: findings from randomised multi-institution nurse endoscopy trial (MINuET). BMJ 2009;338:b231
 - 3) Krasuski RA, Wang A, Ross C, et al. Trained and supervised physician assistants can safely perform diagnostic cardiac catheterization with coronary angiography. Catheterization and Cardiovascular Interventions. 2003:59:157-60

Ambulatory Care Provided by Office-Based Specialists in the United States¹

- Increasing use of specialist services in the United States is leading to a perception of a specialist shortage. Little is known, however, about the nature of care provided by this secondary level of services
- 46.3% of visits were for routine follow-up and preventive care of patients already known to the specialist
- Referrals accounted for only 30.4% of all visits
- 73.6% of all visits resulted in a return appointment with the same physician, in more than one-half of all cases as a result of a routine or preventive care visit
- Ambulatory office-based activity of specialists includes a large share of routine and preventive care for patients already known, not referred, to the physician
- It is likely that many of these services could be managed in primary care settings, lessening demand for specialists and improving coordination of care
- 1) Valderas JM, Starfield B, Forrest CB, Sibbald B, Roland M. Ambulatory care provided by office based specialists in the United States. Ann Fam Med 2009;7:104-111.

Aircraft Carrier Flight Operations

Job Description

- Guarantee the successful launch of SH-60 Seahawk helicopters and F/A-18 Super Hornet jets. Conduct mine countermeasures. Provide aircraft with critical information essential to recovery missions. Some of the most well-rounded men and women in America's Navy make up the Flight Operations community. Your job will require you to be your best at all times, no matter the task or situation at hand.
- <u>No college degree</u> is required to become an enlisted Navy Aircrewman or Air Traffic Controller. As a Sailor working in this field, you can expect to:

Perform aircraft tactical duties as a flight engineer, loadmaster and/or reel operator

Execute handling duties related to the launch and recovery of Naval aircraft

Interpret data shown on radar screens to plot aircraft positions

Operate tactical weapons, sensors and communication equipment

Work with pilots to operate and control aircraft systems

Your multifaceted talents will make you an important part of one of the world's most renowned aviation forces.

The Proceduralist

Hypothesis:

• Highly trained physicians expend significant amounts of time engaged in the performance of many medical procedures, many of which may be performed equally well by a trained technician, the proceduralist.

Proposal:

- Using Medicare accessible annualized data, determine the number of and kinds of procedures performed on Medicare patients.
- Working with a process engineer, categorize these procedures by complexity as it relates to dexterity and the degree and extent of judgment and skill required for their performance.
- For those procedures that fall below a certain threshold of complexity that would not require the physician as the operator, review the frequency with which they are done and, where possible, group them according to similarities.

The Proceduralist

- Armed with data from this exercise, conduct a review of the specialties where the physician is the operator for these less complex procedures and then determine retrospectively how that would influence the number of those physicians needed for practice.
- The presumption could then be advanced that training could either be shortened thereby creating new GME slots or the absolute numbers of those specialists could be reduced, or both.
- Any reduction in these GME specialty slots would then be redistributed to areas where growth is essential with general internal medicine and family medicine as the highest priority.

Steve Witz PH.D:Director, Regenstrief Center for Healthcare Engineering Purdue University

Job Content Analyses and Substitution of Labor Inputs

- Analyses involve the identification of essential knowledge and competencies involved in performing a task:
- Knowledge cognitive assessment
- Competence in performing the procedure within the clinical context
 observational assessment

Measurement of these factors are typically based upon either

the consensus of experts, and/or

observational studies of job performance using structured assessments (usually derived from those judged to be proficient, or those with greatest knowledge and/or related experience if new task).

Statistical methods can be used to determine consensus or inter-rater reliability.

- When performance standards are established, factor analyses have been used to find the minimum set of knowledge and performance components most strongly associated with acceptable performance.
- These clusters of knowledge and performance components are then used as an assessment of job requirements.

Job Content Analysis

Confounding factors are related to:

- Lack of objectivity among experts (1) inflating prerequisite knowledge, or (2) under representing prerequisite knowledge as a result of familiarity with subject matter
- Difficulty in assessing relative contributions of theory based knowledge versus experience
- Observational studies can be inaccurate in assessing cognitive skills
- Measurement instruments are imprecise e.g., survey of primary care physician skills, Medicare Care. Feb 1975, Vol. 13, No. 2.
- Experts may not be motivated to cooperate and support analyses
- The task stability versus variability, a-priori predictability of the task, e.g., frequency of complications changing the nature of the task

Job Content Analysis

Substitution of labor inputs is based upon enabling less expensive labor to perform in place of more expensive labor, given equal task outcome. This is usually an economic determination unless labor shortages exist. Economic issues include:

 Valuation of the job performed – The premise is that lower cost labor inputs will be valued at a lower level. Labor substitution is only viable when it is valued lower than the alternative. Is the value of a job based upon labor input costs or pricing exigencies, e.g., is the differential between CRNA charges relative to anesthesiologist's proportional to differences in input labor costs, or have CRNA charges tended to rise to a market acceptable differential?

• Fixed (salaried) versus variable (fee-for-service) labor costs. Fixed labor costs are minimized when labor is optimally utilized. Most lower expense labor is salaried. Higher cost labor may be compensated on a fee-for-service basis and have greater range of services to perform thus able to have higher utilization. Therefore the value of lower labor input is dependent upon their degree of optimal utilization.

Structures influencing acceptability of substitution among labor inputs

Hospital (other provider institution) staff privileging and credentialing

Standards to attain provider liability insurance

Board exams

State licensing and influence on professional scope of practice

PRESENTATION Q&A

RUSSELL ROBERTSON, MD (CGME)

- Your proposal for a task reallocation focused on taking a technically oriented subspecialist and shifting that to less highly trained people. The other model that we hear proposed often is the opposite: having primary care physicians replaced by non-MD physician assistants and nurse practitioners. Is there any information, or should some be developed, that compares those two models, not just in terms of cost but in terms of quality?
- Dr. ROBERTSON » This is where I think literally we have to play really well publicly because right now, there is a lot of self advocacy going on that is not very helpful. I was at a Carter Center meeting, and one of the physicians there went through Katrina, and she said after the hurricane, it didn't matter what the initials were after your name: everybody worked together very effectively. But now that things are stabilizing, a lot of the barriers are going up again and people are starting to conflict with one another. There is the capacity to collaborate very effectively, but I think it is a worrisome thing when one group

of individuals says that they can, in some way, shape, or form, or replace another.

We have to work together, and the opportunities to do so are just lying right before us. I am very excited about that and I worry that my own specialty society, the American Academy of Family Physicians, has not been able to engage collaboratively with advanced practice nurses and continues to oppose their independent practitioner status. And that is part of what I am hoping for. As 2014 approaches, whether it is the Workforce Commission, or some other entity, it is essential to develop a conversation among the various provider groups. I made an effort a year and had buy-in with the PA leadership and with the nursing leadership but was unable to get the major physician organizations to participate in that dialogue. So there is a big opportunity there.

Q » A couple of comments, and can I ask Tom Nasca a question? I want to remind us all that in the early nineties there was a substantial increase in the number of medical students choosing generalist careers. We did not change very much at that time except that the market looked like it was going to change, and people thought there were going to be really good careers for them. And then, when that dissipated and the gate people concept went away and so forth, that fell off. So I would just like to emphasize that we can do a better job in terms of selection and getting people from backgrounds that they want to return to and so forth, but again, I think the market has a lot to do with it, even though that is not the only factor.

I wanted to come back to Tom Nasca's comments which I thought were very provocative about medicine as a guild and moving in that direction. You just heard about the guild: don't let the nurses in; that is part of the guild. What we are seeing around the country now because of the ACO issue is an enormous amount of hiring of docs by hospitals, and the hospitals are getting ready to be the accountable care organization and they want to be able to provide the workforce. They started with the cardiologists because they have high profit margin pieces and they are now expanding that to other lucrative pieces. And they are also going to be looking at groups of primary

care providers as part of the ACO.

So I am curious about how you see this moving toward the guild being affected by the changes because what I am seeing is the medical groups and everybody else trying to figure out how to line up against the hospitals in terms of protecting their activity, and how does that affect the residency training? What I could not quite get to was how should we think about that as affecting the experience in graduate medical education?

DR. NASCA: One of the things I think we have to be very careful of is this whole idea of task orientation. That is the way medical schools were before. I am very concerned that in the last 30 years since the changes in healthcare financing brought about in 1984 have fundamentally changed the entire culture of healthcare delivery in the United States, this idea that the profession has been complicit as we have moved away from a social justice conceptual framework to a capitalistic model framework.

All you have to do is go back and look at your academic medical centers in 1975 versus now, and what is the difference? They are major business entities now, they are revenue producers of huge proportion, and they are operated that way. That was not the way it was when most of us were in training, and I am afraid that if these accountable care organizations are not configured not only with the right structure but also with the right values base, we will accelerate this movement back to the guild. This is not just what is done but how it is done and the motivation for what is done.

Remember that all of those general internists and family doctors who went back into training, who went into generalist disciplines in the early 1990s, are now your angry associate professors because of the disruption of the social contract, not only because the payment system and the control mechanisms never evolved, but also, they have been put on the treadmill. They are economic productivity units in your institutions; they are no longer professionals. They don't have the sense that they had 20 years ago, and it is based on the structures that we put in place and the economic models that we are using to finance our organizations and operate them.

So I am very concerned that we could indeed see an acceleration, or it could go the opposite way if it is done right, and we could see a return to that values-based professionalism commitment to the individual and effacement of self interest that is at the core, I think, of what the professional is supposed to be. So I don't have an answer but I think it could go either way.







New GME Funding Sources are Needed Macy-AAHC GME Conference Paul H. Rockey, MD, MPH Director, Graduate Medical Education October 24, 2010 (updated January 19, 2011)





To promote the art and science of medicine and the betterment of public health.



The Doctor By Samuel Luke Fildes, 1891

Flexner Report Transformed Medical Education in the United States







U.S. Has Relatively Low Ratio of Practicing Physicians per 100,000 Population





Drivers of Future Demand for U.S. Physicians

- Population growth: 25 million/decade
- Aging population: Over 65s will double 2000-2030, major illness/chronic illness
- Lifestyle factors: e.g., obesity, diabetes
- Public expectations: Boomers have more resources and higher expectations
- Surge of insured US citizens with passage of HSR

U.S. Faces Shortage of Physicians

- COGME, AAMC, AAFP, Cooper et al. projected shortage of between 124,000 and 159,000 physicians by 2025
- HRSA projected deficit of 65,560 primary care physicians by 2020
- 2008 JAMA study projected an additional 21,000 residency positions needed by next decade

21 Specialty Groups Report Shortages

- Gastroenterology (2009)
- Thoracic Surgery (2009)
- General Surgery (2008)
- Generalist Physicians (2008)
- Geriatric Medicine (2008)
- Oncology (2007)
- Pediatric Subspecialties (2007)
- Public Health (2007)
- Rheumatology (2007)
- Allergy and Immunology (2006)

- Child Psychiatry (2006)
- Critical Care Workforce (2006)
- Emergency Medicine (2006)
- Family Medicine (2006)
- Neurosurgery (2005)
- Cardiology (2004)
- Dermatology (2004)
- Medical Genetics (2004)
- Anesthesiology (2003)
- Endocrinology (2003)
- Psychiatry (2003)







More Physicians Approaching Retirement Age 30,000 25,000 Physicians Enter Training Each Year **Number of Active Physicians** 25,000 23,902 22,526 20,000 (2017)(2025)Number of Physicians Reaching Age 63 15,000 13,708 10,000 (2008) 5,000 2008 2010 2012 2014 2016 2018 2020 2022 2024

Source: AMA Physician Masterfile (January 2008).

One in Three Would Retire Today if They Could Afford to







Gender Matters: Work-Life Balance is More Important than Income for Women

BALANCE	Men	Women
Time for family/personal life	66	82
Flexible scheduling	26	54
No / limited on call	25	44
Minimal practice mgmt resp	10	18
CAREER/INCOME		
Practice income	43	33
Long term income potential	45	36
Opportunity to advance professionally	29	27

Source: AAMC/AMA 2006 Survey of Physicians Under 50

PAUL ROCKEY, MD, MPH

Physician Shortage Summary

- Physicians per capita will decrease
- Population growing; elderly will double
- People live longer; more chronic illnesses
- Elderly need more medical specialty care
- Best prevention will not eliminate disease, only delay it





PAUL ROCKEY, MD, MPH 📢

More US Medical Students





Unmatched Applicants 2010 NRMP

1,078	Seniors, U.S. Allopathic Medical Schools		
747	Previous Graduates, U.S. Allopathic Medical Schools		
601	Students/Graduates, Osteopathic Medical Schools		
6	Students/Graduates of Canadian Medical Schools		
1,946	U.S. Citizen Students/Graduates of International Medical Schools		
4,365	Non-U.S. Citizen Students/Graduates of International Medical Schools		

U.S. GME Required for Licensure

GME Required	U.S. MDs	IMGs
4.400		
'i year	50	4
2 years	14	20
3 or more	4	30
years		24



U.S. Spends \$2.3 Trillion on Health Care

- ~\$7,000 /person /year while U.S. median household income \$50K
- There is enough in the "system" to rebuild doctor supply
- How should we pay for GME?



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Pharmaceutical and Medical Device Manufacturers



- Pharma alone spends over \$8 Billion on 100,000 "drug reps"
- Device reps are in our ICUs and ORs everyday

Pharmaceutical and Medical Device Manufacturers



- Pharma alone spends over \$8 Billion on 100,000 "drug reps"
- Device reps are in our ICUs and ORs everyday
- Major conflicts of interest



Teaching Hospitals



- Already support
 12,000 GME positions
 above the BBA cap
- Many are safety net
- Have thin margins
- More physicians are directly employed by hospitals

Evidence from Three Experiments: two real and one virtual

- 1. How New York and Medicare GME funding intersected in the '90s
- 2. How the Balanced Budget Act shaped the growth of GME positions
- 3. How IOM Duty Hours Standards would have added to GME costs

New York's GME Funding Story

- 1992 Highest number of physicians per capita in U.S. (294 per 100,000)
- 1995 Received \$3 billion for GME, exported graduates despite underserved state regions
- 1997 BBA capped Medicare-funded positions
- 1997 NY reduced residency positions but struck deal to keep 1/2 of GME funds
- 1998-99 NY reversed course and restored all **GME** positions
- Residents are less expensive than replacements

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1997 BBA Temporarily Slowed GME Growth, but ACGME Residents and Fellows up 9% since 2002



Source: JAMA Medical Education issues

РАИL ROCKEY, MD, МРН 巛



Residents in Training Before and After the 1997 Balanced Budget Act

- 2002-2007 number of resident physicians began increasing (8% net increase)
- Growth of resident physicians (financed by hospitals) was driven by:
 - 7.6% increase in new entrants, mostly international medical graduates
 - increasing subspecialization = longer training; fewer physicians entering generalist careers
- Residents are less expensive than replacements

IOM Duty Hour Recommendations Would Have Cost ~ \$2 Billion

- Additional staff to handle transitions of patient care
- Additional residents to cover nap time
- Ensure safe transportation home after long shifts
- New ACGME standards estimated to cost \$380M
- Residents are less expensive than replacements

Other GME Funding Sources

Medicaid (annual state appropriations and matching federal payments)

2002 – Medicaid GME funding totaled \$2 billion2008 – Medicaid GME funds less than \$2 billion

- Veterans Administration (10% of residents - \$1 billion)
- Department of Defense (2,200 residents)
- Private payers (cost shifting is going away)



Insurance Companies Could Finance GME



- Medicare (CMS) already bears its fair share = \$9 B ~ 40% of cost
- In 2009, top five health insurers' profits = \$12.2 B (up 56%)
- 80% of patient care and doctor visits occur outside hospital
- HSR retains private insurance
- AMA policy advocates all-payer funding for GME

Health Insurers Should Want to Invest in Physician Education, especially GME

- Access –need competent providers with right knowledge and skills in right place and time
- Quality starts with making correct diagnosis and implementing best therapies
- Medical errors caused by system failures
- Population outcomes insurers have data
- Smart medicine is efficient and intellectual capital would be a good investment



Medical Student Debt

- 87% have debt = \$156K average
- Private tuition/fees up 50% from 1984 to 2004
- Public tuition/fees up 133% over same time
- Discourages disadvantaged applicants
- Most from top quintiles of parental income
- Decreases medical workforce diversity
- Decreases number choosing primary care
- Remedies needed

Fundamental Issues to be Addressed

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- Student debt is barrier to entry, effects specialty choice, but is used as lever to meet access needs
- Funding for GME is essential and should be adequate, sustainable and rational
- Consequence of not expanding GME will be an inadequate physician workforce with some incompletely trained physicians

Solutions Supported by AMA

- Ensure adequate GME opportunities for qualified applicants including IMGs
- Ensure well-trained, competent medical workforce entering practice
- Create incentives for efficient, effective, safe and high quality medical practices
- Encourage medical workforce expansion to correct shortages by specialty and geography

Solutions Supported by AMA

- Seek all payer funding for core residency programs leading to initial board certification
- Align federal and state incentives through:
 - all-payer GME system (federal or state mandates)
 - GME funds to meet broader community needs
 - reduce disparities in medical access and quality
 - support GME in innovative health care systems (PCMHs and ACOs)

States with All-payer Systems for GME

- Maryland public and private payers pay same rates; GME financed through proportionate assessments on all payers
- Michigan –Medicaid, Medicare, and Blue Cross/Blue Shield support the GME costs in 49 teaching hospitals
- New York –Medicaid, Medicare, private insurance companies, and Veterans Administration collectively support GME

State-based GME and Medical Workforce Summit, November 18-19

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Leaders from GME, medical associations, policy and legislative constituencies convened to:

- Identify geographic regions and medical specialties in short supply in their states/regions
- Develop strategies to expand GME in underserved areas and undersupplied specialties
- Discuss successful methods to distribute GME funds to meet state and regional needs
- Identify current & potential sources of GME funding
AMA Advocacy Resource Center

- ARC supports a network of state and specialty medical association leaders to coordinate campaign development and compare strategies
- GME funding and medical workforce issues discussed at AMA-sponsored State Legislative Strategy Conference January 6-8, 2011

Strategies State/Regional Stakeholders can Embrace for Political Action

- Collect state-level physician data to support the need to expand GME in underserved areas
- Foster incentives for students to choose specialties/careers to meet societal needs
- Explore alternative sources for GME funding (e.g. private payers, new ACOs)
- Reward efficient, effective, and safe practices

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PRESENTATION Q&A

PAUL ROCKEY, MD, MPH (AMA)

- Q» The AMA supports increased funding of GME from an all-payer system, and supports preference being given to the primary care specialties as opposed to increased funding to all the specialties. Am I correct about that?
- DR. ROCKEY: You are correct about an all-payer system, but we think the shortage of physicians is across the board. For example, the American Society of Clinical Oncology (ASCO) looks at the baby-boom bulge and the cancer epidemic and projects we are not going to have enough clinical oncologists. Personally, if I get a solid tumor or a lymphoma, I would like to have a clinical oncologist managing my chemo. Most physicians are really trying to do the right thing for their patients regardless of specialties.
- Q » But if you increase the number of spots to the point where students have a choice, we will be left with the same circumstance we have now: they won't choose primary care.

DR. ROCKEY: Let's back up. I think your question assumes we can force a generation of medical students to choose those specialties that will solve our workforce problem. I am going to circle back to WWAMI (University of Washington's regional medical education program with Wyoming, Alaska, Montana, and Idaho), a region where I spent two decades of my career. They are trying to get rural general surgery and rural psychiatry training programs established. For that region, both are underserved specialties. We would strongly support similar initiatives that address regional needs.

Kentucky is an example where currently there are community initiatives to start three rural family practice training programs. These programs are "shovel-ready" (if I could use that analogy) and residency programs would be started at rural sites with community hospitals with nearby universities. Such sites could start with family medicine programs, but it would not need to end there. They could expand in the future to include general surgery, general internal medicine, and subspecialty medicine.

In pediatrics the issue is about training enough subspecialists. We are training enough general pediatricians but not enough subspecialty pediatricians.

Q » But you are still making the case for targeting. You are saying that targeting perhaps should be broader than just primary care. But every argument you make is about a specific need in a specific place, and if it is just everything for everybody, then you don't get any targeting.

DR. ROCKEY: I am really glad you ask. I believe we are doing targeting now. We have one major payer and most of the funding is going to academic medical centers and the result has been growth in subspecialties.

I am arguing for a much broader process. I really welcome your question because as we organize our conference next month, we are not only inviting states that have become all-payer states, but we are inviting states that have created innovative ways to distribute GME dollars within their state. Colorado, for example, used money from the conversion of hospitals from notfor-profit to for-profit to create a health foundation. The foundation provides ongoing support for community-based GME programs in family medicine. We will also look at how to redistribute GME dollars. Utah got a waiver from CMS in order to redistribute GME slots.

WWAMI is gathering medical leaders and state officials to begin to look at where they need to grow GME to meet their region's needs. And such regional approaches to expanding GME is the process of targeting that needs to happen. The Nelson Bill, which would have taken the cap off GME funding, may have just fanned the flames of what was currently being produced. And since that is not a bottomless pit we should be cautious, and not be dependent on a single payer.

- Q» Is that a better answer to where you are going? Targeted expansion, but based upon a regional consortium that would be looking at what their needs are?
- DR. ROCKEY: Yes. And, my follow-up to that would be that since we are not going to produce enough of any kind of physicians to meet these projected shortages in the next 10 years, we are going to have to have a series of creative solutions.

The primary care issue is relevant because the only solution that seems to be pointed out is for independent nurse practitioners to fill the void. But there are not enough nurse practitioners either. I guess that is not our purpose here today, but it seems the elephant in the room is the lack of an answer to this question: "Who is going to take care of people and how it is going to get done?"

Q» I would like to come back to the AMA position on the all-payer system. I am aware of the AMA's position over time. I am not so much aware though of specifics, especially recent discussions of specifics of how it might work. We have had some success working with regional insurers on programs to improve quality and improve patient safety while at the same time controlling cost, but of course, the regional insurers are only a portion of the market, and even the regional insurers are crossing state lines. So we have not had success when we have a partnership, let's say, in the state of Idaho with the Idaho legislature providing some money for a new psychiatry residency program. We have hospitals partnering with the state, but it is very difficult to convince commercial insurers who are crossing state lines to participate in that. Are there more specifics coming from the AMA discussions about how an all-payer system could work at the national level?

DR. ROCKEY: Well, my understanding is that in the few states with all-payer funding it is different in each state. For example, in New York, GME funds are part of the disproportionate share paid by some hospitals to help those hospitals with higher uncompensated care. In Michigan, GME funding comes from a consortium model, between the public and private payers that support GME in 49 settings. In Massachusetts, GME is funded through the "insurance connector." In each instance, this has happened at the state legislative level. However, if there are 27 (now 31) states projecting physician shortages, a consensus could emerge among these 31 states that an all-payer system might work at the federal level.

- Q» Yes. But what I am trying to ask is has the AMA evolved the specifics of the recommendation for the federal level?
- **DR. ROCKEY:** Yes, we actually have submitted ideas on how this might work on a regular basis to MedPAC.
- **Q**» If we had an all-payer system, what would be the structure beneath it?
- **DR. ROCKEY:** We think the distribution of new funds should be directed

by regional consortiums. We also think that just doing it on a state-bystate basis could leave out regions of need, like southern Illinois or upstate New York.

Q» The interchange about student choice is a very profound one, and the whole issue surrounding all of the issues of student choice: what should be the nature of that choice? How free should that choice be? What should guide that choice, particularly in an era of immense student debt?

I wanted to go back to the question of nurses and the role that they and other allied health professionals play because it seems like the conversation devolves into should nurses become primary care providers? And yet, when we talk about physician shortages, a lot of people say we redesigned the system so the care was delivered in teams, not just replacing primary care physicians with doctorates in nursing, that these predictions of dramatic shortages might be off. And I wonder if you have done the modeling with delivering care with new team approaches so that maybe you needed fewer highly trained professionals and could have teams that involve less highly trained individuals. So are we having the right conversation about training more doctors?

DR. ROCKEY: I think that there is an issue of having enough of everybody. I also worry that emphasizing this dichotomy of who is going to provide primary care is like throwing kerosene on a fire that we don't even need to start. I think we need teamwork in all settings of care. I also think we will continue to need highly trained physician specialists to lead teams.







Optimizing GME to Best Meet the Needs of Our Nation

John E. Prescott, MD Chief Academic Officer, AAMC October 24, 2010

Objectives

- Describe AAMC's key issues related to GME
- Discuss the quantity question
- Explain an *ideal* GME system



AAMC

Mission: The AAMC serves and leads the academic medicine community to improve the health of all.

- 133 US medical schools
- Approximately 400 major teaching hospitals
- 90 academic societies
- 125,000 faculty
- 75,000 students
- 106,000 resident physicians







The *Quantity* Issue

Numbers matter

PRESCOTT, MD

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JOHN

S.AMC

Why a Physician Shortage?

- The number of physicians per capita will decrease next decade if we don't train more
- The population is growing—the number of elderly will double
- Medicine is keeping more people alive longer, and they are living quality lives—with more illnesses
- The elderly have greater health care needs, particularly specialty care
- Even the best prevention will not eliminate disease but, rather, delay it





Primary Care as a Proportion of Visits Decreases as Patients Age



Impact of Reform on Workforce

- Adds 32 million individuals into system, many without prior insurance and with pent up needs
- Over next 20 years, 36 million people added to Medicare (use the most services) ~ 20% of the population (up from 13%)



How Many More Physicians?

Projected Supply and D	emand, Full-time	Equivalent Physicians /	Active in Patient Care	Post Health Care Reform, 2008-2025
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Physician Supply (All Specialties)	Physician Demand (All Specialities)	Physician Shortage (All Specialties*)	Physician Shortage (Non-Primary Care Specialities)
699,100	706,500	7,400	None
709,700	723,400	13,700	4,700
735,600	798,500	62,900	33,100
759,800	851,300	91,500	46,100
785,400	916.000	130.600	64,800
	Physician Supply (All Specialties) 699,100 709,700 735,600 759,800 785,400	Physician Supply (All Specialties) Physician Demand (All Specialties) 699,100 706,500 709,700 723,400 735,600 796,500 759,800 851,300 785,400 916,000	Physician Supply (All Specialtion) Physician Demand (All Specialtion) Physician Shortage (All Specialtion) 699,100 706,500 7,400 709,700 723,400 13,700 735,600 798,500 62,900 759,800 851,300 91,500 785,400 916,000 130,600

Source: AAAE: Canter for Workfurce Studies, Jone 2010 Analysi *Total includie orthogy care, surgical, and medical speciation.





Are We on Track?

- Medicare has frozen support for its share of costs of residency training at 1996 levels
- 25,000 docs/yr finish training...but the number of retirements will soon exceed new entrants



- Med schools will expand enrollment by 30% over 2002 levels, but we won't produce a single extra physician without expanding residencies
- Training another 40,000 physicians in 10 years(1/2 of need) requires 15% expansion of GME

AMO



What is the "ideal" GME system?

 Starts with asking ourselves what are the needs of America?



What is the "ideal" GME system?

The ideal American GME system is part of a seamless medical education continuum that will ensure a <u>sufficient number</u> of physicians with the <u>skills, knowledge, and attributes</u> to work in a <u>complex and changing</u> health care environment, and who will, in turn, <u>improve the health of our nation</u>.



The Ideal GME System

- Key components:
 - The right number of individuals
 - The right individuals
 - The right environment
 - The right curriculum
 - Fully integrated within the medical education continuum
 - Adaptable
 - Self-reflective/honest



AM

The Right Individuals: Transforming Medical School Admissions



This collaborative approach engages multiple key stakeholders, including:

- •MR5 and the Innovation Lab
- •Advisory Committee on Holistic Review
- •AMCAS Technical Advisory Committee
- •GSA Committee on Admissions
- •Admissions officers and other constituents
- •AAMC services (AMCAS, MCAT)

The Right Curriculum: Core Competencies for Every Physician*

- Patient care that is compassionate, appropriate, and effective
- Medical knowledge
- · Practice-based learning and improvement
- · Interpersonal and communication skills
- Professionalism
- Systems-based practice
- * Currently in place, assessed/enforced by ACGME



• Resident education should occur in locations where they can best learn and participate in high quality, cost-effective care

• Settings should provide opportunities for residents to see a variety of practice patterns

• An ongoing emphasis on patient safety, quality improvement, and the use of EHR must be standard

• Faculty and staff should model professional behaviors that embody altruism, personal responsibility, team work, life-long learning and interprofessional respect



S. AMO

Fully Integrated into the Medical Education Continuum



Linking Transformation in Education and Health Care



The Ideal GME System

Adaptable

+ Self-reflective/honest



Where do we go from here?

- Medical school expansion is underway
- Congress must lift the freeze on Medicare's support of GME positions by at least 15% to allow for the training of additional physicians
- Make most efficient use of all health professionals, working in teams
- Continue to emphasize the "E" in GME while preparing physicians for the future



PRESENTATION Q&A

JOHN PRESCOTT, MD (AAMC)

Q» Actually, this is more of a comment. Your presentation resonates with me very deeply, so I do believe it is the attributes we need to keep in mind. The kinds of students that we are accepting to medical schools really have to be underscored. I think for years, we have been accepting altruistic students and turning them into something else, and we need to figure out a way to maintain that altruism throughout the process. The corporate world talks about a T-shaped individual, an individual who is anchored in a discipline but able to collaborate. And I think we have been changing our T's into I's because many of us are I's that are teaching the T's, and we do that in a very heavy-handed way.

If we could somehow translate whatever we can do to maintain the T-shaped parts of the students that come into school and keep that attribute going, I think we will have a better system. And I agree that maybe we need to look at the calculations that are predicting the shortage of physicians. Maybe it is a different model if we are looking at a team-based approach because I don't know if we are going to have such a dire shortage if we are looking at more of a T-shaped group of physicians that are going to actually graduate.

DR. PRESCOTT: I know the Center for Workforce Studies has tried to model some of those programs out. This work is still in the infancy stage because we don't necessarily even have good models to follow of what clinical practice will be like in the future, but as we look at them, we are trying to put them into these projection numbers. And that is trying to keep the thing honest to make sure that we have those right numbers. I will say, too, that we are dealing with a different generation, and this is nothing new. For just about everybody here, your work ethic is just different from the work ethic of new physicians.

> But one thing that has become clear, and you commented on it and it has been a theme throughout the day, is this expansion in scope of what, for lack of a better term, midlevel professionals are doing today, and the historical trajectory of this is really quite impressive, if you go back to the 1940s when

at some places, they would not let nurses take blood pressure measurements. That was a doctor's job. And this extraordinary expansion in scope, as some of you have pointed out, it is not unique to medicine; it occurs in other activities of life as well. Given this expansion of what mid levels are capable of doing well, what then distinguishes the physician from the nonphysician in the environment of the 21st century? Do we need to rethink what constitutes a doctor? What is the difference between a doctor and someone who is not a doctor but delivering healthcare services? What are the distinguishing gualities of a physician in the 21st century that non-physicians do not have?

DR. JOHNS: That is a great question. I don't expect you to answer that.

DR. PRESCOTT: Good. [laughter] Picking up on that one area of thinking about teaching and educating people for intellectual flexibility, as we are thinking ahead, one of the things that I find a bit of a challenge also in nursing and other academic venues is that when we are educating for the future, many of the faculty, whether they are nursing faculty, pharmacy faculty, or physician faculty, have not necessarily had these system skills that we are talking about. So I guess one of my questions is as we prepare quotes for educating people for the unknown in the future, what kinds of plans might we be having across the board in our professions to help people who are educated, who performed, and were rewarded in one system, to be ready to give for the other?

- Q» The other comment I have is in terms of what the N is going to be: What is enough? The words that you had about the population changing, whether it is the older population, the very, very complex with multiple conditions, have we taken a look at what we are going to present with the healthcare of the population and the patient issues in mind, and then how do we prepare adequately for that?
- DR. PRESCOTT: Well, I will try to answer these questions. First of all, your comments about the flexibility of an individual and having them be able to adapt is a key component of what we look for in individuals, a quality we may not have selected for in medical school applicants in the past. I think there are other important components that we need to be looking for: people who can communicate well, people who have figured out how to make systems work, people who know how to adapt, those are the kinds

of things that we end up needing to do.

You made a comment also about our faculty, and I think this is an important part about GME. How do we help change who we are? Our faculty has certain ways of doing things; we all do. And only when given the opportunity, when shown that they can change something to improve the health of the patient, or improve the health of the public, they will do it; it is just that they have not seen those opportunities. At the national level, that is probably a bigger question than I can answer here. I think that is probably where the National Center for Workforce tends to look, but I don't have any specific knowledge about that.

Q » My impression is that the AAMC's position has been across-the-board 15% no strings attached, no targeting. Based on the discussion we have already had here, and you have sat in on it this morning, there is a lot of sense that an open-ended expansion may not be in the public's interest, but rather expansion that is targeted to perceived needs, measurable needs. Where is the AAMC on that? And could you drill down a little bit on targeted expansion versus...

DR. PRESCOTT: The 15% is an open expansion. We are looking for that number of increased slots. I think the way that we would frame this is that we need to make several changes. Some efforts have already been made on increasing the reimbursement for physicians, particularly those in primary care.

> Students will tell you that some of the physicians they admire most are the primary care physicians, and then they say, "But I don't want to practice in an environment like that person." If you look at the graduate questionnaire, people have mentors; they have individuals they want to be like, which is a big draw to a particular specialty.

I would say that at the AAMC we need to look at reimbursement for individuals and at the practice environment and try to improve both. Someone made a comment before about how much time they spend on the phone with insurance companies and doing other things; I had someone come back the other day and just tell me that the reason they practice at the VA is because they want to take care of patients. And it is the least hassle; they just take care of patients.



Medical Education for the Future

AAHC/Macy GME Conference Atlanta, GA October 24, 2010

Malcolm Cox, MD

Chief Academic Affiliations Officer, U.S. Department of Veterans Affairs Adjunct Professor of Medicine, University of Pennsylvania

The Crisis in Primary Care

- Workforce expansion alone is insufficient
- Clinical education reform is essential
- Practice redesign is foundational

Primary Care Key Career Determinants

- Primary care training environment and experiences during medical school
 - Quality of the teaching faculty
 - Primary care provider satisfaction
- Student debt and expected income from • career choice
- Perception of "control" over lifestyle •

Hauer KE, et al. Factors associated with medical students' career choices regarding internal medicine. JAMA 2008; 300:1154-64. Hauer KE, et al. Internal medicine clerkship directors' perceptions about student interest in internal medicine careers. JGIM 2008; 23: 1101-4.

Satistaction					
	Primary Care Physicians (n=1791)	Other Physicians (n=6424)			
Type of work	3.90	4.20			
Amount of work	3.46	3.98			
Рау	3.43	3.41			
Co-workers	4.21	4.29			
Direct supervisors	3.70	3.99			
Senior management	3.28	3.58			
Promotion opportunities	3.22	3.52			
Working conditions	3.39	3.65			
Customer satisfaction	3.93	4.04			
Overall quality of work	4.38	4.50			
Overall job satisfaction	3.60	3.92			

Data from VA All Employee Survey, 2009 | 1=Not At All Satisfied, 5=Very Satisfied All items (except satisfaction with pay) significantly different (p<0.05 or greater).



Bodenheimer T. Primary Care – Will It Survive? NEJM 2006;355:861-4. | 3rd year internal medicine residents (categorical and primary care track) EXCEPT 2001, which also includes med-peds | Data for 1998-2003 from Garibaldi et al. Acad Med 2005;80:507-12 | Data for 2004 and 2005 from Carol Popkave, ACP

Conclusions

- New approaches to valuing primary care practice are needed; financial incentives may be necessary but the "work" of primary care must also be addressed
- New models of "learning in practice" to make careers in primary care specialties more attractive to physicians in training are needed



Educational Reform Redesigning Internal Medicine Residency

- Meaningful Relationships (Continuity)
 - Patients, families and community
 - Supervisors, teachers and mentors
- New Skills (System-Based Practice)
 - Interprofessional teamwork
 - Distributive leadership
 - Population management
 - Performance improvement

Internal Medicine Residency Continuity-Based Models

- Ambulatory Long Block
- University of Cincinnati
- Recurring Ambulatory Block
- San Francisco VAMC & UCSF

Ambulatory Long Block

PGY 1	WARD	ICU	WARD	WARD	ICU	
PGY 2			AMB ELEC			
PGY 3	WARD	ELEC	WARD	ELEC	ICU	

University of Cincinnati Learner Outcomes

	Before	After	Р
Time for learning	2.94	4.44	0.0004
Learning environment	3.65	4.24	0.0075
Clinical environment	3.44	4.33	0.0156
Personal reward from work	3.33	4.44	0.0042
Relationships with patients	4.06	4.72	0.0001
Sense of ownership	3.72	4.78	0.0002
Value of clinic experience	3.29	4.44	0.0006

Warm EJ, et al. The Ambulatory Long Block: An ACGME Educational Innovations Project. J Gen Intern Med 2008, 23:921-6. Scale: 1 (very dissatisfied) to 5 (very satisfied)

University Cincinnati Patient Outcomes

- Enhanced patient satisfaction
- Increased "continuity" (# patient visits) and decreased "no-show" rates
- Improved quality measures
 - Blood pressure control
 - Measurement of Hgb A1c (but not control)
 - Use of statins (but not LDL levels)
 - Mammography
 - Colonoscopy

Warm EJ, et al. The Ambulatory Long Block: An ACGME Educational Innovations Project. J Gen Intern Med 2008, 23:921-6.

Recurring Ambulatory Block						
RESIDENT 1	WARD	AMB1	WARD	AMB1		
RESIDENT 2	AMB2	ELEC	AMB2	ICU		
OUTPATIENT TEAM	AMB2	AMB1	AMB2	AMB1		



Data courtesy of Rebecca Shunk, MD \mid Overall educational value of continuity clinic in AY 2008-9, showing a trend toward higher overall educational value in the TBCP (not significant) \mid TBCP = Team-Based Continuity Practice \mid Traditional n=13 \mid TBCP n=11



Data courtesy of Rebecca Shunk, M.D. | Preliminary data for mid year AY2010 looking at all sites for the first year of implementation of team-bases models at each site. Residents rated educational value, clinic effectiveness and overall satisfaction on a scale of 1-5 with 5 being the best. The VA clinic displays a trend toward better educational value, more clinic effectiveness and higher satisfaction. This may be related to the schedule differences and/or additional clinical resources (e.g., psychologists, pharmacists, wound care nurses, social workers).



Data courtesy of Dr. Rebecca Shunk. | Selected clinical performance measures for the academic year 2008-2009. Comparison of traditional residents with those in the TBCP. There are two performance indicators in which TBCP residents did significantly better than Traditional residents. There was a statistically significant difference between the TBCP and the Traditional residents in providing tobacco counseling (p<0.01) and providing Pneumovax (p<0.05).

Conclusions

- Continuity-based primary care experiences are feasible and well-accepted by internal medicine residents
- Emphasizing "continuity" increases learner satisfaction and may enhance patient outcomes
- Rigorous testing of new models of clinical education is limited by lack of large scale demonstration projects



Adapted from Dr. Richard Stark.



Adapted from Dr. Richard Stark.

TODAY'S CARE	TOMORROW'S CARE
My patients are those who make appointments to see me	Our patients are those who are registered in our medical home
Patients' chief complaints or reasons for visit determines care	We systematically assess all our patients' health needs to plan care
Care is determined by today's problem and time available today	Care is determined by a proactive plan to meet patient needs without visits
Care varies by scheduled time and memory or skill of the doctor	Care is standardized according to evidence-based guidelines
Patients are responsible for coordinating their own care	A prepared team of professionals coordinates all care
I know I deliver high quality care because I'm well trained	We measure patient outcomes and continuously improve quality
Acute care is delivered in the next available appointment and by walk-ins	Acute care is delivered by open access and non-visit contacts
It's up to the patient to tell us what happened to them	We track tests and consultations, and follow-up after ED visits/hospitalizations
Clinic operations center on meeting the doctor's needs	A multidisciplinary team works at the "top of their expertise" to serve patients

Adapted from Dr. Richard Stark.



Adapted from Dr. Richard Stark. Other Team Members include: Clinical Pharmacists (general and anticoagulation): 1/3-5 panels; Social Work: 1/2 panels; Nutrition: 1/5 panels; Integrated Behavioral Health: Psychologist :1/3 panels, Social Work: 1/5 panels, Care Manager: 1/5 panels, Psychiatrist: 1/10 panels; Case Managers; Prevention Program Manager (1/facility); Health Behavior Coordinator (1/facility); My HealtheVet Coordinator (1/facility)

PACT Assessment Compass						
Panel Management	Patient Engagement	Continuity of Care				
 Panel size Panel capacity Panel case mix Team staffing Staff turnover rate 	 SHEP scores (selected) Patient complaints My HealthgVet enrollment Employee satisfaction scores 	 Provider: % visits with assigned PCP These: % visits with assigned team ED visit rate 				
Access	Coordination	Clinical Improvement				
 Desired date appointments Telephone access E-mail access #Group clinic encounters #Telephone clinic encounters No-show rates 	 Admission rates ED visit rates Specialty referral rates Consult tracking Contact within 48 hrs of admission 	 Clinical indicators (selected) Admission rates ED visit rates 				

Baseline Practice Assessment N= 850 VHA Primary Care Practices 100 **Overall Average Score: 69%** 80 75 69 60 67 % 56 40 200 Patient Centered Care Scheduling Practice Care Coordination Technology Ording Information

Data courtesy of Dr. Richard Stark. ACP Medical Home Builder (initial administration, October 2009)

Educational Reform Principal Initiatives

- Centers of Excellence in Primary Care Education
 - RFP released August 2010
 - Centers activated January 2011
 - \$1M/year/center for 5 years
- Advanced Fellowship in Education & Health Policy
 - Scheduled for development in 2011

Centers of Excellence Key Design Elements

- Educational Goals
 - Shared decision-making (patient-centeredness)
 - Sustained relationships (continuity)
 - Interprofessional collaboration (teamwork)
 - Performance improvement (quality)
- Requirements
 - Joint sponsorship (medicine and nursing)
 - Integrated interprofessional teams
 - 30% time commitment

From... the Institute of Medicine, U.S. National Academy of Sciences

Among all of the Academic Health Center roles, education will require the greatest changes in the coming decade... We regard education as one of the primary mechanisms for initiating a cultural shift toward an emphasis on the needs of patients and populations and a focus on improving health, using the best of science and the best of caring.

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MALCOLM COX, MD
PRESENTATION Q&A

MALCOLM COX, MD (VA)

- Q» Tell me about the stability of the relationship between the doctor and the patient. What happens when one of those panel members is admitted to the hospital? Does that doctor engage in the process of care when that patient is in the hospital?
- DR. COX: The current thinking in VA is around exactly that question: how do you relate advanced, high functioning primary care teams to the transitions of care issue? And it is not just transitions into the VA hospital, but also coordinating care delivered outside the VA. Transitions of care within our own system is one level of complexity, transitions outside the VA are quite another. There is now a project moving forward to think about both types of transitions, starting with internal transitions of care. We have not really done anything yet about the problem of dual care where a veteran moves out of the system, "loses" his electronic medical record, so to speak, and now we have to communicate with a doctor in the private sector. But

this is important and needs to be addressed.

The way we are thinking about care transformation is to view it as a two-step process, although obviously, it is a continuum, not a step process. At the moment, we are concentrating on enhancing the primary care team. There are two basic models being considered for coordination of care within the VA: Should in-hospital doctors serve as liaisons to the outpatient teams in some as yet to be defined fashion or should "the care team" simply be one fully totally integrated team? My personal view is that the latter is the right way to go, but that is not going to happen overnight; that is going to take some time, if we get there at all.

Q» Thanks for what I found to be a very encouraging and extraordinarily positive presentation about where we could go. I particularly appreciated your comments about scalability. Early on, we said our current costs average out about \$7,000 a person in this country, and we all feel we don't get enough value out of that. If we do the simple division, I understand it is not simple, of the total VA costs and the total folks covered, what are we talking about in terms of dollars and resources?

- DR. COX: We used to be talking at about half to two thirds of that per enrolled veteran. But that has probably gone up over the past 4 or 5 years. However, you have got to remember that we are talking about different healthcare systems and very complex financial accounting as well. Some authorities have challenged these comparisons, and the gap may be diminishing.
- **Q**» You mentioned that there is a training module to teach physicians team function and design and care management coordination. I wonder if you could comment on how effective we are in the undergraduate medical education level, teaching our graduates cultural competence and whether or not that is something that is also additional education that you add to the mix. My other question relates to the VA having all these metrics available because of the electronic medical records and record capability. Is everything that you are doing related to adherence and persistency with meds, just because

that is an ongoing challenge that we have in chronic care patients, and that could be an additional lesson learned from the VA that we can carry over into the national system.

DR. COX: The first question is really in two parts. Yes, cultural competence, including the unique experiences of veterans, is built into these training modules. This is not so much because providers, the clinical providers at the VA, are not culturally competent in a general sense, but more because the VA population is extremely diverse. But the trainees are not necessarily as well prepared as one might like, especially with regard to veteran culture and history. As a result, all trainees are required to complete a Web-based tutorial on this when first rotating to VA. In addition, trainees participating in the Centers of Excellence will have much greater exposure to veterans and VA culture. With regard to the electronic medical records, the adherence and persistency with medication issue, metrics are being built into the Patient Aligned Care Team assessment compass to look at those elements as well.

Q» You mentioned that two thirds of us got some of our training at the VA. I was one of them. One of the unique things about that training was that the VA actually paid for residents to do research during their residency time. And I think that we have not mentioned it today, but GME is not only about training practitioners, it is also about training researchers, it is about training policy advocates, etc. And so, I wonder what the VA's plans are for researching in residency. I mean, if this was a few years ago, we would have been sitting around talking about preserving the physician scientists; now we are sitting around talking about preserving the primary care practitioner. So will that get lost in these changes for VA GME?

DR. COX: Well, this is a complex, but important, question. In my view, scholarly and leadership development is crucial, and VA has numerous programs that emphasize this. Scheduled for development next year is another one of VA's advanced or special fellowships, this time in education and health policy. It is our hope, although we don't have this finalized yet, that each of the Centers of Excellence will have a fellowship program associated with them. Very likely we will be expanding our already established advanced training programs in quality and patient safety as well, and these all require research activities.







COMMISSIONED PAPERS

FINANCING OF GRADUATE MEDICAL EDUCATION

Norman H. Edelman, MD Jamie Romeiser, MPH Stony Brook University Medical Center Health Sciences Center



GRADUATE MEDICAL EDUCATION

Michael E. Whitcomb, MD Professorial Lecturer in Health Policy School of Public Health and Health Services George Washington University



TRENDS IN GRADUATE MEDICAL EDUCATION

Clese Erikson, MPAff Paul Jolly, PhD Gwen Garrison, PhD Association of American Medical Colleges



HEALTH REFORM AND GRADUATE MEDICAL EDUCATION

Association of Academic Health Centers





FINANCING OF GRADUATE MEDICAL EDUCATION

NORMAN H. EDELMAN, MD, AND JAMIE ROMEISER, MPH Stony Brook University Medical Center Health Sciences Center

INTRODUCTION/OVERVIEW

This appears to be an important time to examine the financial support of graduate medical education (GME) in the United States (see Table 1 for a snapshot of the current situation). There is general, but not universal, agreement that we either have or will have a shortage of physicians. All recognize that GME is the rate-limiting step in the production of practicing physicians in this country. The output of U.S. nationals who will be candidates for medical residencies is in the process of being accelerated significantly by expansion in size and number of U.S. schools offering training for the MD and DO degrees¹ and also by rapid expansion of the "off-shore" model (i.e., schools located abroad training mostly U.S. nationals for entry into the U.S. GME system). Thus, both public demand for additional physicians as well as demand from an increasing number of U.S. medical school graduates seeking residency positions will apply significant pressure for additional GME training opportunities. An interesting consequence of the projected substantial increase in demand for GME training by U.S. nationals is that availability as opposed to choice will play an increasingly important role in specialty selection.² Thus, for example, if newly funded GME positions are confined to primary care, we can predict a significant increase in the numbers of U.S. nationals training in those specialties.

On the other hand, public funding, which is the main source of GME support, has been effectively "capped" since the passage of the Balanced Budget Act (BBA) of 1997, and there are few signs that the political process favors provision of significant new resources. Indeed, during the previous administration, plans were launched (without ultimate success) to reduce federal support for GME by a combination of reducing Medicare indirect medical education (IME) payments and eliminating the federal component of state support of GME through Medicaid. More recently, although both the Association of American Medical Colleges (AAMC) and the American Medical Association (AMA) have called for a general (i.e., without reference to specialty) expansion of federal support of GME in the United States,³ this call was not heeded in the landmark federal healthcare legislation of the current administration [Patient Protection and Affordable Care Act (PPACA)], although a modest amount was allocated for the training of primary care physicians in community health centers. Additionally, most states that fund GME (ordinarily through Medicaid) are seeking to reduce their healthcare expenditures. Institutional support has increased residency positions by a mere 6,500, and this increase has been confined to subspecialty positions.⁴ Finally, the recent Medicare Payment Advisory Commission (MedPAC) Report to the Congress recommends potentially costly modifications of residency training, suggesting that this be budget neutral and to be paid for by reducing IME payments to each institution by that amount that is not "empirically justified."⁵ For a summary, of the history of federal support of GME in the United States, see Table 2. Table 3 shows indirect medical education (IME) and direct graduate medical education (DGME) allocations by year from 1990 to 2009.

The question of whether the GME "system" will be able to meet the anticipated demand for additional output goes beyond that of total funding into issues involving distribution of funding. For example, preliminary data from a survey of New York State teaching hospitals suggest that, in those hospitals that have the capacity to expand their first certification residency programs, the interest is in hospital-based and hospital-intensive residencies and that very few additional primary care programs would be established if additional funds were available at current reimbursement rates.⁶ This finding and other considerations raise the question of whether current or future training institutions will require financial incentives well beyond the current very modest enhancements to expand training in primary care specialties.

A concern has been expressed for a long time about the unequal per-resident reimbursement among institutions, with older, larger, training-intensive and Medicare-intensive institutions heavily favored.^{7,8} However, these institutions are the most likely to be "saturated" with regard to training capacity. Thus, if residency programs are to be expanded to medium-sized community hospitals with few or no current programs, while limiting new government expenditures, "leveling of the playing field" with regard to per-resident payment could become a fundamental

issue. In part as a result of these inequalities, some policymakers, while recognizing the realities that led to federal funding of GME through Medicare patient care dollars, believe that this is no longer optimal as the public now accepts resident training as a public good and that an "all payer system" or a system involving direct appropriations, similar to the one in place for funding of GME at children's hospitals, would be the most equitable and efficient form of GME financing.^{4,8}

Finally, other issues related to the financing of GME remain to be addressed. For example, program directors continue to be concerned about the lack of transparency in distribution of GME funding at the institutional level. The importance of this issue has been recognized by both the New York State Council on Graduate Medical Education (NYS COGME)⁹ and MedPAC.

CONSTRUCTION OF MEDICARE RATES IN SUPPORT OF GME

Direct Graduate Medical Education (DGME) Allowable costs are salaries, fringe benefits, and supervisory, administrative, and overhead costs. The Medicare share is the per-resident cost in 1983, trended forward by the Consumer Price Index (CPI), weighted by the total number of full-time equivalent residents and the Medicare portion of the inpatient bed-days. Later modifications required that residents be in Accreditation Council for Graduate Medical Education (ACGME)– approved or American Osteopathic Association (AOA)–approved programs and required that residents in their initial residency period (IRP) or first certification program be weighted at 1.0, whereas those past their IRP would be weighted at 0.5. Minima and "maxima" are established. The minimal payment per resident is 85% of the regional average. If an institution is above 140% of the regional average it is not eligible for the annual cost of living increase.¹⁰

International Graduate Medical Education (IGME). This is a hospitalspecific payment as compensation for the increased costs of teaching programs. Currently the Medicare reimbursement rate is increased by 5.5% for each 0.1 intern/ resident-to-bed ratio (IRB) increase. A nonlinear formula is in place that limits extremely high IME-driven payments. (For example, a 500-bed hospital with 250 residents would receive a 24% increase in Medicare rates; for a 1,000-bed hospital with 1,000 residents the increase would be 44%). For this calculation the resident count is not weighted, that is, subspecialty residents are counted as equal to initial certification residents. This practice is significant because, historically, the IGME payment to hospitals has been about twice the DGME payment, and thus the financial incentive to train subspecialists has remained strong.¹⁰

Medicare Prepaid Health Plans (Medicare+Choice). These plans were reimbursed by an amount that included an estimate of GME costs, valued at \$2.6 billion in fiscal year 2002. However, these funds were not "set aside." It is often assumed that they "got lost" in negotiations between HMOs and hospital providers.

THE DISTRIBUTION OF INSTITUTIONAL RATES

Prior to the year 2000, significant concern was expressed in the literature about the inequality of per-resident reimbursement.⁷ The structural sources of the inequality are several. Failure to establish a new base year for DGME (as was done, for example, by New York State in 2004) puts a disadvantage on some institutions that had public or other nonfederal support for GME in 1983 (and thus had a low cost base) but do not have such support now. Hospitals with low Medicare censuses are at a disadvantage for DGME calculations. Hospitals that are not training-intensive, that is, that have a low IRB ratio, are at a disadvantage for IGME calculations. This situation is especially problematic in establishing primary care residencies in secondary teaching hospitals, which may otherwise have the greatest capacity to do so. The State Children's Health Insurance Program (CHIP) legislation enacted in 1999 partially addressed this problem by setting minima and maxima for DGME but did not address the basic structural sources of the inequalities.⁸ We could not find an analysis of the distribution of rates later than 2002. However, continued interest in this area is shown by calls for a nationwide per-resident reimbursement rate adjusted only by local cost-of-living estimates.¹¹

HOW HAS FEDERAL FUNDING OF GME BEEN USED TO PROMOTE DESIRED WORKFORCE OUTCOMES?

The most dramatic effort has been the GME cap enacted in the BBA of 1997 at a time when the prevailing opinion held that the United States was on the way to producing an excess of non-primary care physicians. Beyond that, the efforts to shape the workforce have, in our opinion, been modest. The cap itself was a modest response to COGME's recommendation, which proposed the goal of 110:50/50⁻¹² that is, limiting the availability of first-year positions to 110% of the U.S. MD and DO graduating classes and adjusting support so that 50% of the output would be in primary care.¹³ Other efforts have included down-weighting the calculated value

of subspecialty residents in the calculation of DGME (but not IGME) rates, a small enhancement of rates for primary care residents (6%), exempting certain specialties from the cap, and providing enhancements for rural institutions and programs designed to train rural physicians. This modest stance has been contrasted to the positions held by advisory bodies to the Congress (both COGME and MedPAC), which for some time have advocated for more aggressive reform aimed at increasing the training of primary care physicians (although often referred to obliquely in their rhetoric) especially at sites and under the control of institutions other than hospitals. The recent PPACA provides more ready access of ambulatory care facilities to GME reimbursement and provides both planning and implementation funds for establishment of resident training sponsored by community health centers.

MEDPAC RECOMMENDATIONS

In June 2010, MedPAC presented an extensive analysis of the Medicare financing of GME through patient care (essentially fee-for-service) dollars and found it wanting.⁵ They found that we were producing a distribution of specialists that did not coincide with society's need for cost-effective, high-quality care and that, within specialties, important skills were not sufficiently recognized in the training process. An important and emphasized finding was that only about half of the \$6.5 billion spent for IGME could be empirically justified. MedPAC considered recommending the abandonment of Medicare funding of GME for an alternative method but concluded that the current system was too deeply embedded to be overturned and that significant reform was possible under the Medicare umbrella. The long-term goals would focus on improving skills, reducing costs, and decoupling GME support from feefor-service patient care dollars so that entities other than hospitals could support residency training. Many of MedPAC's findings and recommendations, with the exception of redistribution of IGME funds, were embodied in the Nineteenth Report of the Council on Graduate Medical Education, published in 2007.¹⁴ MedPAC made the following five recommendations:

 By 2013, the method of funding should be altered to reward more emphasis on items such as practice-based learning, communication skills, and professionalism. Institutions that met specific criteria in these and related areas would be rewarded financially with the funds coming from the large pool of IGME that was not empirically justified.

- Each institution's federal support of GME should be reported and made publically available.
- An analysis of our physician workforce should be conducted to identify the number of positions needed in the various specialties to provide quality, affordability, and value in patient care.
- An analysis should be performed to evaluate the effect of the current funding system upon hospitals' finances. The goal would be to determine whether the support for each resident should be equal or if certain specialties (e.g., hospitalbased or hospital-intensive) in which the residents are of high economic value should receive less support than those of lesser economic value (e.g., ambulatory care-based specialties).
- Strategies should be developed for increasing the diversity of our physician workforce.

FUNDING OF GME BY THE STATES

The following are key points regarding the role of individual states in financing GME programs:

- Most, but not all state support is provided through the Medicaid mechanism.
- Total estimated support of GME by states was \$3.78 billion, or somewhat greater than the estimated DGME support provided by the federal government (Table 4).
- The number of states that provide GME support from Medicaid has declined over the years, as shown in Table 4 and Table 4A.
- Only half the supporting states recognize both DGME and IGME obligations. This is a decline from 2005.
- The distribution of support is exceedingly uneven. Some states provide no support, whereas one (New York) provides support equal to that of Medicare. New York State provides almost 30% of the total national state-based support for GME. On the other hand, other training-intensive states—Illinois, Texas, and

Massachusetts for example—provide no support to GME through Medicaid (Table 5).

- A few states have other mechanisms to support GME. For example, Florida uses the Disproportionate Share Hospital (DSH) program.
- Of the 32 states with Medicaid managed care, 23 include GME support in their managed care programs. Payments are either included in the rates (and thus subject to negotiation) or paid directly to teaching programs (12 states).¹⁵
- In most states, payment is to teaching hospitals. However, in four states payments may be made to nonhospital sites and in another four states payments may be given directly to medical schools. These are mostly states with relatively large rural populations.¹⁵
- Fourteen states allow or require Medicaid GME funds to support the training of nonphysician clinicians as well as physicians.¹⁵
- At least 10 states use Medicaid GME funding to achieve explicit workforce goals (Alaska, Arizona, Florida, Kansas, Maryland, Michigan, New York, Tennessee, Utah, and West Virginia). Specifically, these states have cited at least one of the following policy goals that apply to Medicaid DGME and IME payments:
 - Encourage training in certain specialties (e.g., primary care, or those specialties in short supply).
 - Encourage training in certain settings (e.g., ambulatory sites, rural locations, and medically underserved communities).
 - Increase the supply of health professionals serving Medicaid beneficiaries.
 - Improve geographic distribution of the healthcare workforce.
 - Help fund teaching programs that have experienced Medicare GME cuts.¹⁵
- Medicaid support of GME represented an average of 6.6% of total Medicaid costs in 2009, a decline from 2002. This percentage varies widely among states.¹⁵

SUPPORT OF GME BY THE VETERANS ADMINISTRATION

The Veterans Administration (VA) supports resident training through affiliations with 109 medical school entities. Between 30% and 33% of residents receive some VA funding if their training is done through the VA.⁵ The VA provides financial support for 9,500 positions, or something under 10% of the total residents in GME in the United States.¹⁶ In the 2007-08 year, the number of positions was increased by 1,221—over 10%.

OTHER GME SUPPORT

The Department of Defense supports about 3,000 positions, while directly appropriated federal support of about \$300 million [direct medical education (DME) + indirect medical education (IME] is provided to children's hospitals. Institutional support is difficult to calculate. However, an estimated 8,000 new positions were created in this manner after the BBA cap was put in place. It is likely that these positions were largely in hospital-based or hospital-intensive specialties and subspecialties.⁴

CONCLUSIONS

- The majority of GME support is provided by the federal government through Medicare. Important support is provided by the states through Medicaid, the VA system, the Department of Defense, and training institutions. Medicaid support varies greatly among states.
- States have been more aggressive than the federal government in tailoring their GME support to meet specific workforce needs. However, state support seems to be declining (by number of states, not total amount).
- The distribution of Medicare GME support funds is governed by a complex, perhaps outdated, system that tends to favor older, larger Medicare-intensive institutions.
- It can be argued that, when "true" or net costs of training are considered, the training of hospital-intensive rather than ambulatory care residents is financially favored by the Medicare GME reimbursement system.

- There will be considerable pressure to increase residency training because of an anticipated large increase in the number of U.S. nationals graduating with MD or DO degrees. One consequence of this increase will be a shift in the specialty selection dynamic, with availability as opposed to desirability becoming of greater significance than it is now.
- Notwithstanding the above, there seems, at this moment, to be little desire on the part of current funding entities to substantially increase GME expenditures.
- Accordingly, the alternative of redistribution of funds will receive more attention.
- In view of the above considerations, how new funds are allocated, or current funds redistributed, by specialty will have a great impact on the future specialty mix of U.S. physicians.

POTENTIAL QUESTIONS FOR DISCUSSION

1. Is there an urgent need to significantly increase the output of the GME system?

- **Rationale:** Most forecasts predict a shortage of physicians in many specialties, especially primary care. Even if all foreign nationals were to be replaced by U.S. nationals, the increase in practicing U.S. physicians would be modest, as only about 25% of international medical graduates in U.S. GME programs return to their native countries permanently.¹⁷
- **Counterargument:** Our physician output is adequate, and producing too many physicians will simply enhance "provider-induced demand." A better approach would be to provide physicians with greater incentives to redistribute, both geographically and by specialty.

2. If so, is there an urgent need for significantly increased federal funding of GME?

- **Rationale:** Physician education is a public good and should be publicly funded. In addition, institutional funding of residencies, especially in primary care, has reached its natural maximum.
- **Counterargument:** The majority of physicians are in training for highly remunerative specialties and provide otherwise costly services to hospitals.

Federal dollars could be spent more efficiently and more in accordance with national workforce goals if reimbursement by specialty were based upon the real net costs of training, as suggested by MedPAC.

3. If so, should additional funding focus on the primary care specialties?

- **Rationale:** Most agree that the greatest workforce need is for primary care specialists, and as the output of medical schools increases, new or expanded primary care residencies are likely to be filled by U.S. nationals.
- **Counterargument:** This ignores comprehensive workforce planning. We could just as rationally, and with less expense, focus on the training of nonphysician clinicians for delivery of primary care. In addition, significant shortages exist in other specialties at present and are predicted to continue.

4. Do we need enhanced financial incentives to increase the size and number of primary care residencies?

- Rationale: For most hospitals the overall return on investment is much greater for the training of hospital-intensive residents as opposed to primary care residents. Despite the modest improvements provided in the PPACA, nonhospital entities may not yet have adequate financial incentives to conduct primary care training.
- **Counterargument:** See comprehensive planning comment above.
- 5. Should government funding of GME be more strongly tied to performance, as proposed by MedPAC? Measures might include output items, such as production of primary care and minority physicians, and process items such as continuity of care and cultural competence.
- **Rationale:** The self-regulating GME community has been too slow in implementing needed educational reform.
- **Counterargument:** It is most often a mistake to allow curricular issues to be determined by the political process, as politically correct "theoretical" modalities may be mandated without empirical evidence of efficacy in achieving the desired ultimate outcome. Thus, determination of curriculum should be left to the

educational professionals. However, preferential funding for desired products of GME remains a valid avenue for the major purchaser, Medicare.

6. Are there important GME funding issues, such as transparency, at the institutional level?

- **Rationale:** Program directors often complain that they are hampered in achieving their educational missions because hospitals do not pass through an adequate portion of their reimbursement for the conduct of programs. This has been accepted by New York State, which now requires reporting of all GME revenues and expenses by program, as well as in the recent MedPAC report.
- **Counterargument:** This is just more paper work. There really is no way reported budgets can be verified.

7. Should the basic structure of federal support of GME (i.e., through Medicare patient care dollars) be examined?

- **Rationale:** The Medicare-based system has outlived its usefulness. If we are to expand GME, especially in primary care, we must include hospitals and other ambulatory care entities that may have relatively few Medicare patients. The current children's hospital reimbursement system is an example of an unbiased and uncomplicated way to pay for GME.
- **Counterargument:** The Medicare-based system has worked well and is a largely stable source of GME revenue. Subjecting GME to annual Congressional appropriation is dangerous.

OUR RESPONSE TO THESE QUESTIONS

The need for additional physician output is a result of our having put a virtual near freeze on the production of physicians in this country for most of the last generation despite advances in medical technology, increase in population, and aging of the population. There is little question that an increase is necessary. However, an uncontrolled increase, especially if publicly funded, is not in the national interest. Too much institutional incentive is focused on the high-technology, highly remunerative but low-yield (in terms of overall population health) specialties and not enough institutional incentive exists to expand in other specialties such as primary care. Thus, additional or redistributed public funding is required and should be

directed to the development of new programs in primary care and other specialties that may be determined to be critically needed.

A significant portion of the capacity for establishment of these new programs will likely reside in "secondary institutions," that is, those with few or no GME programs. However, these institutions, as well as primary care training itself, are put at a disadvantage by the current Medicare funding formulas. Fundamental revision of the Medicare-based system might be worthy of consideration, but whatever the deficiencies of the current system may be, it is firmly embedded, both operationally and financially, and it would be impractical to try to bring about major change, especially in the short term. Accordingly, we recommend that the current Medicare-based system for funding GME remain in place with the current freeze intact. New GME programs in specialties focusing on national healthcare priorities should be funded by a different mechanism that pays attention to the real incentives institutions require to mount programs and provides equity among training institutions. The current methodology for funding pediatric residencies at children's hospitals provides a model for this approach. Ideally, this would be accomplished with new governmental funding. However, if this proves to be too great a political hurdle, modest caps on the per-resident IGME payment, rather than a potentially disruptive redistribution of 50% of the IGME as suggested by MedPAC, could be sufficient to meet primary care needs without significantly damaging current training institutions. Additionally, scrutiny of current specialty programs is likely to uncover unnecessary training years in some; thus, redistribution of the DGME could provide some funds for additional training in the most needed specialties.

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TABLE 1. SNAPSHOT OF CURRENT GME FUNDING IN THE UNITED STATES

•	Number of residents	
	In ACGME programs (2009-2010):	111,38618
	In AOA programs (2007-2008):	4,934 ¹⁸
	In unaccredited programs:	Not available
•	Estimated Medicare funding:	9.5 B (2009) 6.5 B IGME, 3.0 B DGME ¹⁶
•	Estimated Medicaid funding:	3.78 B (2009) ¹⁶
•	Estimated VA funding:	Dollar amount not available; VA supports 9,500 residency positions (2009) ¹⁶
•	Estimated DOD funding:	Dollar amount not available; DOD supports about 3,000 residency positions (2009) ¹⁶
•	Estimated Children's Hospital Program funding:	In 2009 HRSA reported an expenditure of about 300 M to support both direct and indirect GME costs at children's hospitals ¹⁶
•	Estimated institutional support:	Dollar amount not available; it is estimated that about 8,000 positions have been added with institutional support since the BBA cap was put in place ⁴

B—billion dollars; M—million dollars

TABLE 2. HISTORY OF FEDERAL GME FUNDING IN THE UNITED STATES

Prior to 1945	Hospitals pay for trainee costs, which are modest because ofnegligible salaries and short training periods.		
1945-1965	GI Bill provides for trainee stipends as well as for subsidies to hospitals for providing training. Trainees get used to and demand increased stipends; early house staff unions form. Specialization explodes, resulting in more and longer programs with many more hospital-based residents.		
1966	Medicare is established and recognizes the cost of residencies as a reimbursable patient care expense. This essentially leads to an all payer system of support as the cost is also included in the "usual and customary" cost calculation for private payers.		
1982	The Tax Equity and Fiscal Responsibility Act recognizes the increased patient care costs of teaching hospitals and increases the limit on Medicare costs based upon the resident- to-bed ratio, i.e., the principle of indirect graduate medical education (IGME) is established.		
1984	Medicare's prospective payment system is established. Under it the direct graduate medical education (DGME) payment methodology is established. The per-resident payment is negotiated based upon costs in 1983 (base year). This is increased by rates of inflation, but the base year is never revisited. IGME is formally recognized and continued, including substantial dependence upon "teachingness" measured by the resident-to-bed ratio.		
1986-1989	Several reductions in IGME rates take place over time. The major rationale is the introduction of additional payments to hospitals that serve a "disproportionate share" of indigent patients as this service provided an important part of the justification for IGME payments.		

1997	The Balanced Budget Act places a cap on the number of
	residents for which Medicare will reimburse an institution.
	There are subsequent exceptions, such as primary care and
	dentistry. There are enhancements for rural hospitals and
	nonrural hospitals that conduct rural medicine programs. There
	is a modest enhancement of reimbursement for primary care
	residencies (about 6%). Nevertheless, resident numbers remain
	constant from 1997 to 2002.

1999 State Children's Health Insurance Program (SCHIP) legislation attempts to more equitably distribute DGME by establishing "minima and maxima." In 2000 a survey indicated that this resulted in an increased payment for 292 and a freeze for 130 hospitals of the 1,100 reporting GME activity.

2000 Various attempts to control cost take place over the ensuing decade. IGME is reduced and held at 5.5%. The Bush administration proposes to eliminate IGME and the federal portion of the total Medicaid support of GME. This does not succeed. Resident output grows at about 0.8% per year from 1997 to 2007, largely supported by training institutions. The growth is mainly due to increases of international medical graduates in training and to both increased length of programs and increase in number of candidates. State support of GME increases modestly. Special consideration is given to rural hospitals and nonrural hospitals with rural programs.

2010 Patient Protection and Affordable Care Act

- National Healthcare Workforce Commission
- Teaching centers in community health Centers; \$50 million for development grants, up to \$230 million for DGME plus IGME
- Authorizes redistribution of unused slots with 755 for primary care and general surgery
- Reimbursement requirements altered to favor conduct of training outside of hospitals

Adapted from MedPAC 2009 report.¹⁶

TABLE 3. MEDICARE IME AND DGME CONTRIBUTIONS BY YEAR (\$ IN BILLIONS)

YEAR	IGME Payments	DGME Payments	Total
1990	\$2.91	\$1.76	\$4.67
1991	\$3.21	\$1.89	\$5.10
1992	\$3.67	\$2.36	\$6.03
1993	\$4.09	\$2.55	\$6.64
1994	\$4.50	\$2.61	\$7.11
1995	\$5.10	\$2.74	\$7.84
1996	\$5.55	\$2.86	\$8.41
1997	\$5.16	\$2.43	\$7.59
1998	\$4.99	\$2.10	\$7.09
2000	\$4.60	\$2.23	\$6.83
2007	\$5.85	\$2.88	\$8.72
2008	\$5.74	\$2.70	\$8.40
2009	\$6.50	\$3.00	\$9.50

DGME—direct graduate medical education; IME—indirect medical education. Data from AOA, 19 CGME, 13 Robert Graham Center, 20 and AHA. 21

TABLE 4. TOTAL MEDICAID DGME/IGME PAYMENTS (\$ IN MILLIONS)

STATE	1998	2002	2006	2009
Alabama	\$10.00	\$12.00	\$14.00	**
Alaska	*	\$0.64	\$0.50	\$0.50
Arizona	\$17.80	\$18.60	\$21.80	\$42.40
Arkansas	\$5.70	\$7.10	\$33.10	\$11.00
California	\$129.10	\$159.40	\$187.50	\$187.30
Colorado	\$8.00	\$15.30	\$20.70	\$5.10
Connecticut	\$6.00	\$6.30	\$10.80	\$14.60
Delaware	\$1.07	\$1.60	\$0.50	\$3.03
District of Columbia	\$15.20	\$19.20	unavailable	\$59.60
Florida	\$75.10	\$34.80	\$147.00	\$145.20

STATE	1998	2002	2006	2009
Georgia	\$70.00	\$80.00	\$76.20	\$89.60
Hawaii	\$2.70	\$1.50	\$1.70	\$0.87
Idaho	*	\$0.66	\$0.50	\$1.20
Illinois *	*	*	*	*
Indiana	\$12.00	\$12.70	\$26.10	\$27.60
lowa	\$43.80	\$50.60	\$25.70	\$26.70
Kansas	\$7.70	*	\$7.70	\$20.00
Kentucky	\$49.70	\$7.30	\$29.10	\$36.50
Louisiana	\$50.00	\$40.40	\$45.20	\$42.30
Maine	\$2.40	\$2.20	\$3.10	\$4.10
Maryland	\$54.80	\$30.90	\$34.50	\$40.50
Massachusetts	\$25.00	\$42.30	\$41.00	*
Michigan	\$191.00	\$173.30	\$173.50	\$169.00
Minnesota	\$58.00	\$69.00	\$115.00	\$154.60
Mississippi	\$12.50	\$18.40	\$21.00	\$30.90
Missouri	\$26.70	\$70.10	\$70.10	\$115.30
Montana	*	\$0.12	\$0.40	*
Nebraska	\$5.00	\$11.40	\$12.80	\$14.80
Nevada	\$8.40	\$2.40	\$0.80	\$3.30
New Hampshire	\$2.10	\$3.10	\$3.60	\$4.40
New Jersey	\$43.40	\$43.40	\$51.80	\$110.50
New Mexico	\$4.40	\$6.50	\$6.50	\$7.80
New York	\$812.00	\$992.00	\$1,355.00	\$1,525.00
North Carolina	\$102.50	\$46.70	\$75.70	\$99.10
North Dakota	\$0.93	\$1.25	*	*
Ohio	\$115.70	\$154.30	\$103.50	\$69.40
Oklahoma	\$15.70	\$108.30	\$106.70	\$106.50
Oregon	\$8.60	\$27.10	\$41.30	\$57.90
Pennsylvania	\$66.60	\$75.20	\$75.50	\$81.90
Rhode Island	\$5.10	\$10.00	\$13.80	*
South Carolina	\$57.80	\$52.30	\$47.50	\$87.00
South Dakota	*	*	\$0.70	\$3.70
Tennessee	\$46.30	\$48.00	\$50.00	\$48.00
Texas	\$40.00	\$41.00	*	*
Utah	\$4.00	\$22.30	\$40.00	\$40.00

(Continued from page 167)

STATE	1998	2002	2006	2009
Vermont	\$0.63	\$0.71	\$0.80	*
Virginia	\$16.10	\$71.60	\$85.10	\$125.90
Washington	\$63.50	\$88.00	\$88.00	\$112.10
West Virginia	\$2.70	\$22.30	\$27.10	\$11.70
Wisconsin	\$37.00	\$28.10	\$25.70	\$40.10
Wyoming	\$0.06	\$0.19	\$0.30	*
Totals	\$2,332.79	\$2,730.57	\$3,318.90	\$3,777.00

* The Medicaid agency does not pay for GME.

** Alabama did not answer the 2009 survey.

Data from American Association of Medical Colleges.^{15, 22-24}

TABLE 4A. STATES SUPPORTING GME

Year	Number of states providing GME support from Medicaid	
1998	45	
2002	47	
2006	47	
2009	41	

TABLE 5. TOTAL STATE MEDICAID GME PAYMENTS IN STATES WITH LARGEST NUMBER OF MEDICAL RESIDENTS (2009)

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Data from American Association of Medical Colleges.¹⁵





GRADUATE MEDICAL EDUCATION IN THE UNITED STATES

MICHAEL E. WHITCOMB, MD George Washington University

In 1910, the Carnegie Foundation for the Advancement of Teaching issued the Flexner Report (*Medical Education in the United States and Canada*), one of the most important and influential reports the Foundation has ever published. The Foundation had two specific purposes in mind when it commissioned the report. First, it wanted to call attention to the fact that many of the country's medical schools were producing doctors who were not adequately prepared to enter the practice of medicine. Second, it wanted to make clear to the medical profession that, because members of the public were not in a position to differentiate between well-trained and inadequately trained practitioners, the profession had a responsibility to correct the inadequacies in the ways doctors were being educated. Henry S. Pritchett, the Foundation's president, made this point clear in his introduction to the Flexner Report:

The interests of the general public have been so generally lost sight of in this matter that the public has in large measure forgot that it has any interests to protect. And yet in no other way does education more closely touch the individual than in the quality of medical training which the institutions of the country provide. Not only the personal well-being of each citizen, but national, state, and municipal sanitation rests upon the quality of the training which the medical graduate has received. The interest of the public is to have well trained practitioners in sufficient number for the needs of society.

It is hoped that both the purpose of the Foundation and its point of view as thus stated may be remembered in any consideration of the report which follows, and that this publication may serve as a starting-point both for the intelligent citizen and for the medical practitioner in a new national effort to strengthen the medical profession and rightly to relate medical education to the general system of schools of our nation.

The Flexner Report not only identified the inadequacies that existed in the educational programs provided by many medical schools at that time but also set forth recommendations on how medical schools should be organized and their educational programs structured to adequately prepare graduates for medical practice. Over the course of the next two decades, the Flexner Report had a profound impact on the nature of the country's medical schools and on the educational programs they conducted. Indeed, the key recommendations contained in the Report continue to influence the design and conduct of the undergraduate medical education programs conducted by medical schools in this country today.

Viewed in the context of today's medicine, it is surprising that the Flexner Report did not address the role that graduate medical education was playing in preparing medical school graduates for practice. The reason for that apparent omission is simple: At the time the Report was written no organized approach existed in this country for providing medical school graduates with advanced clinical training (structured internship and residency training programs). This was the case even though many medical school graduates felt that they were unprepared to enter practice when they completed medical school. Indeed, many graduates sought opportunities to gain additional clinical experience either by serving as interns at hospitals in this country or by spending time observing the practice of clinical medicine in teaching hospitals in various European countries.

Although Flexner did not discuss graduate medical education in any detail in his Report, he clearly recognized that medical school graduates would ultimately need to engage in additional clinical training to be prepared for practice. The Report contains a short chapter in which Flexner discusses the status of what were referred to at the time as postgraduate schools—that is, schools that provided short courses that doctors could take to acquire either a particular clinical skill or certain additional knowledge that they felt they needed to care for the kinds of patients they would encounter in their practice. In this chapter, Flexner suggested that the postgraduate schools would not be needed if medical schools corrected the deficiencies in the ways they were preparing students for practice. But importantly, he went on to state that advanced clinical training would ultimately become an important element in preparing doctors for clinical practice. Indeed, he predicted that graduate instruction in medicine would become "advanced and intensive," with medical schools using teaching hospitals "for the elaboration of really thorough training in specialties resting on a solid undergraduate education."

Flexner recognized that educational programs offered by medical schools would not continue over time to be responsible for preparing students for clinical practice but that an "advanced and intensive" form of medical education would ultimately be required for that purpose. As he predicted, the responsibility for ensuring that doctors are adequately prepared for clinical practice now rests with the country's graduate medical education system. Because 2010 marked the one hundredth anniversary of the publication of the Flexner Report, it seems appropriate to focus attention at this time on the nature of the country's graduate medical education system.

In keeping with Henry Pritchett's rationale in commissioning the Flexner Report, the ultimate purpose of this document is to provide background information that will encourage the creation of a more accountable graduate medical educational system—that is, a system that functions primarily to serve the public interest. In considering how well the system is functioning, it is important to recognize that the system serves the public's interest in two extremely important and distinct ways. First, the system is responsible for ensuring that medical school graduates are prepared for the practice of one of the specialties of medicine, thereby contributing to the quality of medical care provided in this country. Second, the system serves as the critical determinant of the number and specialty mix of the cohort of physicians that enter practice each year, thereby contributing, albeit somewhat indirectly, to the population's access to needed health care services. This document identifies shortcomings in how the current system is meeting those responsibilities.

The document begins by describing the current system. Although Flexner recognized that future practitioners would require a period of intense training before entering practice, he probably could not have envisioned the kind of graduate medical education system that exists today. This document provides a historical overview of how the system evolved during the hundred years since the Flexner Report was published. Gaining an understanding of how the system evolved is important because efforts to reform the current system are not likely to be successful unless they are informed by insight into the forces that shaped it. And finally, this document discusses several important challenges that the system currently faces.

THE CURRENT GRADUATE MEDICAL EDUCATION SYSTEM

The country's graduate medical education system provides the organizational framework within which medical school graduates obtain the training required to prepare them for the practice of medicine in a particular specialty or subspecialty. The system is large and complex. The size of the system is reflected by the number of specialty and subspecialty programs in existence, the number of residents in training in those programs, and the number of institutions that serve as program sponsors. The complexity of the system is reflected by the variable nature of the undergraduate medical education programs completed by those who enter residency training in a particular specialty or subspecialty (accreditation); the process by which institutions are approved to sponsor programs (institutional review); the diverse nature of the institutions that serve as program sponsors; the variation in the size and specialty mix of the programs sponsored by different institutions; and the variable sources of funding that are available to cover costs incurred by institutions that serve as sites for the training of residents.

Residents in Training

Approximately 110,000 medical residents are now in graduate medical education programs in the United States. Approximately 85% of the residents are enrolled in core programs that lead to initial board certification in a specialty; the remaining 15% are enrolled in subspecialty programs. Approximately 25,000 residents are enrolled in the first year of training provided by core specialty programs. Of those, approximately 75% are recent graduates of U.S. allopathic or osteopathic medical schools; the remaining 25% are graduates of medical schools located outside of the United States [i.e., international medical graduates (IMGs)]. The citizenship status of the IMGs who have recently entered residency training in the country is variable. Approximately 25% are U.S. citizens who attended a medical school in another country, and an additional 15% are permanent residents of the United States who have not yet become citizens. Almost 30% of the IMGs entering training are known to be citizens of foreign countries; the citizenship status of the remaining 30% is unknown.

The undergraduate medical education experience of those who apply to enter a residency program in the United States is diverse. Slightly more than half of the

applicants will be, or are already, graduates of a U.S. medical school. Approximately 85% of those applicants have graduated from an allopathic medical school, while the remaining 15% are graduates of an osteopathic medical school. Graduates of medical schools located outside the United States can apply for residency training in the United States provided that the school they attended is recognized by the World Health Organization and they have met the requirements established by the Educational Commission for Foreign Medical Graduates. As a result, almost 45% of those who apply to enter a residency program in the United States have graduated from a foreign medical school. U.S. citizens who attended a foreign medical school, most often in the Caribbean region, account for approximately one third of those applicants.

Medical school graduates gain entry to the system in several ways. The overwhelming majority of the graduates of medical schools in this country gain access by participating in the National Resident Matching Program (NRMP). This program allows senior medical students to submit to the NRMP a list of preferences for future training based on their choice of specialty and the desire to train in specific programs. The student preference list is then matched with lists of preferred candidates submitted by individual training programs. Approximately 85% of the graduating students are matched to one of their top three choices. In addition to the approximately 19,000 U.S. medical school seniors who participate in the match, more than 15,000 graduates of non-U.S. medical schools also participate. Over 40% of the graduates of non-U.S. schools are matched with a program. Each year, a number of positions (generally over 1,000) are not filled by the match process. Medical school graduates who chose not to participate in the match, or who failed to be matched to a position, can vie for those positions. In the aggregate, approximately 19,000 U.S. graduates secure an entry-level position in a specialty residency program through the matching process.

Residency Programs

The graduate medical education system is composed of over 8,500 individual residency programs. Approximately 46% of the programs provide training in one of the 26 clinical disciplines designated as core specialties, whereas 54% provide training in one of the more than 100 clinical disciplines designated as subspecialties. A relatively small number of programs provide training in several different specialties (combined programs), and some provide only a year of general training (transitional year programs) required by several disciplines before specialty training.

For an allopathic residency program to train medical school graduates for practice in the United States, the program must be accredited by the Accreditation Council for Graduate Medical Education (ACGME). The ACGME is an independent, notfor-profit corporation that has five corporate members: the American Medical Association (AMA), the Association of American Medical Colleges (AAMC), the American Hospital Association (AHA), the American Board of Medical Specialties (ABMS), and the Council of Medical Specialty Societies (CMSS). The role of the member organizations is largely, but not entirely, limited to nominating individuals to serve on the board of directors. To be accredited by the ACGME, a program must be deemed to be in compliance with the standards for training developed by a specialty-specific Residency Review Committee (RRC). The RRCs are composed of individuals appointed by the AMA and the specialty's certifying board. In some cases, the specialty's primary professional society also appoints RRC members. At present, the ACGME is the only body that has authority over the establishment of new graduate medical education programs, as well as the size of programs. When making accreditation decisions, the ACGME does not take into consideration, or attempt in any way, to influence the aggregate number, size, or specialty mix of programs.

Institutional Settings

More than 1,500 institutions now serve as training sites for residents. Although some residency programs are based in ambulatory settings, laboratories, or public health settings, the great majority are based in hospitals. Significant differences exist among hospitals in the nature of their patient populations, the infrastructure available to support programs, and access to sources of funding. Most teaching hospitals are not-for-profit, community-based general hospitals. However, some of the hospitals that serve as training sites for residents are for-profit institutions; some are municipal or county owned; some are children's hospitals; some are specialty hospitals; and some are Veterans Administration (VA) or military hospitals. The variable nature of the hospitals that serve as the primary sites for training programs contributes to the complexity of the system.

The ACGME is also responsible for determining that an institution complies with financial and administrative requirements for sponsorship of residency programs. Fewer than 700 of the institutions that serve as training sites are designated as program sponsors. Although most of the sponsoring institutions are individual hospitals, several are large health systems that sponsor all of the programs based in

the system's hospitals. In addition, about half of the country's medical schools serve as institutional sponsors for programs based in affiliated hospitals. Slightly more than half of the sponsoring institutions sponsor more than one program, while the remaining sponsor only a single program. Several of the sponsoring institutions are responsible for more than 100 programs. Approximately 15 sponsoring institutions have more than 1,000 residents enrolled in the programs for which they are responsible.

If an institution sponsors more than a single program, it must be reviewed by the ACGME's Institutional Review Committee (IRC) to ensure that it complies with the institutional requirements established by the ACGME. A sponsoring institution must designate an individual to oversee the institution's residency programs. This individual is known as the Designated Institutional Official (DIO). An institution must also establish its own institutional review committee (graduate medical education committee) that is responsible for conducting regular reviews of accredited programs to ensure that they remain in compliance with RRC standards during the period between RRC reviews. An institution that does not meet the requirements established by the ACGME may not continue to serve as a program sponsor.

Regional Distribution

The distribution of training programs and the number of residents in training varies greatly across the country. The uneven distribution of programs is due in part to differences in the regional distribution of the country's population. However, the distribution remains unequal even when differences in regional population are taken into consideration. When corrected for population, the New England and Middle Atlantic regions have more than twice the number of residents in training than do most of the other U.S. regions. The proportion of programs also varies regionally. For example, almost 13% of all of the programs in the country and over 14% of all of the residents in training are in the state of New York. Pennsylvania, Texas, Ohio, Illinois, and Massachusetts rank next in order for both the number of programs and the number of residents in training.

The variation in program activity reflects to a significant degree the fact that individual institutions can make independent decisions as to whether they wish to be involved in sponsoring graduate medical education programs, and if they want to be sponsors, the size and specialty mix of the programs they wish to sponsor. An institution that is able to meet the ACGME standards for accreditation of individual programs is free to establish whatever programs it wishes. The number of trainees that may be enrolled in any program is subject to control through the accreditation process, based solely on the resources available to support the educational program. Thus, the number of programs in a particular city, state, or region, and the number of trainees in those programs, reflects decisions made over the years by individual institutions about the degree to which they wish to be involved in graduate medical education.

The distribution of graduate medical education programs reflects to a significant degree the location of medical schools and the degree to which medical schools and their affiliated teaching hospitals have over time become major academic medical centers. This situation exists because the medical staff of a teaching hospital that is a major affiliate of a medical school is largely composed of members of the school's clinical faculty, for whom the presence of resident physicians provides them with the time to pursue their various academic activities. Because the clinical faculty focus much of their teaching and research activities on issues related to a particular clinical specialty, it is not surprising that the institutions in which they work would sponsor a large number of specialty and subspecialty programs. Indeed, the emergence of new subspecialty training programs is largely due to the involvement of medical school faculty in the development of those fields in the institutions in which they work.

Financing

A number of factors contribute to the cost of conducting graduate medical education within a given institution. The largest factor is the stipend and benefits provided to the residents in training. However, any expense that an institution incurs in supporting graduate medical education—primarily faculty teaching time and infrastructure support—will contribute to its program costs. Therefore, the size of an institution's graduate medical educational enterprise—that is, the number and size of the institution's specialty and subspecialty programs—will determine the cost to the institution. Accordingly, the ability to cover the cost incurred will be a major determinant of the size of an institution's graduate medical education program activity.

The methods in place for financing the costs institutions incur in serving as training sites for residents contribute to the complexity of the graduate medical education system in the country as a whole, as institutions have variable funding patterns. This
situation exists for two reasons: 1) the nature of the policies in place for determining whether an institution is eligible to receive funds from certain funding sources; and 2) the nature of the formulas in place for determining the amount of funding that might be received from those sources. As a result, different institutions face different financial challenges. The variable nature of the funding available in an individual institution to support graduate medical education makes it difficult to maintain a system that also serves the best interests of the public.

The federal government is the primary source of funding for graduate medical education. The Medicare program provides by far the greatest amount of financial support. The amount of funding that individual hospitals receive from the Medicare program varies considerably, based not only on the aggregate size of an institution's graduate medical education program activity but also on the cost per resident to the individual institution. As a result of historical funding patterns, the amount currently paid to different hospitals on a per-resident basis varies from 70% to 130% of the national mean.

The federal government provides additional support for graduate medical education through special funding for programs conducted by free-standing children's hospitals, programs supported by the VA and Department of Defense, and special grants targeted at training in select specialties (i.e., family medicine, general internal medicine, and general pediatrics). In addition, all but a few states support graduate medical education through their Medicaid programs, and the federal government contributes to that support by providing matching funds in a manner consistent with state-specific formulas. A number of states also have programs in place that provide support for training in select specialties.

The Public Interest

Given the ways in which the graduate medical education system is funded, the public has a legitimate interest in how the system functions. The public needs to be assured that the system produces physicians who are prepared to provide high-quality care, and that it is contributing to the production of a physician workforce that is adequate in size and has an appropriate specialty mix. At present, decisions made by individual institutions and the process by which individual programs are accredited are the only factors that determine the number of programs, the size of individual programs, and the specialty mix of the programs. The accreditation of each individual program is based solely on the degree to which that program

complies with standards established by the specialty-specific RRCs operating under the purview of the ACGME. Consequently, multiple professional organizations, each with its own vested interest, are in a position to exert influence over how various elements of the system function. Currently, no forum exists to bring together members of the profession and government policymakers to discuss, debate, and reach agreement on reforms that might improve the degree to which the system serves the public interest.

Given the complex nature of the country's graduate medical education system and the critically important ways that the system contributes to the availability of high-quality health care, it is also remarkable that there is not a body responsible for oversight of all aspects of the system. Indeed, because the system is largely supported by state and federal funds, it is truly remarkable that a government body has not been established to provide direct oversight. Two federal advisory bodies are charged to make recommendations on issues that relate to how the system functions—the Council on Graduate Medical Education (COGME) and the Medicare Payment Advisory Commission (MedPAC). However, as advisory bodies they have no authority to effect changes on their own. For their recommendations to be implemented, the Department of Health and Human Services must generate an appropriate rule within the scope of its rule-making authority, or Congress must pass enabling legislation. Over the years, both bodies have issued recommendations for major reforms that have been largely ignored. Given the current situation, it is virtually impossible to gain approval for making changes that might be needed to ensure that the system better serves the public interest.

EVOLUTION OF THE SYSTEM

The information provided in the previous section makes it clear that the country's graduate medical education system is extremely large and complex. Over the course of the past century, the system underwent a series of major changes, leading to the system that exists today. To gain an understanding of why the system exists as it now does, one must understand how the system evolved, and why it evolved the way that it did. It is particularly important to recognize that key elements of the system that exists today reflect compromises that various professional organizations agreed to in the past to address specific issues that existed at the time. Given that the circumstances that shaped those compromises no longer exist, there is no reason to believe that the elements of the system established by those compromises reflect the best approaches for addressing concerns about how the system is functioning today. Thus, developing an understanding of how the system evolved over time, with an emphasis on the nature of the forces that shaped the system, provides an important framework for considering how the system might be changed to address the critical challenges now being faced.

The nature of the current system can best be understood by highlighting how it evolved during three distinct historical periods. Because the Flexner Report describes the state of medical education at the beginning of the twentieth century, the time of its publication provides an important point of departure for considering how the graduate medical education system evolved. The first phase of the evolutionary process spanned the period from the publication of the Report in 1910 to 1940. Events that occurred during that period, primarily the development of specialty certifying boards, created the foundation for the development of an organized approach for structuring advanced clinical training. That framework continues to exert a major influence on the nature of the training that medical school graduates undergo before entering practice. The second phase of the evolutionary process extended from the end of World War II to 1980; the third phase began in 1981 and continues to the present.

To a great extent, the system that exists today was shaped by two primary forces. First, professional organizations played a key role in establishing fundamental approaches for ensuring the quality of the training being provided by residency programs. Second, actions taken by the federal government played a key role in promoting the growth of the system and how it is financed and focused attention on the degree to which the system was producing an appropriate physician workforce. Events that occurred during each of the three periods are described in the sections that follow. Key events that occurred across the three periods of time, which relate to the role of professional organizations and the role of government in the evolution of the system, are presented in chronological order in Tables 1 and 2 (pages 219–221).

PHASE I: SETTING THE STAGE (1910–1940)

In the early years of the twentieth century, relatively few opportunities were available for medical school graduates to receive advanced clinical training in a structured educational program. Nevertheless, the majority of graduates sought some kind of additional clinical experience prior to entering practice. Many graduates spent time as interns in hospitals in this country, as observers in hospitals in various European countries, or taking short courses at postgraduate schools. Given concerns about the specialty orientation of today's system, it is interesting to note that even before specialty training began to evolve in any organized way, some of those pursuing advanced clinical training experiences were intent on learning how to care for patients with particular clinical conditions, or how to develop particular clinical skills. Thus, even though the great majority of doctors graduating from medical schools in the early years of the twentieth century would enter general practice, there were already graduates who were interested in developing a specialty practice of some kind, and many practicing physicians were identifying themselves as specialists even though they had no formal training in a specialty.

The kind of advanced clinical training that was available in the years following the publication of the Flexner Report was clearly quite different from the kind of training that evolved in later years for the simple reason that no framework was in place at that time for defining the nature of the educational experiences that the programs should provide to prepare a medical school graduate for practice. The AMA, established in 1847 for the explicit purpose of improving medical education in this country, and the AMA's Council on Medical Education (CME), established in 1904, helped to define the ways in which medical education would be addressed by the profession in the decades following the publication of the Flexner Report. The CME played a critical role in the early development of graduate medical education. In 1919 the CME began publishing standards for internships, and in 1928 it began to disseminate standards for residency and fellowship training. Nevertheless, no systematic review process was in place to determine the educational quality of individual programs. The internship experiences at that time were not structured educational programs. Most of the hospitals that offered internships were small institutions that primarily provided care for poor individuals who were unable to obtain care in any other way. The medical school graduates who served as interns in those institutions were primarily there to care for those patients, and they received relatively little direct supervision as they went about their daily clinical chores. Programs providing advanced clinical training in a given specialty—somewhat akin to today's residency programs—existed in only a few institutions. A coherent approach for providing specialty training could not be established until an agreement was reached within the profession on an approach for defining the scope of practice that would be associated with a given specialty.

The evolution of specialties as distinct fields of medicine required the emergence of professional organizations that would define the clinical domain of a specialty and establish methods for documenting that practitioners were qualified to practice that specialty. Although specialty-oriented groups began to appear in the early years of the nineteenth century, the major specialty organizations that exist today did not begin to appear until the early years of the twentieth century. The American College of Surgeons (ACS) and the American College of Physicians (ACP), the two largest specialty societies, were established in 1913 and 1915, respectively. The establishment of these specialty societies marked an important beginning of organized efforts to delineate certain domains of medical practice as being distinct from general practice, the dominant form of practice at the time. However, because the clinical specialties were not fully developed until after World War II, no coherent approach was in place during the 1920s and 1930s for determining how medical school graduates should be prepared for the practice of a particular specialty.

In the early 1930s, the CME began to address this issue by establishing a number of specialty-oriented committees to develop training standards in distinct specialties. The emergence of major specialty societies began to challenge the traditional role of the AMA in determining how medical education was organized and conducted. The conflict that the emergence of specialty organizations created was reflected in the approaches that developed for determining the standards for an institution to be deemed capable of offering an internship or a residency program in a particular clinical discipline. Although the CME established the specialty committees noted above in the early 1930s, the ACS began to publish its own standards for residency training in surgery in the late 1930s and to approve hospitals involved in sponsoring surgery residencies. Indeed, from 1937 until after the end of World War II, the

ACS and the CME independently evaluated surgical training programs. It became apparent early on that competing approaches for establishing standards for residency training and approving individual programs were not sustainable.

The specialty boards—the organizations that have had the greatest impact on the emergence of what are now recognized as major clinical specialties—evolved relatively slowly throughout the period. The first specialty board, the American Board of Ophthalmic Examination (precursor to the American Board of Ophthalmology), was established in 1916. By 1933, only five specialty boards had been established, although others were already under development. The CME recognized that the emergence of new specialty boards was a reality that could not be ignored. In an effort to retain some degree of involvement in the process that was leading to specialization within the profession, the CME agreed in 1933 to begin to approve newly established specialty boards.

The following year, the existing boards established the Advisory Board for Medical Specialties (ABMS) to assist evolving specialties in the development of new boards. At that time, the CME reached an agreement with the existing boards establishing that the ABMS would conduct the initial review of a proposal of a new board before it could be submitted to the CME for action. During the years from 1934 to 1945, ten more certifying boards were established. Of note, two of the largest boards—the American Board of Internal Medicine (ABIM) and the American Board of Surgery (ABS)—were not established until 1936 and 1937, respectively.

Throughout the 1930s, programs in a given specialty continued to vary in length, and the nature of the training experiences provided was often quite variable. There was a clear need for a uniform approach for standardizing training experiences. Recognizing this need, the CME, ACP, and the ABIM reached an agreement in 1939 to establish a cooperative approach for overseeing training in internal medicine. The cooperative committee that was proposed did not become operational at the time because of the onset of the war, but the establishment of the committee set the stage for the development of a more effective approach for evaluating residency training, which would occur following the war's end.

In 1937, the ABMS established the Commission on Graduate Medical Education for the purpose of conducting a study to determine how the advanced clinical training of medical school graduates was being conducted. The study focused attention on the shortcomings of existing internship experiences and identified issues to be addressed in the evolution of specialty training programs. The Commission's report, published in 1940, presented recommendations for how internships and residency programs could be improved. The Commission expressed concern that too many internships and residencies were organized primarily for the purpose of providing coverage of clinical services and that many lacked adequate educational experiences. The report also highlighted the need for standardization of training, noting that internships and residencies in the same specialty varied in length. The ABMS recommended that by 1942 all residencies should be at least three years in duration.

Although the specialties of medicine were not yet fully developed at the outbreak of World War II, the role of specialty medicine had already become well established in this country. Indeed, at that time only a small percentage of the medical school graduates were planning to enter general practice following completion of an internship and over 500 hospitals were offering residency positions. The practice of the military at the beginning of the war provided clear evidence that the value of specialty medicine was widely recognized. Physicians who had completed some form of specialty training received a higher rank on entering the military than did general practitioners.

PHASE II: THE SYSTEM TAKES SHAPE (1945–1980)

World War II had an important impact on the evolution of the country's graduate medical education system. The military's experience with the medical care provided to troops who were injured or ill during the war convinced the military leadership that doctors who had received training in a specialty discipline were far more capable of providing this level of care than were doctors who were trained to be general practitioners. This attitude reinforced the general view within the profession in the years leading up to the war that training in specialty disciplines was necessary as a means to improve the quality of medical care.

However, when the war ended in 1945, the approaches being used for developing standards for training and for approving training programs in the emerging clinical specialties remained variable, largely because the profession had not yet established a method for coordinating and providing oversight of those activities. At the same time, approaches for certifying physicians in a given specialty, based in part on successful completion of an approved training program, were not yet fully developed. Leaders within the profession recognized that those situations needed to be addressed.

Thus, it is not surprising that the graduate medical education system underwent major changes in the decades that followed World War II. This restructuring resulted primarily from a series of separate and unrelated actions taken by the federal government, various professional organizations, hospitals, and medical schools. Those actions led collectively to a marked increase in the number of medical school graduates seeking residency training; the number of residents in training; the number of internship, specialty, and subspecialty programs in existence; and the development of a more organized approach for establishing standards for accreditation.

Educational Standards

When World War II came to an end, the development of standards for training in various specialties, as well as the process for approving hospitals to offer specialty training, was still largely controlled by the CME. However, because a number of the specialty boards established during the 1930s began after the war ended to develop criteria for certifying physicians as specialists, it was apparent that specialty organizations would over time become increasingly involved in developing training standards. As noted previously, the ACS had already begun to publish its own standards for training in surgery and its own list of hospitals approved to provide surgical training. The CME recognized that, because the specialty boards controlled the process by which physicians were certified as specialists, they would not be able to compete in this area. Accordingly, the CME recognized that, to retain a role in the process, it would need to establish partnerships with specialty organizations.

Thus, following the end of World War II, the movement to develop cooperative approaches for overseeing training in various specialties began in earnest. The effort began in 1947 when the CME, ABIM, and ACP initiated formal talks about activating the Conference Committee on Graduate Training in Internal Medicine, which had originally been formed in 1939 but did not become operational due to the outbreak of World War II. The talks led to the Committee becoming operational in 1949. The following year, the CME, ABS, and ACS agreed to begin formal discussions to establish a similar cooperative approach for overseeing training in surgery. The Conference Committee on Graduate Training in Surgery was established in 1953. That same year, the internal medicine conference committee decided to change its name to the Residency Review Committee (RRC), and the boards of five other specialties expressed interest in partnering with the CME in the formation of a RRC in their own specialty.

In the years that followed, RRCs were established in virtually all of the specialties that had formed certifying boards. Unlike the RRCs in internal medicine and surgery, the majority of the new RRCs were formed as organizations that were jointly sponsored by the CME and the certifying board of the specialty. With few exceptions, major specialty societies did not participate as members of the RRC in their specialty. Each of the participating organizations appointed individuals to serve on the RRC, and the actions of the RRCs were subject to approval by each of the sponsors. Thus, with the advent of RRCs, the certifying boards no longer played a direct role in approving individual programs to provide training in the specialty. However, the boards continued to influence the development of training standards through their development of criteria for specialty certification.

In 1963, the AMA appointed a special commission—the Citizens Commission on Graduate Medical Education (CCGME)—to review the status of graduate medical education in the United States. The Commission was chaired by John Millis, at the time the President of Western Reserve University in Cleveland. The Commission's report, issued in 1966, included a series of recommendations that had a dramatic impact on the evolution of graduate medical education. Of particular importance, the report called for the establishment of an independent commission that would be responsible for coordinating decisions regarding the conduct of graduate medical education. This recommendation was intended to provide a mechanism for countering the narrow interests held by individual specialties and their effects on determining the standards for individual training programs.

Although the AMA opposed the establishment of the kind of independent commission recommended in what came to be known as the Millis Report, it recognized the possibility that the government might adopt that recommendation. Accordingly, in 1970, the AMA proposed that various professional organizations cooperate in forming a body to provide oversight of the graduate medical education system. Thus, in 1972, five of the major professional organizations that were involved in the conduct of graduate medical education (AMA, AAMC, AHA, ABMS, and CMMS) agreed to form the Coordinating Committee on Medical Education (CCME). The organizations also agreed to the formation of a body that would be responsible for overseeing training in graduate medical education—the Liaison Committee on Graduate Medical Education (LCGME).

As its name suggests, the CCME was to coordinate how medical education was conducted across the continuum of the educational process. Thus, the Liaison Committee on Medical Education (LCME), which had been in place since 1942 to establish standards for undergraduate medical education, was to report to the CCME, as was the newly formed LCGME. Several years later, a Liaison Committee on Continuing Medical Education (LCCME) was formed with the intent that it would also operate under the aegis of the CCME. Given the CCME's apparent scope of responsibility for overseeing the continuum of medical education, it is interesting to note that at its first meeting in 1972, the CCME members established two priorities for the Council: the financing of graduate medical education and the development of policies that would govern the distribution of physicians among the various specialties. Indeed, during its lifetime, the CCME focused its efforts on producing reports on physician workforce issues, including the role of foreign medical school graduates in graduate medical education, and engaged in formal discussions with government agencies about those issues.

The newly formed LCGME was to coordinate decision making regarding the conduct of graduate medical education. In reality, the Committee's authority over the conduct of graduate medical education was limited, largely because the RRCs continued to operate as independent entities. Consequently, decisions made by the LCGME that could affect the ways in which training standards were being developed or applied often led to conflicts with the RRCs. In addition, any decisions made by the LCGME were subject to approval by the CCME and each of the LCGME's sponsoring organizations. This overlap in areas of responsibility made oversight of graduate medical education burdensome.

These conflicts led to an agreement among the five sponsors of the CCME and LCGME in 1980 to restructure the two organizations. The CCME was converted to the Council for Medical Affairs (CFMA), and the LCGME was converted to the Accreditation Council for Graduate Medical Education (ACGME). The ACGME's activities related to oversight of graduate medical education continued to be subject to review by the five sponsoring organizations, but unlike the CCME, the CFMA had no authority over the ACGME.

In addition, the relationships among the various organizations involved in the process at that time were often strained, due at least in part to the degree to which the AMA was involved in the process. As noted previously, in the early decades of the twentieth century, the AMA played a critical role in the initial development of approaches for standardizing advanced clinical training (internships and residencies). However, as specialty societies and certifying boards began to develop their own standards for training, as well as approaches for judging the quality of training being provided by individual programs, it was only natural for those organizations to believe that the role of the AMA in the process would diminish over time.

However, this was not the case. The AMA maintained a dominant role in the graduate medical education accreditation process. When the LCGME was converted to the ACGME, the AMA's scope of participation exceeded that of the other professional organizations that served as sponsors of the ACGME. The AMA served as one of the five sponsors of the organization, thereby having the right to appoint individuals to serve on the ACGME. In addition, and unlike the other sponsoring organizations, the AMA continued to have the right to appoint members to each of the specialty RRCs. Indeed, the AMA appointed as many members to each RRC as were being appointed by the specialty's certifying board. Thus, the AMA was in a position to play a role in the development of training standards in every specialty and subspecialty, and in making decisions regarding the level of compliance with those standards.

When the LCGME was established, and then when it was converted to the ACGME in 1980, certain professional organizations involved in the process strenuously opposed the AMA's position that it be allowed to continue to appoint members to RRCs and to serve as a sponsor of the accrediting body. However, to gain support for centralizing accreditation-related activities in a single organization, they agreed to allow the AMA to retain its traditional role of appointing members to the RRCs.

Throughout this period, discussions continued within the profession about the role that medical schools and universities should play in the organization of graduate medical education. This issue first surfaced during the 1920s and 1930s when residency programs were just beginning to be developed. Because medical schools were going through a period of change in response to the Flexner Report, the schools gave no serious consideration at that time to suggestions that they take responsibility for graduate medical education. In the mid-1960s, recommendations emerged once again that, because graduate medical educational programs were intended to be educational experiences, medical schools and universities should assume greater responsibility for ensuring the quality of the programs. Indeed, some recommended that approval of the programs should be incorporated into the process used in accrediting universities, and that accreditation of individual programs should not occur. Not surprisingly, the higher education community had little interest in adopting that recommendation.

Government Financing

The federal government became involved in financing graduate medical education shortly after the end of World War II. In 1946, Congress passed legislation that established the Department of Medicine and Surgery within the VA (established as the Veterans Bureau in 1921). Shortly thereafter, the VA was granted authority to enter into affiliation agreements with medical schools (Memorandum Number 2), which allowed individual VA hospitals to participate in the education of medical students and to provide residency program rotations for medical school graduates. This action served to increase the number of residency programs and the number of medical school graduates enrolled in specialty training programs. As the number of VA hospitals increased in the ensuing years, the number of residency program positions sponsored by the VA and the number of residents receiving training in VA hospitals also increased. By 1980, the VA was sponsoring over 7,500 positions in programs sponsored primarily by medical schools or teaching hospitals that were affiliated with a VA hospital.

The Department of Defense also began to establish residency programs in military hospitals to provide training opportunities for physicians who might be inclined toward a career in the military. It took this action in recognition of the fact that the military needed well-trained specialists to provide the kinds of care required by active duty personnel and their families, as well as military retirees. By the mid-1970s, 30 military hospitals were providing training for almost 2,000 residents in approximately 190 residency programs.

As significant as those federal programs were at the time they were established, their impact on the graduate medical education system pales in comparison to that of the establishment of the Medicare and Medicaid programs in 1965. Although the original bill establishing the Medicare program did not include language specifically authorizing the program to fund costs associated with graduate medical education conducted in hospitals, the conference committee that was responsible for resolving issues that were not specifically addressed in the legislation agreed that the program should cover its fair share of the educational costs incurred by a hospital until such time that another funding mechanism was established.

Consequently, the Medicare program provided for the first time an explicit source of revenue that hospitals could use to support the development of new, or the expansion of existing, graduate medical education programs. Because this funding could be used to cover stipends and benefits provided to residents throughout the course of their training, it allowed institutions to increase progressively the amount that residents were paid, thereby making it easier for residents to remain in training for longer periods of time. This situation facilitated the desire of professional organizations to extend the training period required in certain clinical specialties, as well as the development of subspecialty programs that required additional periods of training. These funds played an important role in allowing major teaching hospitals to increase the number of residency positions they sponsored to accommodate the growing number of residents seeking longer periods of training.

It should also be noted that the growth during the 1960s and 1970s in government support of biomedical research and research training further fueled the progressive specialism occurring within the graduate medical education system. Support of research training for young physicians was particularly important in encouraging these individuals to pursue careers in subspecialty medicine, thereby contributing further to the development of subspecialty training programs.

Expansion of the System

Near the end of World War II and shortly after its conclusion, the government took actions that led directly to an increase in the number of physicians seeking specialty training. In 1944, Congress passed the Serviceman's Readjustment Act (popularly known as the G.I. Bill), which provided benefits to active duty personnel returning to civilian life, including most prominently benefits that allowed veterans to attend college. It is often not recognized that the G.I. Bill also provided benefits for doctors returning to civilian life who wished to obtain additional training in a residency program. Because many of the returning physicians could have entered general practice after leaving the service, the provisions of the Bill had the effect of supporting the training of veteran physicians in a clinical specialty. Thus, the G.I. Bill had the effect of increasing the number of specialists being trained.

Shortly thereafter, Congress passed additional legislation that further increased the number of medical school graduates seeking internships and residency training. In 1948, Congress passed the Smith-Mundt Act (U.S. Information and Educational Exchange Act), which established a program that provided opportunities for citizens of other countries to come to the United States on a temporary basis for educational purposes (as exchange visitors), or on a more permanent basis to fill occupational needs that were not being met by U.S. citizens. Although expansion of graduate medical education was not an explicit intent of the legislation, the program made it possible for international medical school graduates (IMGs) to enter the country for further medical training. As a result, the number of graduates of foreign medical schools seeking residency training in the United States began to increase in the early 1950s.

In the academic year 1950–51, almost 30,000 internship and residency positions were available in this country. Many of those positions went unfilled due to the insufficient number of medical school graduates to fill them. At that time, just over 2,000 IMGs were in training in internship and residency programs in the United States. In the academic year 1965–66, over 50,000 internship and residency positions were available, and the number of IMGs in training exceeded 11,000. The increase in the total number of medical school graduates in training reflected the fact that a larger percentage of U.S. medical school graduates were choosing to train in specialties and subspecialties that required longer periods of training. However, the influx of IMGs pursuing graduate medical education in the United States is one of the major reasons for the expansion that occurred during that period. Indeed, by the mid-1970s, the number of IMGs in training had increased to over 15,000.

Some of the IMGs seeking residency training in the United States were U.S. citizens who had attended a foreign medical school, and some were foreign citizens who had become permanent U.S. residents after immigrating when they completed medical school in their country of origin. However, most of the increase in the number of IMGs participating in graduate medical education in the United States resulted from federal legislation passed in the 1960s and 1970s (the Mutual Educational and Cultural Exchange Act of 1961 and the Immigration and Naturalization Act Amendments of 1965 and 1970), which made it easier for foreign medical school graduates to come to the country for residency training. Provisions within the 1965 and 1970 amendments to the Immigration and Naturalization Act had a major impact on the number of IMGs and on the number staying in the country after completion of training to enter medical practice.

The cumulative effect of these government actions was a major increase in the number of training positions available during the period from 1950 to 1980. In 1950, just over 10,000 internship and almost 20,000 residency positions were available in the country. In 1980, over 60,000 residency positions were available in the United States. When considering the actual growth that occurred in the number of training positions that developed during that 30-year period, one must recognize that free-standing internships ceased to exist in 1975. Because the internship had served as the first year of advanced clinical training for all medical school graduates, regardless of whether they entered general practice or a specialty training program, the elimination of the positions brought an abrupt decline in the total number of positions, even though the number of specialty and subspecialty residency positions available had increased.

The elimination of free-standing internships in 1976 was not entirely unexpected. Although the internship had served for decades as a required year of training for those seeking to pursue a medical specialty, the value of the experience began to be questioned as structured residency programs developed in the various clinical specialties. Indeed, a comprehensive review of the internship experience conducted by the AMA in 1953 raised serious questions about the quality of the training provided by many hospitals and the value of the experiences for medical school graduates who planned to pursue training in a specialty. The review recommended that graduates planning to enter specialty training should only be required to complete a 1-year internship, and that 2-year internships should be required only for graduates planning to go into general practice. In subsequent years, the value of the internship for those planning to enter a specialty training program became even more suspect, contributing to the decision that it be eliminated for those graduates. The development of residency programs in family medicine contributed to the elimination of the internship for all graduates.

Finally, the number of U.S. medical school graduates seeking internships and residency training increased significantly later in the period as a result of state and federal government efforts to support the development of new medical schools and the expansion of enrollment in existing schools. Those policies led directly to the establishment of 40 new allopathic medical schools during the 1960s and 1970s. As a result of that increase, the number of medical school graduates seeking entry into graduate medical education more than doubled, resulting in a significant increase in the total number of residents in training in the years that followed.

Efforts to Regulate the System

The CCGME issued its report in 1966, in which they recommended that an independent commission be established to provide a mechanism for coordinating decisions about how the country's graduate medical education system should function, primarily with regard to the development of standards for training. Importantly, CCGME also suggested that such a body might assume responsibility for distributing training positions among the various specialties.

In the years immediately following the publication of this report, professional organizations began to become concerned about the possibility that the government might become involved in regulating the graduate medical education system. The organizations feared that, because Congress had approved the use of Medicare funds to cover some of the costs of these educational programs, the government might decide to exert influence over how the funds should be used. As a result, individuals in leadership roles in various professional organizations worried that the government might establish an external regulatory body to carry out the recommendations included in the Millis Report.

The possibility that the government might take steps to regulate the graduate medical education system became more threatening in the early 1970s. At that time, members of Congress began to express concerns that the progressive move toward specialization would have an adverse effect on the delivery of health care, primarily due to an insufficient number of physicians willing to practice primary care medicine in rural and underserved urban communities. Based on that concern, Congress enacted the Comprehensive Health Manpower Act of 1971, which established federal grant programs (Title VII, Public Health Act) that provided funding to support residency programs in general pediatrics, general internal medicine, and the emerging discipline of family medicine. Although the Title VII programs served a purpose, the funding they provided was not substantial enough to offset the impact of Medicare funding on the progressive specialty and subspecialty orientation of the graduate medical education system as a whole.

In the years that followed, key Congressional leaders became increasingly concerned that uncontrolled expansion of the graduate medical education system was likely to lead to an oversupply of physicians and an imbalance in their specialty mix. In the mid-1970s, the reauthorization of the 1971 Health Manpower legislation led to Congressional debate, with some arguing strongly that steps needed to be

taken to regulate the system. Some members of Congress believed that effective regulation would not occur unless the federal government, working in conjunction with state governments, controlled the process. Others believed that the regulatory process should be controlled by the profession and suggested that the process become the responsibility of the CCME.

Prominent members of Congress, who doubted that the profession would take on the responsibility to regulate the system, introduced legislative proposals in the mid-1970s that would have established strict government regulation of the number and specialty mix of positions available on a national and regional basis. However, the Comprehensive Health Manpower Training Act of 1971, reauthorized as the Health Professions Educational Assistance Act of 1976, did not contain provisions for regulating the system because the medical profession strongly opposed government regulation. At the same time, professional organizations were unwilling to have the CCME assume a regulatory role. Instead, the Manpower Training Act included provisions that created financial incentives for medical schools to take steps to decrease enrollments, while at the same time making efforts to influence their graduates to pursue careers in primary care.

During the course of the debate over how the graduate medical education system might be regulated, government officials agreed to establish an advisory group empowered with the responsibility of analyzing the state of the physician workforce. This group would project how the increase in medical school graduates resulting from the development of new medical schools would affect the size and specialty mix of the workforce in the future and offer recommendations on how the government should respond. This entity, the Graduate Medical Education National Advisory Committee (GMENAC), which was established within the Department of Health and Human Services (DHSS) in 1976, issued its final report in 1980. In their report, GMENAC projected that the country would have a major oversupply of physicians by 1990, with an inadequate number of primary care practitioners. The GMENAC findings, in conjunction with growing concerns about the solvency of the Medicare Trust Fund, prompted Congressional leaders once again to consider approaches that might be adopted to regulate the supply and the specialty mix of physicians emerging from the graduate medical education system.

PHASE III: RESPONDING TO CRITICAL ISSUES (1981–2010)

In the 35-year period that followed the end of World War II, the country's graduate medical education system became reasonably well established. Perhaps most importantly, key professional organizations endorsed the concept that educational standards were needed to guide the design and conduct of residency programs in individual specialties, and that an approach had to be established to ensure that programs were in compliance with those standards. Also, the federal government agreed to provide a stable source of funding to cover some of the costs incurred by hospitals conducting residency programs.

By the end of that period, GMENAC and two other prominent committees that had been established to review aspects of the country's graduate medical education system issued their reports. As noted above, GMENAC's 1980 report projected a major oversupply of physicians by 1990 and recommended that steps be taken in the years ahead to decrease the physician supply. One of the other prominent committees, the Macy Foundation Study Group on Graduate Medical Education, established in 1978, made a number of recommendations related to the content and quality of residency training and the financing and regulation of the system. Finally, in its 1981 report, the Task Force on Graduate Medical Education, established by the AAMC in 1977, addressed five areas of special concern, most prominent of which was the quality of the training being provided and the approaches being used for the development of educational standards and accreditation of individual programs. The Task Force also addressed issues related to the specialty mix of the system's training positions and the financing of the system. Each of these reports made clear that the system was facing major challenges that needed to be addressed.

In subsequent years, important changes were made in the organization and financing of the graduate medical education system, including changes in the development of educational standards, accreditation, and compliance. In addition, Congress passed several pieces of legislation that fundamentally changed how the Medicare program paid hospitals for the costs they incurred in sponsoring graduate medical education programs. Finally, Congressional leaders and members of the administration made several attempts to gain the support of professional organizations for establishing a regulatory mechanism that would allow the government to control both the number and specialty mix of residents in training. Although those efforts were not successful, they demonstrated the government's growing concern about Medicare funds being used to support continued expansion of the system without any assurance that the number and specialty mix of the physicians in training were appropriate. The number of programs and the number of residents in training continued to increase, in part due to a significant increase in IMGs entering the system, but the rate of increase slowed appreciably after Congress passed legislation in the mid-1990s that placed a limit on Medicare financing of new training positions in existing teaching hospitals.

Educational Standards

The approach adopted for oversight of the educational experiences provided by residency programs with the establishment of the LCGME in 1972 turned out to be burdensome and highly ineffective. As a result, the sponsoring organizations restructured the approach in 1980 by abolishing the CCME and converting the LCGME to the ACGME. The sponsors of the ACGME, which became operational in 1981, were the five professional organizations that had served as sponsors of the LCGME. Eliminating the CCME meant that decisions made by the ACGME were no longer subject to review and approval by any oversight body, but they were subject to approval by each of the five sponsoring organizations. In essence, therefore, each of the organizations had veto power over ACGME actions that it opposed.

One should also recognize that the business of the ACGME was conducted primarily by representatives of the five sponsoring organizations. The ACGME also had a public representative, a representative from the federal government, and a representative selected by house-staff (residents) organizations, but each of the sponsoring organizations appointed four representatives. Thus, each organization had input into the development of ACGME policies in ways that insured that the vested interests of the organization were reflected in any actions ACGME took. Even if the majority of the representatives approved an action that one of the ACGME sponsors did not agree with, that organization could veto the measure when the action was submitted to the sponsors for approval.

Perhaps more importantly, the ACGME had limited authority over the development of standards for training in the various specialties and subspecialties (program requirements), or over the process by which programs were reviewed to determine their compliance with existing standards (accreditation). Those responsibilities continued to fall largely within the jurisdiction of the various RRCs. When the ACGME was established, the RRCs were not incorporated as committees of the ACGME but continued to exist as independent bodies whose members were appointed by the RRCs' parent organizations. Although the ACGME was charged with reviewing and approving the special requirements developed by individual RRCs, it did so only after they had been reviewed and approved by the RRC parent organizations (AMA, specialty boards, and specialty societies). And while the ACGME was vested with the authority to grant accreditation to individual programs, it was also granted authority to delegate that responsibility to an RRC if the RRC applied for the right to do so. During the years the ACGME functioned as originally designed, all of the RRCs were granted that authority.

Consequently, the ACGME had limited ability to provide meaningful oversight for the educational experiences provided by residency programs. To a great extent, ACGME's role was limited to the development of institutional requirements to which all residency programs, regardless of specialty, were required to conform. Before the requirements proposed by the ACGME board could be implemented, they were subject to review and approval by each of the five sponsoring organizations. Because each of the organizations had a vested interest in how certain aspects of the graduate medical education system functioned—interests that were not necessarily shared by the other sponsors—requirements developed by the ACGME could not be implemented in some cases because of the sponsors' veto power.

Not long after the ACGME became operational in 1981, tensions surfaced within the organization due to conflicts between various sponsors on how the ACGME should address specific issues. On more than one occasion, a position adopted by the ACGME board that was viewed favorably by four of the sponsoring organizations could not be implemented because it was vetoed by a single sponsor that viewed the position as being counter to its vested interests. This conflict also surfaced during discussions about particular issues, because the members tended to advocate for positions advanced by the organization that appointed them. In fact, it was common practice for the sponsoring organizations to hold meetings with their representatives before the ACGME met to develop positions on the specific issues on the upcoming ACGME agenda.

The influence of the sponsoring organizations in the development of ACGME policies led many to believe that the sponsoring organizations had too much power over the continued evolution of the system. These individuals did not believe that it was possible for the ACGME to fulfill its responsibility as long as the five sponsoring organizations controlled the appointment of the majority of the ACGME representatives and had veto power over policies developed by the ACGME.

The ACGME also came under scrutiny due to its limited role in the accreditation process. Because the RRCs retained the power to develop accreditation standards for individual specialties and subspecialties and also to make decisions about the degree to which individual programs were in compliance with those standards, some saw the ACGME as being unnecessary. Indeed, some of the organizations that appointed members to the RRCs, particularly the specialty organizations, felt that the RRCs should be entirely independent of the ACGME. Others wished to enhance the role of the ACGME by incorporating the RRCs into the organization as committees of the ACGME board.

In the 1990s, pressure began to build within the academic medicine community for a restructuring of the ACGME. Toward the end of the decade, the leadership of the sponsoring organizations made an effort to reach agreement on how the ACGME should be changed so that it could meet its stated purpose more effectively. After a series of intense negotiating sessions, they reached an agreement to restructure the ACGME as an independent corporation. The ACGME was incorporated in June 2000 as a separate 501(c)(3) entity. The stated purpose of the new corporation was to "develop the most effective methods to evaluate graduate medical education, to promote the quality of graduate medical education, and to deal with such matters relating to graduate medical education as are appropriate."

The incorporation of the ACGME did result in major changes in the nature of the organization. Perhaps most important was curtailment of the power held by the five previous sponsors. With the restructuring of the organization, the previous sponsors became members of the corporation but no longer appointed the ACGME directors (previously representatives), and no longer had the power to respond to actions taken by the directors except under very limited circumstances set forth in the corporation's bylaws. Equally important, the RRCs were embedded within the organization as ACGME committees, thereby consolidating the authority of the ACGME over the accreditation process. In reality, the ACGME became an independent body that had full authority over the nature of specialty and subspecialty residency programs as well as the nature of the institutions that sponsored those programs.

In 2009, the ACGME bylaws were amended once again. The changes made at that time placed further limits on the role of professional organizations in the accreditation process. The number of at-large directors and public directors on the ACGME board was increased. At the same time, the board was given the authority to grant organizations other than those already in existence the right to appoint members to the RRCs. The changes in the bylaws increased the ACGME's autonomy and further consolidated its role as the body responsible for oversight of the graduate medical education system.

Nevertheless, the professional organizations that currently serve as corporate members of the ACGME are responsible to varying degrees for the structure of the organization and how it functions. Similarly, the organizations that appoint members to the various RRCs are directly responsible for the development of the standards that are applied in making accreditation decisions. Critics continue to believe that the standards that are developed reflect in some cases little more than adherence to the way training has always been conducted, whereas in other cases the standards reflect what program directors and program faculty see as being required to maintain current practices of how patient care is provided in sponsoring hospitals.

Government Financing

In 1982, Congress enacted legislation that dramatically changed how Medicare provided funds to support graduate medical education. Establishment of the Medicare program by Congress in 1965 meant that hospitals that were eligible to receive Medicare funds to cover the costs of care for Medicare beneficiaries could include in their cost reports some of the costs they incurred for graduate medical education programs. Historically, therefore, the Medicare program originally included payment for the costs hospitals incurred in providing graduate medical education in the amount paid for providing care to Medicare beneficiaries. The enactment of the Prospective Payment System (PPS) resulted in Medicare paying virtually all hospitals a set amount for providing care to patients with similar conditions (Diagnosis Related Groups [DRGs]). With the introduction of PPS, the direct costs incurred by a teaching hospital in conducting graduate medical education programs were excluded from the DRG-based payment. Thus, the new payment system required Medicare to make a separate payment to hospitals sponsoring graduate medical education programs to cover Medicare's share of an institution's costs for these programs. This new payment system resulted in the development of a Direct Medical Education (DME) payment to teaching hospitals to cover those costs.

Those involved in the development of the new payment system recognized that the historical costs of providing care to patients in teaching hospitals was greater than

the costs incurred in caring for similar patients in non-teaching hospitals. To maintain the financial integrity of teaching hospitals, Congress agreed that Medicare would cover the extra costs the hospitals incurred by making adjustments to the DRGbased payments they were to receive. Because the calculation of the extra payment was based on a formula that determined the extra amount based in part on the ratio of the number of residents in training to the number of hospital beds, the payment became known as the Indirect Medical Education Adjustment (IMEA), even though the payment did not reflect costs incurred in sponsoring graduate medical education programs. As a result of the way the IMEA is calculated, analysts often include the amount paid by Medicare in the amount Medicare provides to support graduate medical education. In addition, because the IMEA amount increases as the number of residents increases, many analysts view the IMEA as providing teaching hospitals an incentive to increase the number of residents in training.

The changes in the ways Medicare paid for the direct costs of graduate medical education incurred by teaching hospitals made it possible to calculate the aggregate amount that the program was spending to support graduate medical education costs. At the same time, it became possible to calculate the extra amount Medicare was paying for the care provided to beneficiaries in teaching hospitals. The explicit nature of the extra costs incurred by the program prompted policymakers within and outside government to question the rationale underlying Medicare's payment of educational costs that could not be directly linked to patient care.

In combination with growing concerns that the country was producing too many physicians, and that the specialty mix of the physicians being produced was not appropriate, concerns about the cost to the program prompted Congress once again to consider establishing a mechanism by which the federal government could regulate continued expansion of the graduate medical education system, thereby controlling the amount the government was spending in funding it. Although Congress took no action at the time to regulate the system, provisions contained in the Consolidated Omnibus Budget Reconciliation Act of 1985 (COBRA) decreased by half the amount Medicare would pay hospitals for positions in subspecialty training programs.

After almost 20 years of debate about regulation of the graduate medical education system with regard to government funding, and the number and specialty mix of the physicians completing training and entering practice, Congress decided in the mid-1990s to once again make changes in the policies governing how Medicare

paid hospitals for graduate medical education costs. The Balanced Budget Act (BBA) of 1997 capped the number of residents that a teaching hospital could count in calculating its DME payment to the number reported to Medicare prior to the end of 1996. After enactment of the BBA, hospitals that increased the number of residents in the institution's specialty or subspecialty programs were responsible for covering the additional costs from another source of funds. The legislation also limited the number of residents that a hospital could count in calculating the IMEA and changed the way the IMEA was calculated.

Although the BBA effectively eliminated the ability of a teaching hospital to receive additional Medicare funds to cover the cost of adding additional residents, it did not include an approach for direct regulation of the number or specialty mix in the system as a whole. The rate of increase in new specialty programs, as well as the total number of residents enrolled in specialty and subspecialty programs, slowed following the passage of the BBA in 1997. Although the number of residents in training continued to increase, most of the increase was due to an increase in the number of residents in training in new and existing subspecialty programs. The impact of the legislation is not surprising, as provisions in the 1985 COBRA had already decreased by half the amount Medicare would pay hospitals for residents in subspecialty programs. Passage of the BBA slowed the expansion of the graduate medical education system, and little interest has been shown in the past decade in finding ways to regulate that system.

In 2000, Congress passed legislation that increased federal support for graduate medical education. The legislation authorized the DHHS to establish a program that would provide funding to support graduate medical education funding for free-standing children's hospitals—hospitals that sponsor a significant amount of the residency training in general pediatrics and pediatric subspecialties. The establishment of Medicare's approach for funding graduate medical education in the mid-1960s had led to exclusion of free-standing children's hospitals from Medicare funding to help cover the costs of their programs. The establishment of the Children's Hospitals Graduate Medical Education (CHGME) Payment Program partially closed a major gap in the way Medicare funded graduate medical education. The funding gap existed because, under the policies governing Medicare payment to hospitals for graduate medical education costs, the program calculates what it considers to be its "fair share" of these costs incurred by a hospital largely by determining the percentage of a hospital's patient days attributable to Medicare beneficiaries. Because free-standing children's hospitals do not care for Medicare

beneficiaries except under very unusual circumstances, the hospitals have had no basis for claiming Medicare DME and IMEA payments.

The amount of funding made available to the program for annual distribution to hospitals depends entirely on Congress' willingness to appropriate funds to support the program on a recurring basis. Although this approach has been proposed in the past as a means of creating a funding source to support graduate medical education programs, key professional organizations have opposed it owing to concerns that Congress might fail to reauthorize the funding over time, creating uncertainty about the viability of individual residency programs on a long-term basis.

The federal government continues to support graduate medical training by funding programs operated by other government departments and agencies (Veterans Affairs, Department of Defense, and Public Health Service). In addition, the federal government provides funds that support graduate medical education through state Medicaid programs. All but a few states provide funds to support graduate medical education through their Medicaid programs. The federal government provides matching funds based on a formula that determines its contribution to each of the state programs. As a result, the state Medicaid programs are second only to Medicare in the amount of explicit funding they provide for graduate medical education.

Expansion of the System

From 1980 to 2010, the number of residents in training increased dramatically. In 1980 approximately 65,000 residents were in training in specialty and subspecialty training programs; by 2010 the number had increased to approximately 110,000. This growth was due to an increase in both the number of U.S. medical school graduates and the number of IMGs entering training in core specialties, as well as an increase in the average length of training due to residents' decisions to enter subspecialty programs.

Two factors were involved in the increase in U.S. medical school graduates entering residency training. As noted previously, 40 new allopathic medical schools were established during the 1960s and 1970s. During the same period, the number of students enrolled in the schools that were in existence prior to 1960 expanded to a significant degree. The number of students graduating from U.S. medical schools more than doubled by the mid-1980s to almost 16,000 per year. As a result, an

additional 8,000 U.S. medical school graduates were entering the graduate medical education system each year. Because the extra graduates remained in training for a minimum of 3 years, the expansion in enrollment during the 1960s and 1970s produced at a minimum an additional 24,000 residents in training by the end of the 1980s. However, by the early 1990s a significant percentage of medical school graduates chose to train in a specialty that required more than three years of training, or to pursue additional training in a subspecialty program. Consequently, the increase in medical school enrollments that had occurred during the 1960s and 1970s actually accounted for far more than 24,000 of the additional number of residents in training after 1990.

Several other factors contributed to the increased number of residents in training. The first was a progressive increase in the number of graduates of non-U.S. medical schools seeking residencies in the United States. Changes in immigration law adopted in 1990 that made it easier for foreign citizens to enter the country using an H-1B visa resulted in a substantial increase during the 1990s in the number of foreign-born IMGs seeking residency training in the United States. At present, almost a third of applicants for residency training are graduates of medical schools located outside of the United States, and approximately a fourth of the residents now in training in the United States are graduates of non-U.S. medical schools.

Of particular interest, the percentage of U.S. citizen IMGs seeking residency training in this country began to increase in the 1980s, largely due to the continued growth of enrollments in medical schools located in the Caribbean. At present, two Caribbean schools, both established in the late 1970s, have a larger number of their graduates enrolled in residency programs in this country than does any single U.S. school. In addition, during the past decade an increasing number of osteopathic medical school graduates began to apply for entry into allopathic residency programs. At present, more than half of osteopathic medical school graduates are choosing to enroll in allopathic training programs. As a result, osteopathic graduates now comprise over 7% of the new residents entering a core program. U.S. citizens now entering residency training in this country might be graduates of a U.S. allopathic or osteopathic medical school or a medical school located in a foreign country, primarily in the Caribbean region.

Proposals for Regulating the System

As noted previously, key Congressional leaders had become concerned in the early 1970s that the country's graduate medical education system was producing too many physicians, and that the specialty mix would not serve the public's needs for healthcare services. The debate that occurred during the mid-1970s over how the system might be regulated to produce a more socially responsive workforce essentially ended with the passage of the Health Manpower Act of 1976 and the establishment that same year of GMENAC. However, the debate resumed after GMENAC's projection that the country would have a large surplus of physicians by 1990.

Beginning in 1984, key members of Congress began to introduce legislative proposals that would have changed how graduate medical education was being funded, thereby providing a mechanism for regulating the graduate medical education system. One of the bills would have eliminated direct Medicare payment to hospitals for graduate medical education-related costs. The bill proposed instead that hospitals would have to apply to a state regulatory body for approval of their programs and that states would be required to apply to DHHS for funds to support the programs they approved. Another bill would have required hospitals to meet federal regulatory requirements governing the size and specialty mix of their graduate medical education programs in order to receive funds to support these programs. Other bills that were introduced would have allowed funding only for the support of residents in programs leading to initial board certification, while at the same time largely eliminating support for positions filled by graduates of non-U.S. medical schools. Due to strong opposition from the professional organizations involved in the oversight of the graduate medical education system, none of the proposed legislative provisions was adopted by Congress itself. Instead, as it had done in establishing GMENAC in 1976, Congress established an advisory body that was charged to inform and advise both the administration and Congress on physician workforce issues. The Council on Graduate Medical Education (COGME) was established by a provision included in the COBRA legislation of 1985.

In its first report, issued in 1988, COGME did not take a definitive stand on the state of the physician workforce but indicated that more analysis was needed before doing so. After completing a detailed analysis, COGME issued a report in 1992 that projected a major oversupply of physicians in the United States. COGME recommended that the number of graduate medical education positions be capped

at 110% of the number of U.S. medical school graduates and that at least 50% of the positions had to be assigned to programs in specialties designated as primary care specialties. COGME also called for the establishment of a National Physician Workforce Commission that would collaborate with state commissions to regulate the graduate medical education system. Although Congress took no action, the recommendations included in the report provided a framework for recommendations on the physician workforce that later were included in the national healthcare reform proposal (Health Security Act) developed during the Clinton administration, which came to power in 1993.

The Health Security Act included provisions that would have established a National Council on Graduate Medical Education within DHHS, whose responsibility would have been to designate the number of positions to be funded on a specialtyspecific basis from a Health Professions Workforce Account. The account was to be created by pooling funds from the Medicare Trust Fund and from the Regional and Corporate Alliances established by the bill to provide health insurance on a national basis. Once again, professional organizations strongly opposed the workforce provisions of the bill. The Health Security Act failed to gain any meaningful support in either the Senate or the House of Representatives.

Following the failure to pass the Health Security Act, members of Congress continued to consider various options for regulating graduate medical education by eliminating direct Medicare payment to teaching hospitals. The various proposals would have created a Graduate Medical Education Fund, similar to the one proposed in the Health Security Act, or a voucher system that would have allowed government regulation of the future supply of physicians by limiting funding to medical school graduates for training in specific disciplines. Neither of those approaches, both of which were strongly opposed by professional organizations, received any support.

Efforts to regulate the graduate medical education system proposed in the 1980s and 1990s failed in each case because key professional organizations were unwilling to accept any form of government regulation of the system. The organizations took that position despite the fact that the government was providing most of the funds that institutions used to cover costs they incurred in conducting graduate medical education programs. However, six of the major professional organizations involved in graduate medical education did issue a statement in 1997 in which they acknowledged that the country was facing a major oversupply of physicians. They endorsed a recommendation that had been advanced earlier in the decade by COGME calling for the number of entry-level positions in the graduate medical education system to be limited to 110% of the number of U.S. medical school graduates, with 50% of the positions allocated for specialties designated as primary care specialties. Congress took no action to regulate the number of positions but did limit funding for new positions in the BBA of 1997.

In addition to efforts at a national level, government officials in several states who had become concerned about the impact of physician supply on healthcare in their state, established state workforce commissions. The first—the Advisory Graduate Medical Education Council of New Jersey—was established in 1977. The New York State Council on Graduate Medical Education was established in 1987. Over the years these bodies have undertaken a number of projects and published a number of reports focused on the organization of graduate medical education within the state and how it was serving the health care needs of the state population. These bodies have also played a role in determining how the states would participate in the funding of graduate medical education.

More recently, In 1997 the Utah State Legislature established the Utah Medical Education Council and charged it with assessing Utah's health care workforce needs. The Council was successful in obtaining a waiver from the Medicare program that allowed it to exert considerable control over the distribution of Medicare funds that had traditionally been paid directly to hospitals to cover some of the institutions' graduate medical education costs. The waiver allowed the Council to distribute funds to support the development or expansion of graduate medical education programs that would train physicians in specialties deemed to be needed to serve the public's interest. Given the small size of Utah's graduate medical education enterprise, the waiver had a limited impact on other states as they considered options for reallocating graduate medical education positions among specialties.

CONTEMPORARY CHALLENGES

The primary responsibility of the graduate medical education system is to ensure that physicians completing residency training are prepared to provide high-quality care to the patients they will encounter on entering practice in the specialty in which they received their training. Given the nature of the social contract that exists between the profession and society at large, the medical profession is clearly accountable for ensuring that the system fully meets this responsibility. Therefore, the various organizations that represent the profession through their involvement in the graduate education system must provide the leadership to address concerns about how the system is preparing doctors for practice. As in the past, concerns continue to be expressed about what constitutes the best approach to establish the educational standards that programs must meet to be accredited and the process involved in judging that programs comply with those standards. ACGME's recent efforts to create an accrediting body that has more public representatives on its board of directors reflect an awareness of the influence that a select group of organizations has over the process.

The graduate medical education system is also responsible for contributing to the development of a physician workforce that is capable of meeting the needs of the population for health care services. To that end, the workforce must be adequate in size, and it must be composed of a specialty mix that is aligned with the kinds of services the public needs. The government clearly has an important role to play in achieving this policy objective. But, in order for the government to be successful in this effort, the responsible professional organizations must be willing to form partnerships with the government to ensure that the system is organized in a way that best serves the public interest. The continued presence of a "cap" on the number of residency positions that Medicare will fund reflects an unwillingness on the part of government officials simply to once again provide open-ended funding for continued expansion of the system without a commitment by the profession to agree on how additional positions might be allocated among the specialties.

In addition to efforts to link the funding of graduate medical education to workforce objectives, government officials are beginning to consider ways to link funding to evidence of the educational quality of the programs being funded—-that is, to provide funding based on evidence that the programs are producing physicians who are prepared to provide high-quality care to the patients they will encounter in their practices. For example, in the early years of this decade, the Agency for Healthcare Research and Quality embarked on an initiative designed to identify practice performance measures that could be used to judge how well individual programs were meeting that critical objective. When Congress reauthorized the CHGME Payment Program in 2006, it included provisions that required participating hospitals to submit an annual report in which they identify the types of programs and curriculum changes that have been made to improve the quality and safety of the care being provided. Finally, MedPAC recently published recommendations that would empower the DHHS Secretary to develop educational standards that graduate medical education programs would need to meet to receive full Medicare funding.

Preparing Physicians for Practice

It seems self-evident that residency programs should be designed and conducted in ways that ensure that residents are capable of providing high-quality care to the kinds of patients they will encounter on entering practice in their specialty. It is clear from a review of how the system evolved during the course of the past century that the profession has made an effort to structure the system in ways that would ensure the quality of the training experiences. To that end, professional organizations recognized early on the need to provide guidance on the design of programs in the individual medical specialties and subspecialties and for determining how they were actually being conducted. Unfortunately, the approaches that were adopted over the years—approaches that ultimately led to the development of ACGME as a national accrediting body—were too often the result of compromises reached by various professional organizations on how each would maintain a role in the process, rather than agreement among the organizations on the optimal approach for achieving the stated objectives.

In recent years, concerns about the quality of residency training have been expressed by a number of special task forces and committees. The Institute of Medicine, the Commonwealth Fund, AAMC, and AMA have issued reports calling for fundamental changes in residency training. During the same period, organizations representing certain specialties (internal medicine, surgery, and family medicine) embarked on residency redesign initiatives that would represent a consensus on the kinds of changes that should be implemented in training for these specialties. Finally, studies have shown that residents too often complete training without being adequately prepared to care for patients of the type that are commonly seen in the practice of their specialty. Despite these critiques, no substantive changes have been made in the design and conduct of residency training. It is now imperative for the profession to take steps to ensure that the training required in individual specialties is tailored to prepare residents for the realities of clinical practice in the twenty-first century. To achieve that goal, it will be necessary to restructure the way that training standards are developed and applied in making accreditation decisions.

Creating an Optimal Physician Workforce

A substantial body of evidence reveals that the country faces a critical shortage of physicians. Although total agreement may not have been reached on this point, the evidence is convincing. For example, a number of states have reported that they are experiencing significant shortages that are likely to grow more serious as aging members of the workforce retire; a number of specialty organizations have issued reports documenting shortages; and individual workforce analysts, as well as the COGME, have projected a growing shortage in the aggregate number of physicians in the coming years.

Although some dispute the integrity of the interpretations represented in these reports, two facts are indisputable. First, in relation to the size of the population, the aggregate size of the workforce will begin to decline during the coming decade. This projection reflects the fact that continued growth in the country's population will exceed the growth in the number of physicians entering practice upon completion of residency training. Second, the aggregate size of the physician workforce in the United States is smaller than that in any other industrialized country except for Canada. Consequently, it is reasonable to conclude that the country needs to produce more physicians.

As noted previously, both the government and the profession have a responsibility to work together in constructive ways to ensure that the graduate medical education system is producing a workforce that is adequate in size and composed of an appropriate specialty mix. In that regard, it is important to note that while there is evidence that physician shortages exist in a number of core specialties, there is general agreement that the lack of an adequate number of primary care physicians is the most important challenge facing the country's health care system. Given current circumstances—primarily the limits on government funding to cover some of the costs incurred in establishing new residency positions—it will not be possible to meet this challenge unless both government officials and members of the profession understand the need for additional positions, as well as what will be required to create them. The government is unlikely to agree to provide additional funding for graduate medical education unless the profession commits to specific terms defining how the funds can be used. Therefore, the profession must be willing to depart from past practices and commit to cooperating with the government in creating an approach for accomplishing this goal.

To that end, it is essential that the professional organizations recognize that it is not reasonable to adopt past practices and advocate that no controls be placed on how new positions might be incorporated into the system. At present, that approach is reflected by policy positions that call for Congress to remove the limits (caps) placed on the number of positions that Medicare will contribute to funding, which were established in the BBA of 1997. Those caps have clearly slowed the rate of growth in the number of positions in the system. However, as noted previously, these limits have affected growth in positions. It is reasonable to assume, therefore, that removal of the caps would only spur the development of additional positions in existing subspecialties and lead to the development of new subspecialty programs.

But in order to increase the aggregate supply of physicians—that is, the number of physicians entering practice on completion of residency training—the number of entry-level positions (PGY1) in the core specialties must be increased, and the increase in PGY1 positions must be accompanied by a corresponding increase in the number of positions required for residents to meet certification requirements (PGY2, PGY3, etc.). Thus, the professional organizations involved in shaping physician workforce policy must be willing to enter into an agreement with government policymakers that would direct additional government funding for graduate medical education to the expansion of the existing core specialty programs, or the establishment of new programs, rather than expanding the number of positions devoted to subspecialty training. The profession needs to recognize the degree of urgency to accomplishing this end.

At present, the country's existing medical schools are increasing enrollments at the same time that new schools are being established. As a result, the total number of graduates from allopathic and osteopathic medical schools will soon equal or exceed the number of entry-level positions in the graduate medical education system. As a result of the increase in U.S. medical school graduates, IMGs who wish to receive residency training in this country will find it increasingly difficult to do so.

Although at present IMGs fill almost one fourth of the PGY1 positions available each year, most of those positions will be filled in a few years by the increasing number of U.S. medical school graduates seeking residency training. This phenomenon will have important implications for some U.S. medical school graduates who wish to train in a preferred specialty. The lack of PGY1 positions across the core specialties will make it impossible for some graduates of U.S. schools to train in the specialty of their choice, as the only option available to them will be to fill positions currently being filled by IMGs.

Professional organizations must understand that attempts to reach an agreement with the government on how to increase the number of entry-level positions in the graduate medical education system will likely be affected by the history of such interactions. As noted previously, the federal government tried, beginning in the 1970s and continuing through most of the 1990s, to reach agreement with the profession on how the graduate medical education system should be regulated in order to control both the number of positions existing in the system and the distribution of those positions among the various specialties and subspecialties. During that period, the government also established expert panels to conduct physician workforce analyses (GMENAC and COGME) to guide decisions regarding the kinds of programs that were needed to ensure that the needs of the public would be met. Nevertheless, the profession was unwilling to enter into an agreement with the government on how the funds might be used to shape the size and specialty mix of the positions existing within the system.

Because of the government's current position on financing for graduate medical education, an agreement must be reached if the graduate medical education system is to meet the challenge it faces—that is, to increase the number of entry-level positions. Against this background, the profession must now seek an agreement with the government to provide additional funding for graduate medical education so that new specialty programs can be developed, or the size of existing programs increased. In return, it seems likely that the profession will have to agree that the funds can only be used to support program development on a specialty-specific basis. One key issue will be how this regulation will occur. Will new positions be distributed by a federal regulatory body or by a regulatory body under the control of professional organizations?

Another critically important issue that has received little attention to date is whether there are institutions that would be willing to sponsor the additional positions that are required. Institutions that already serve as teaching hospitals may be unable to increase the size of their core programs due to the lack of an adequate patient base or limitations in other resources that would be required to expand the number of residents in training. Institutions that are not currently teaching hospitals may have no interest in taking on the responsibility of sponsoring new residency programs. This lack of interest may be due to an unwillingness to make the financial commitment necessary to develop new programs and to maintain them over time. The unwillingness of an institution's medical staff to become involved in supervising resident physicians, or having residents involved in the care of their patients under the direction of designated faculty, is an additional factor that might prevent an institution from becoming a teaching hospital.

No data are available that provide insight into how widespread this attitude might be. But experience in several regions where new medical schools have been established with an understanding that they would work with local hospitals to develop new residency programs suggests that it is a serious issue. To date, the new schools have been largely unsuccessful in their efforts to establish programs in the communities where they are located. Further research is needed to determine which of the factors noted above are most important and how they might be addressed in ways that would provide opportunities for the development of new programs.

SUMMARY

The country's graduate medical education system has evolved during the past century into a very large and complex enterprise. The system has a critically important impact on the delivery of healthcare in the United States. It is responsible for preparing medical school graduates for the practice of medicine, and it determines the number and specialty mix of physicians entering practice each year. Thus, the system affects not only the quality of care provided by practicing physicians but also the degree to which individuals are able to gain access to needed healthcare services. Given the nature of its responsibilities to the public, and the fact that the public provides most of the funds that cover the costs of operating the graduate medical education system, it is remarkable that the system is not accountable at present to any public authority. The system is now facing a set of challenges that can only be met successfully if appropriate leaders within the medical profession are willing to acknowledge the critical importance of the challenges and to enter into substantive discussions with representatives of the public (government officials) on how the challenges should be addressed.

Given the length of the process currently required to prepare a physician for the practice of medicine, it is important for the profession to begin engaging representatives of the public in discussions on how to proceed. In that regard, it is disconcerting that during the year-long debate on how to reform the country's healthcare system, no substantive consideration was given to the issues involving graduate medical education. The lack of interest in the issues on the part of government officials and policymakers in the private and public sectors, and the inability of major professional organizations to enter the debate in a meaningful way, signifies that the gap would need to be overcome before any substantive discussions could take place about the nature of the graduate medical education system.

Absent meaningful engagement in the near future between leaders from within the medical profession and representatives of the public, it seems likely that the country will continue to experience problems with the quality of medical care and that more and more citizens will be unable to obtain the care they need in a reasonable timeframe due to an inadequate number of practicing physicians in their communities. These issues must be addressed. Although the specific issues involved today are different than those that prompted the Carnegie Foundation for the Advancement of Teaching to commission the Flexner Report 100 years ago, these
issues are no less serious. It is time for the profession, particularly the academic medicine community, to focus its attention on the issues in a way that is comparable to how the profession addressed the shortcomings that existed in the preparation of doctors for practice at the beginning of the twentieth century.

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Note: In addition to the reports listed above, all of the reports and resource papers published by the Council on Graduate Medical Education during the years from 1988 to 2010 provided important information about the country's graduate medical education system.

TABLE 1. DEVELOPMENT OF EDUCATIONAL STANDARDS FOR RESIDENCY TRAINING: KEY EVENTS

1916	First certifying board established					
1919	AMA CME published first version of "Essentials of Approved					
	Internship"					
1928	AMA CME published first version of "Essentials of Approved					
	Residencies and Fellowships"					
1934	Advisory Board for Medical Specialties established					
1937	ACS published "Fundamental Requirements for Graduate Training					
	in Surgery"					
1939	AMA, CME, ABIM, ACP agreed to form cooperative committee					
	on training in internal medicine					
1940	Commission on Graduate Medical Education published report					
1948	ABMS and AMA CME formed Liaison Committee for Specialty Boards					
1949	Conference Committee on Graduate Training in Internal					
	Medicine established					
1953	Conference Committee on Graduate Training in Surgery established					
1953	Internal Medicine Conference Committee renamed Residency					
	Review Committee (RRC)					
1966	Millis Report published					
1970	ABMS renamed American Board for Medical Specialties					
1972	Liaison Committee on Graduate Medical Education formed					
1980	LCGME converted to Accreditation Council for Graduate					
	Medical Education					
2000	ACGME converted to a corporate entity with RRCs embedded					
	as committees					
2009	ACGME bylaws changed to increase the number of public members					
	and allow Board to grant organizations the right to appoint					
	members to RRCs					

ABIM—American Board of Internal Medicine; ABMS—American Board of Medical Specialties; ACGME—Accreditation Council for Graduate Medical Education; ACP—American College of Physicians; ACS—American College of Surgeons; AMA CME—American Medical Association Council on Medical Education; LCGME—Liaison Committee on Graduate Medical Education.

TABLE 2. THE ROLE OF THE FEDERAL GOVERNMENT IN THE DEVELOPMENT OF THE GRADUATE MEDICAL EDUCATION SYSTEM: KEY EVENTS

1946	Federal government established Veterans Administration (VA)
	Department of Medicine and Surgery and granted VA hospitals the
	authority to affiliate with medical schools and teaching hospitals
1948	Smith-Mundt Act established exchanged visitor program that allowed
	IMGs to come to U.S. for residency training
1963	Health Professions Educational Assistance Act provided federal funds
	to assist in the development of new medical schools and the expansion
	of existing schools
1965	Mutual Educational and Cultural Exchange Act made it easier for IMGs
	to come to the U.S. for residency training
1965	Federal government established Medicare and Medicaid programs
1971	Comprehensive Health Manpower Training Act provided funds for
	grant program in support of training in family medicine
1976	Federal government established Graduate Medical Education National
	Advisory Committee
1976	Health Professions Educational Assistance Act provided funds for grant
	program in support for training in family medicine, general internal
	medicine, and general pediatrics
1980	GMENAC issued final report that projected large excess of physicians
	by 1990
1985	Consolidated Budget Reconciliation Act made changes in how
	Medicare would pay graduate medical education costs
1985	Federal government established Council on Graduate
	Medical Education
1990	Amendment to immigration law made it easier for IMGs to use H-1B
	Visa for entry into country for graduate medical education
1992	Second COGME Report projected large excess of physicians in the
	future and recommended that the government limit the number of
	entry-level positions and the number of IMGs that could enter graduate
	medical education programs
1994	Health Security Act proposed major changes in government funding
	of graduate medical education and proposed a system for regulation of
	the number and specialty mix of funded positions

1997	Balanced Budget Amendment limited Medicare funding for			
	new positions			
2000	Congress provided funds to establish program for supporting residency			
	training in free-standing children's hospitals			

COGME—Council on Graduate Medical Education; GMENAC—Graduate Medical Education National Advisory Committee; IMG—international medical graduate.





TRENDS IN GRADUATE MEDICAL EDUCATION

CLESE ERIKSON, MPAFF PAUL JOLLY, PhD GWEN GARRISON, PhD Association of American Medical Colleges

PREFACE

This report, prepared by the staff of the Association of American Medical Colleges (AAMC), provides information on the trends in graduate medical education (GME) in response to general concerns over whether the system is producing an adequate number of physicians to meet future healthcare demands. Our intention is to provide data-based evidence for discussions and debates about the future of the medical workforce. The scope of this report is limited to the trends in GME, which represent only one set of factors that must be considered in assessing whether the country's workforce of healthcare providers will meet future needs. As such, these findings should be of interest to the general public as well as to policymakers, leaders, and managers in the field of graduation education and to current and future medical students and residents.

Further information on this topic is available at the AAMC website at https://www.aamc.org/initiatives/workforce/.

Material in the Appendix referred to in the text is available at the Josiah Macy Jr. Foundation website at http://macyfoundation.org/publications

EXECUTIVE SUMMARY

Physicians graduating from both allopathic and osteopathic medical schools must undergo further training in GME prior to assuming independent responsibility for patient care. This report focuses on the GME system, a key component of the training pathway for practicing physicians. The United States is already facing a critical physician shortage, and the problem will only be exacerbated as 32 million more Americans acquire healthcare coverage under new federal legislation and an additional 36 million people enter the Medicare system. Between now and 2015, the year after healthcare reforms are scheduled to take effect, the shortage of doctors across all specialties will substantially increase. While previous projections showed a baseline shortage of 39,600 doctors, current estimates bring that number closer to 63,000, with worsening shortages through 2025. The projected shortages are not only in the primary care fields of family medicine, internal medicine, and pediatrics but also in surgery, emergency medicine, cardiology, oncology, and other fields.

Measuring change and trends in this system is both an art and a science, as researchers must take into account the differences among training locations, the evolution among clinical specialties and subspecialties, the necessity to meet training requirements for a quality educational experience, and ongoing formal and informal funding allocations. In this report, we have harnessed the best source of data available, GME Track, to analyze trends over the past decade among the specialties and the characteristics of residents-in-training. Our findings include the following:

- Between 2000 and 2009, the total number of residents in Accreditation Council for Graduate Medical Education (ACGME)-accredited programs reported to GME Track increased by 12.6%. The total number of residents in core specialties (which can be entered directly from medical school or with one preliminary training year) grew by 8.1%, whereas the total number of residents in subspecialty training grew by 41.2%.
- In 2009, there were 12,520 more total residency positions compared with 2000. Core specialties accounted for 55.4% of the additional positions, and the balance (44.6%) was comprised of subspecialty positions. In 1980 and 1981, certificates were awarded in only 28 subspecialties; today, 149 subspecialties are recognized by the American Board of Medical Specialties (ABMS).
- In 2009, there were 4,930 more residents in program year 1 (PY1) positions compared with 2000. Whereas the number of PY1 residents in subspecialty residencies increased at a higher rate than new entrants into core specialties (53.5% and 6.9% respectively), more than four-fifths of all residency positions remained in the core specialties.

- Primary care residency programs [family medicine (FM), internal medicine (IM), pediatrics, and the combined internal medicine/pediatrics (IM/Peds) and internal medicine/family medicine (IM/FM programs) continued to show modest increases in the number of residents entering the pathway. However, 11.6% fewer residents are expected ultimately to become practicing primary care physicians (PCP) compared with the percentage that became PCPs in 2000.
- Of the 2009 new entrants into internal medicine, 60% are expected to enter subspecialties (compared with 51% in 2000); 6% of entrants into family medicine residencies will subspecialize (compared with 2% in 2000); and 40% of new entrants into pediatrics will subspecialize (compared with 26% in 2000).
- Increased subspecialization rates are not limited to primary care and are occurring in numerous other specialty areas, such as anesthesiology, dermatology, neurology, orthopedic surgery, pathology, psychiatry, diagnostic radiology, and general surgery.
- Since 2000, the primary care workforce has experienced two significant changes in the profile of residents likely to become primary care physicians: 1) there are fewer men, and 2) there are fewer U.S.-trained medical doctors (USMD). The number of men likely to practice primary care decreased by 21.0% between 2000 and 2009; the number of women held relatively stable, decreasing by only 0.4%. The number of USMDs decreased by 30.7%, but the numbers of doctors of osteopathy (DO) and international medical graduates (IMG) in the field increased by 25.0% and 27.7%, respectively.
- Over the past decades, interest in individual specialties and subspecialties has, at times, both increased and decreased, and this behavior will likely continue in the future. Although an extrapolation of recent trends would suggest a continuing decline in primary care, interest in the field could again increase if the job market, reimbursement policies, or other environmental conditions change.
- On average, in 2009, for each medical school graduate (allopathic and osteopathic) there were 1.3 ACGME-accredited residency positions that could be entered directly from medical school.
- In 2009, for most specialties, there were more residents entering training than there were active physicians aged 60 and likely to retire at about the time the

new entrants complete GME training. However, for some specialties, such as family medicine and internal medicine, the ratio is close to 1:1.

 If there is no continued growth in GME training positions, USMDs and DO entrants into accredited residency programs will be equal to, or possibly exceed, the number of available positions by 2021. This does not include the approximately 7,000 IMGs who currently enter GME each year.

INTRODUCTION

The demographics of U.S. populations are changing in size and composition. Current estimates indicate that the general population will grow, as will the percentage of older people needing different kinds of healthcare. In addition, healthcare reform is expected to bring 32 million more insured Americans into the healthcare system by 2015. The recognition of these factors has led the American Association of Medical Colleges (AAMC) to forecast a shortage of 63,000 physicians through 2025 not only in the primary care specialties of internal medicine, pediatrics, and family medicine but also in general surgery, emergency medicine, cardiology, oncology and other specialties and subspecialties as well. Recognizing the extensive changes in possible demand for healthcare in coming decades, policymakers have focused on, among other issues, whether the graduate medical education (GME) system is producing the workforce needed to properly care for the country's population.

Purpose

In response to these concerns, the AAMC Center for Workforce Studies, in collaboration with the AAMC's Research and Data Programs unit, prepared this report on trends in Accreditation Council for Graduate Medical Education (ACGME)-accredited residency and fellowship training programs between 2000 and 2009. The purpose of this report is to provide information on the following topics:

- The total number of residents and new entrants into GME, including analysis by specialty, gender, and medical education degree type.
- Analysis of subspecialization trends to estimate how many residents will ultimately practice in the field of medicine in which they entered residency or fellowship training in a given year.
- Trends in GME, including residents per capita by state as well as the relationship of undergraduate and GME by state.
- Data on the number of residency programs compared with changes in the number of residents.
- Comparison of new entrants into the residency training pathway and the number of physicians in the specialty aged 60 and approaching retirement.

Methods

For the purposes of this report, residency programs will be grouped into two main categories:

- Core specialties, which can be entered directly from medical school or with one preliminary year. Each section of the report will also include detailed analysis of the primary care specialties; and
- 2. Subspecialty residencies and fellowships, which require completion of an earlier residency program.

In order to simplify the data, in most of the tables in this report the 138 ACGMEaccredited specialties have been consolidated into 50 specialty categories, including preliminary programs and transitional years. For the section addressing subspecialization trends, the specialties are further simplified into 13 categories (see Appendix, Table A9, for information on how the specialties were aggregated).

This analysis primarily uses data derived from the National GME Census (GME Track) system of the AAMC and the AMA. However, there are three other distinct sources of data on numbers of residents participating in GME:

- 1. Reports from the National Resident Matching Program (NRMP);
- 2. Data published by ACGME; and
- 3. Data included in the annual medical education issue of *JAMA typically* published in September of each year.
- 4. Each year, the NRMP publishes reports on the numbers of applicants matched in residency programs. Although this information is useful for identifying trends in specialty choice, especially by U.S. seniors, data from the NRMP exclude several thousand residents who, each year, find positions outside the main residency match. This number includes not only those who are unsuccessful in the match and "scramble" for a position immediately after the match results are announced but also many—especially international medical graduates (IMG) who never register for the match.

ACGME does require residency programs to report resident training progress data, but its data collection does not achieve 100% completeness. Some programs fail to report or report incompletely. Although the JAMA medical education journal publication uses National GME Census data, the AAMC processes the data in a different way from that used by the AMA for JAMA. The AMA reports data from a snapshot taken from the survey data in the spring of each year, when most programs will have reported their data. The AAMC includes data collected in late spring and early summer, so that it is able to include additional residents not reported in time to be included in the AMA counts. Furthermore, the AAMC analysis uses data from all reporting years to determine the best indication of which residents are on duty in each year. For example, if a resident's participation was not confirmed in 2009 but was confirmed in 2008 with an expected end date in 2010, that person would still be counted by AAMC as on duty in 2009. The AAMC also makes an adjustment to recent year counts to account for late reporting. Because we can count 2007 residents using 2007, 2008, or 2009 data, it is possible to determine the increase in counts for 2007 that is derived from data collected in 2008 in 2009. Because of this adjustment and this difference in counting methodology, the AAMC is able to report more residents than the AMA. We also felt that in looking at year-to-year comparisons, it is essential to use the same source of data for both years.

Limitations

As mentioned earlier, GME data in this report are based on extracts from GME Track. Although extraordinary efforts are made to obtain 100% participation, some residency programs fail to respond. It is impossible to know exactly how many residents are missing from the count, but we believe it is a very small percentage of the total resident population.

The GME Track data contain some reporting inconsistencies, including incorrect start- or end-dates and even incorrect ACGME codes. Integrated programs that combine preliminary training with specialty training are especially problematic. A resident who has matched in the NRMP to an integrated anesthesiology program, for example, may be reported in GME Track by the internal medicine residency program that is cooperating with the anesthesiology program to provide the preliminary portion of the training.

The GME Track system does not distinguish directly between preliminary (1-year) and categorical residency programs in the same specialty. For the purpose of this report, we infer that a resident is in a preliminary program if the start and end dates indicate a period of 400 days or less. However, it is not uncommon for a resident in

a preliminary program to obtain permission to convert to a categorical program. We can determine this after the fact when the same resident is reported in a subsequent year in the same program with a different end date, but obviously we cannot do this for the most recent year. This behavior likely results in undercounts for general surgery and general internal medicine for 2009, though we believe the effect is much smaller for general internal medicine.

GME TRENDS

The subsequent sections of this report describe the findings of the descriptive analysis of the data. We cover the following topics: change in total residents by specialty and subspecialty, residency program growth, and ratios of physicians to population by state.

Change in Total Residents by Specialty

Between 2000 and 2009, the total number of residents in ACGME-accredited programs reported to GME Track increased by 12.6%. Rates of growth were not the same across all specialties. Core specialties, which can be entered directly from medical school, saw an 8.1% increase, whereas subspecialties saw a 41.2% increase (Fig. 1). Rates within core specialties and subspecialties varied as well. Figure 2 shows the nine traditional core specialties that experienced 10% or greater growth since 2000, such as radiation oncology and emergency medicine. The newly established integrated surgical specialties grew from one resident in 2000 to 345 in 2009.

The core specialties of preventive medicine, internal medicine/pediatrics (IM/Peds), family medicine, urology, and ophthalmology have experienced a decrease in the total number of residents over the 9-year period.

The primary care pipelines of family medicine, internal medicine, and pediatrics experienced varying growth rates. Family medicine saw a 6.4% decrease in the total number of residents, whereas internal medicine and pediatrics increased by 5.9% and 9.1%, respectively. However, as will be discussed in subsequent sections, the number of physicians likely to become practicing primary care physicians has declined in all three specialty areas during this same interval, whereas subspecialization has increased.



Figure 1. Growth in total residents in ACGME programs, 2000-2009

Source: GME Track

Figure 2. Core specialties with a 10% or greater increase in total number of residents between 2000 and 2009



Source: GME Track

Subspecialization changes ranged widely, from decreases of 30.1% in thoracic surgery to increases of nearly 200% or greater for anesthesiology subspecialties, otolaryngology subspecialties, dermatologic subspecialties, physical medicine and rehabilitation subspecialties, emergency medicine subspecialties, and preventive medicine subspecialties (Appendix, Table A1). Most subspecialties with increases of 200% or more were newer programs with relatively small numbers of residents (fewer than 50) in 2000. For example, pain medicine subspecialties grew from 3 residents in 2000 to 270 in 2009 (Table 1).

Subspecialties	2000	2009	% Change, 2000-2009
	107	220	100.1%
Anestnesiology	107	320	199.1%
Otolaryngology	12	37	208.3%
Dermatology	35	116	231.4%
Physical medicine and rehabilitation	11	38	245.5%
Emergency medicine	28	123	339.3%
Preventive medicine	2	9	350.0%
Pain medicine	3	270	8900.0%

Table 1. Change in total residents by selected subspecialties, 2000-2009

Source: GME Track

Specialties with the largest absolute change of 200 or more total residents were primarily internal medicine subspecialties (Appendix, Table A1).

Growth Due to Subspecialization

A comparison of the ratio of program year 1 (PY1) residents and fellows in subspecialty training programs to the number in core specialties that can be entered directly from medical school shows an increase in the percentage of residents who were in subspecialty programs compared with core specialties. In 2000, residents in subspecialty programs equaled 25.3% of the number of residents in core programs; by 2009 they equaled 36.3% of the number of residents in core programs (Fig 3). Examination of the growth in total PY1 positions revealed that there were 4,930 more residency positions in 2009 compared with 2000, and 66.3% of these were new subspecialty positions.

Some specialties have made efforts to reduce the total number of years in training by establishing integrated programs. Most typically this has occurred in surgical specialties such as thoracic surgery, plastic surgery, and vascular surgery. The integrated programs have grown from one resident in 2000 to 345 in 2009, a relatively small number compared to overall GME numbers, but clearly a growing trend.



Figure 3. Ratio of number of PY1 residents in subspecialty programs to core specialties, 2000-2009

Source: GME Track

Change in New Entrants by Specialty and Subspecialty Group

In order to examine trends in new entrants, this report focuses on residents in PY1 positions. Between 2000 and 2009, the total number of PY1 residents in ACGME-accredited programs reported to GME Track increased by 16.3%. Core specialties experienced a 6.9% increase in PY1 residents, whereas subspecialties experienced a 53.5% increase (Fig 4.)

The number of PY1 residents in programs that could be entered directly from medical school (referred to here as "core" specialties) increased by 6.9%, growing from 24,148 in 2000 to 25,809 in 2009. Neurological surgery saw the greatest rate of growth within the core specialties, with a 76.6% increase in PY1 residents. Neurology also experienced a large increase of 36.3% between 2000 and 2009. Figure 5 shows all of the specialties that experienced growth of 10% or more for PY1 positions, all of which (except for pathology and pediatrics) also experienced 10% or greater increases in the total number of residents. Figure 5 also displays all of the specialties that experiences.



Figure 4. Growth in PY1 residents in ACGME Programs, 2000-2009

Figure 5. Change in number of PY1 residents in selected core specialties (increase of 10% or greater or any decrease) in 2009



Source: GME Track

Growth in new entrants varied across the primary care specialties, with internal medicine and pediatrics experiencing growth of 7.9% and 10.3%, respectively. Family medicine and the combined internal medicine/family medicine (IM/FM) and IM/Peds programs saw net decreases in PY1 residents (-8.7% and -16.2%, respectively).

Source: GME Track

Several other core specialties, in addition to family medicine and the combined IM/ Peds and IM/FM programs, experienced decreases in the number of PY1 positions. Preventive medicine, general surgery, nuclear medicine, urology, orthopedic surgery, and otolaryngology also saw decreases. The decrease in PY1 positions in general surgery may be related to the development of integrated programs in vascular surgery, thoracic surgery, and plastic surgery, which are specialty programs that ordinarily followed a general surgery residency in the past (Fig. 5).

The number of residents entering subspecialty programs increased by 42.7% between 2000 and 2009. Within the internal medicine subspecialties, all except geriatric medicine experienced robust rates of growth, ranging from 21.1% for pulmonary disease and critical care medicine to 42.4% for nephrology. Geriatric medicine saw a 6.3% decrease in the number of PY1 residents (Appendix, Table A2).

Subspecialization Trends

Due to the length of time between the time a resident enters GME and when he or she actually practices in the field, it can be difficult to assess subspecialization trends for recent years. In order to provide the most current estimates of the number of physicians who are expected to enter practice in the field of medicine in which they entered training in a given year, we took the total number of residents entering training in the specialty area and subtracted the number who entered any of the subspecialty pathways for that field to get the number presumed to be entering practice directly after completing the current residency program. For example, 6,069 residents entered residency in internal medicine (excluding preliminary year internal medicine) and 3,120 entered fellowship training in an internal medicine subspecialty in 2000, leaving 2,949 who were not expected to enter fellowship training and were therefore presumed to become general internists (Fig. 6). Similar data are provided for family medicine and pediatrics (Figs. 8 and 9).



Figure 6. Trend in number of PY1 residents estimated to practice general internal medicine, 2000-2009

*Excludes those in a preliminary internal medicine year. Source: GME Track

The advantage of this approach is that it allows an early estimate of changes in subspecialization trends that are grounded in actual counts. If subspecialization rates continue to increase, however, these numbers could underestimate the percentage of those residents currently entering core specializes who will eventually subspecialize.



Figure 7. Predicted career paths of 2009 PY1 internal medicine residents*

*Excludes those in a preliminary internal medicine year. Source: GME Track Figure 7 provides additional details on which of the internal medicine subspecialties the new entrants into internal medicine residencies are likely to practice once they ultimately complete GME.

Although the percentage of family practice residents expected to pursue subspecialty practice is increasing, the vast majority (94%) are still expected to become primary care physicians (Fig. 8).





Source: GME Track

The number of residents entering pediatric residency programs increased by 10.3% after 2000, but there was a 10.0% decrease in the number expected to become general pediatricians, whereas the number pursuing pediatric subspecialties grew. In 2000, only 26.1% of residents entering pediatrics programs were likely to become subspecialists. In 2009, 39.7% of residents were expected to pursue subspecialty training (Fig. 9).



Figure 9. Trend in number of PY1 residents estimated to practice general pediatrics, 2000-2009

Source: GME Track

Between 2000 and 2009, the number of residents entering GME in primary care specialties that were expected to become practicing primary care physicians (i.e., not to pursue subspecialty training) decreased by 11.6% (Appendix, Table A3 shows the final calculations after we subtracted estimates of residents likely to pursue further subspecialty training).



Figure 10. Subspecialization rates across selected non–primary care specialties, 2000 and 2009

Source: GME Track

Primary care specialties were not the only fields with increasing subspecialization rates. Figure 10 shows other specialties that experienced increases in the number of residents expected to subspecialize. For example, in 2000, slightly more than one out of four (27%) residents entering orthopedic surgery were likely to subspecialize. By 2009, over half (53%) were expected to pursue subspecialty training.

The percentage of internal medicine residents that were likely to subspecialize increased from 51% in 2000 to 60% in 2009. Pediatrics saw an increase in subspecialization rates from 26% to 40% over the same interval. Family medicine still had a relatively low percentage of residents subspecializing, but the rate increased from 2% in 2002 to 6% in 2009 (Fig. 11)



Figure 11. Estimated subspecialization trends of PY1 primary care residents,



Excludes those in preliminary internal medicine year. Source: GME Track

While there was a slight increase in the number of residents entering internal medicine (4.3%), there was a simultaneous increase in the number of residents entering internal medicine fellowships (26.3%), leaving 11.5% fewer residents to enter practice in general internal medicine between 2000 and 2009. Pediatrics experienced a similar trend, with a slight increase in the number of residents entering pediatrics programs but a 10.0% decrease in the number likely to become general pediatricians. Family medicine saw a decline in the number entering residency and a 12.2% decline in the number of residents likely to become family medicine physicians. Looking at all primary care specialties revealed an 11.6% decrease in the number likely to become primary care physicians (Fig. 12).



Figure 12. Number of PY1 residents likely to become primary care physicians, 2000-2009

Source: GME Track

Overall Trends by Gender

In 2000, 40.7% of all PY1 positions in ACGME residencies were held by women. By 2009, women comprised nearly half (48.0%) of all PY1 positions. Core specialties grew from 42.0% women to 49.1% women; subspecialties saw similar increases after 2000 (but from a lower starting point), growing from 34.8% women to 44.2% women. Figure 13 shows the change in percentage of women for the ten largest core specialties, all of which experienced increases in the percentage of PY1 residents that were women. General surgery saw one of the largest percentage increases, growing from 26.9% women in 2000 to 42.0% women in 2009.

Between 2000 and 2009, the number of PY1 female residents increased in most areas. Looking at aggregate categories, primary care experienced a 17% increase in the number of women in PY1 positions. In other core specialties, excluding primary care, the proportion of women grew by 39%. Surgical specialties saw an increase of 56%, and the number of PY1 women in subspecialties doubled (Fig. 14).





Source: GME Track



Figure 14. Female PY1 residents by specialty category, 2000-2009

Source: GME Track

Orthopedic sports medicine, most surgical specialties, and vascular and interventional radiology had the lowest percentages of women, but all except orthopedic sports medicine saw increases in the percentage of women in the field after 2000. While preventive medicine saw a decline in the number of women, the percentage of women actually increased due to the overall decline in the number of physicians entering preventive medicine after 2000 (Appendix, Table A4). With the exception of preventive medicine, combined IM/Peds, and plastic surgery, all core specialties experienced an increase in the number of women entering the field after 2000. For example, although female participation in preventive medicine decreased by 26%, female participation in neurosurgery increased by 165%. Some of the more dramatic increases in the growth of women in the specialty were in burgeoning specialties with low numbers in 2000, such as emergency medicine subspecialties, which experienced more than a 1,350% increase (Appendix, Table A4).

Men underwent changes in their specialty patterns over the 9-year period as well. The overall number of PY1 men in core specialties decreased by 5.9% over the decade. The number of men decreased in 18 of the 25 core specialty categories, ranging from a decrease of 1.4% in psychiatry to a decrease of 36.1% in preventive medicine (Appendix, Table A4).

When looking exclusively at the gender mix of residents that were likely to practice in the field in which they began their residency or fellowship, one sees several important trends. The number of women in each specialty increased, particularly in emergency medicine, internal medicine subspecialties, and pediatric subspecialties. However, the number of men decreased in nearly all specialties except for some of the fastest growing specialties, such as emergency medicine, hospital-based specialties, internal medicine subspecialties, and pediatric subspecialties.

Primary care saw a decrease in the number of men that were likely to practice in the field, whereas the number of women held relatively steady (Fig. 15).

Overall Trends by Type of Undergraduate Medical Education (USMDs, DOs, and IMGs)

While overall growth in PY1 positions increased by 6.9% between 2000 and 2009, the growth was not uniform across types of undergraduate medical education (UME). The number of USMDs in PYI core residencies increased by 3% during the 9-year period, whereas the numbers of IMGs and DOs increased by 9% and 47%, respectively.

Figure 15. New entrants into primary care who were likely to become primary care physicians by gender, 2000-2009



Source: GME Track

Figure 16. Growth in PY1 core specialties by type of undergraduate medical education, 2000-2009



Source: GME Track

Most core specialties saw an increase in the number of USMDs entering PY1 residency positions with the exception of family medicine, internal medicine, IM/Peds, general surgery, and preventive medicine. In the case of internal medicine, IMGs and DO graduates increased enough to lead to an overall increase of 7.9% in the number of PY1 residents in internal medicine. While family medicine also saw significant growth in IMGs and DOs, the overall number of PY1 residents in family medicine decreased by 8.7% (Fig. 17; Appendix, Table A5).

Figure 17. Core specialties with decreasing numbers of PY1 USMDs from 2000 to 2009 by type of undergraduate medical education



Source: GME Track

Only three subspecialties (geriatric medicine, plastic surgery, and thoracic medicine) saw decreases in the number of USMDs entering the field between 2000 and 2009. All other subspecialties saw increases in USMDs entering residency training in the field ranging from a 0.6% increase in nephrology to a 543% increase for anesthesiology subspecialties (Appendix, Table 7).

Between 2000 and 2009, the number of IMGs entering core residency programs increased from 6,342 to 6,944. In 2009, nearly three out of four (72%) IMGs entered residency in one of the primary care pathways of internal medicine, family medicine, and pediatrics (Fig. 18). Over half (58%) of the 2009 IMG entrants into primary care residencies were expected to become primary care physicians.

Figure 18. Distribution of international medical graduates in PY1 core specialties, 2009



Source: GME Track

Figure 19. New entrants into primary care likely to become primary care physicians by undergraduate medical education, 2000-2009



Source: GME Track

Between 2000 and 2009, USMDs were increasingly less likely to become primary care physicians. In 2000, close to 6,000 PY1 residents were estimated to become practicing primary care physicians, and by 2009, that number decreased by 30.7%. Although IMGs and DOs were increasingly likely to become primary care physicians, the number did not grow at a fast enough rate to prevent a decline in the overall number of residents likely to become primary care physicians (Fig. 19).

IMGs are becoming a larger proportion of the PY1 residents likely to become practicing physicians. In 2000, they comprised 26% of the overall number of residents likely to become primary care physicians; by 2009, that number grew to 38% (Fig. 20).

Figure 20. Percentage of international medicine graduate PY1 residents likely to become primary care physicians, 2000 and 2009



Source: GME Track

State and Selected U.S. Territory Trends

The United States has 36.2 resident physicians per 100,000 population. However, there is wide variation across states, with the number of residents per capita ranging from 295 per 100,000 population in the District of Columbia to 2.1 per 100,000 in Montana (Fig. 21).

On average, the number of resident physicians per 100,000 population increased by 5.3% between 2000 and 2009. Nearly all states saw increases in residents per capita, ranging from 2.1% in Maryland to 35% in Alaska. Seven states (California, Georgia, Hawaii, Kansas, Texas, Utah, and Wyoming) plus the District of Columbia and Puerto

Rico experienced decreases in the number of residents per capita (Appendix, Table A6).



Figure 21. Total residents per 100,000 population by state and selected U.S. territories, 2009

Sources: GME Track; Population estimates are from the U.S. Census Bureau, Table 1. Annual Estimates of the Resident Population for the United States, Regions, States, and Puerto Rico: April 1, 2000 to July 1, 2009 (NST-EST2009-01; release date: December 2009).





Sources: GME Track; AAMC DW:IND (U.S. MD grads) ERAS (DO grads)

Relationship between Undergraduate and Graduate Medical Education

On average, for each MD and DO graduate in 2009, there were 1.3 GME positions that could be entered directly from medical school (Fig. 22; Appendix, Table A7). The ratio of GME to UME varied from a high of nearly three GME positions in Connecticut for every graduate of a medical school in the state to a low of only one GME position for every two medical school graduates, as is the case in Vermont and Iowa. Thirty-one states had more GME positions than UME graduates; one state (New Hampshire) had nearly the same number of GME positions (66) as UME graduates (63), and 14 states plus the District of Columbia had more UME positions than GME. Although five states did not have any undergraduate medical schools (Alaska, Delaware, Idaho, Montana and Wyoming), these states relied upon a consortium agreement with the University of Washington School of Medicine to train physicians for their states.

Program Level Trends

The number of subspecialty programs increased by 21.9% compared with 1.7% for core programs. Overall, the total number of residents and number of residency training programs increased at nearly the same rate, by 12.6% and 12.5%, respectively (Table 2).

	Total		Core		Subspecialty	
	residency programs		residency programs		residency programs	
Year	Residents	Programs	Residents	Programs	Residents	Programs
2000	99,479	7,838	85,932	3,656	13,547	4,182
2003	102,557	7,968	87,267	3,621	15,290	4,347
2006	106,853	8,355	89,731	3,678	17,122	4,677
2009	111,999	8,814	92,874	3,717	19,125	5,097
% Change						
'00–'09	12.6%	12.5%	8.1%	1.7%	41.2%	21.9%

Table 2. ACGME program level trends for selected years between 2000 and 2009

Sources: ACGME Web site; GME Track

Ratio of New Entrants in a Specialty to Number Active at Age 60 in 2009

One metric for assessing whether we are producing enough physicians is to compare the number of PY1 residents in a particular year and specialty with the number of physicians aged 60 during that same year. Physicians aged 60 in a given year are likely to retire in the next 3 to 5 years, which is around the same time that the new entrants into residency training during that same year will complete training and enter practice. For this analysis, we compared residents entering training in 2009 with those aged 60 in 2009.

In the core specialties, the replacement rates ranged from a low of 0.5 in pathology (meaning there will only be one new pathologist for every two that are expected to retire) to a high of 2.4 for neurosurgery, where there will be over two new neurosurgeons for every one that is expected to retire. Family medicine and internal medicine showed ratios that were close to 1:1 and will be hard pressed to grow if these replacement rates continue (Appendix, Table A8).

Projected Growth in MD and DO Entrants into GME Through 2021

Each year, the AAMC and the American Association of Colleges of Osteopathic Medicine (AACOM) survey medical school deans regarding their plans for future enrollment over the next 5 years.^{1,2} The AAMC used that information to project enrollment through 2021 based on historical rates of growth.³ Because not all medical school matriculants graduate, nor do all graduates pursue residency training, we also applied historical rates of MD and DO graduation⁴ and entry rates into residency⁵ to project the actual number of MD and DO physicians likely to enter residency training through 2021 (Fig. 23).

The MD and DO entrants into the GME system are projected to increase by 37% by 2021 compared with 2009, yielding an estimated 7,270 new residents. If there is no continued growth in GME positions, USMDs and DO entrants into GME will meet or possibly exceed the number of availzable positions by 2021. Without a significant

¹ AAMC (2010) Results of the 2009 Medical School Enrollment Survey: Report to the Council of Deans.

² Levitan, T. (2010) A Report on a Survey of Osteopathic Medical School Growth: Analysis of the fall 2009 survey. AACOM

³ USMD enrollment increased at a rate of 2%/year on average since 2004; DO enrollment increased by 4%/year.

⁴ Historically, 96.5% of USMD matriculants (since 2001) and 95.0% of DO matriculants graduated from medical school (since 1997).

⁵ Historically, 98% of USMD graduates enter GME; 97% of DO graduates enter GME.
increase in GME positions, it will become exceedingly difficult for IMGs to enter GME in the United States.

Figure 23. Projected growth in USMD and DO entrants into ACGME- and AOAaccredited residency programs, 2009-2021



Source: GME Track

CONCLUDING REMARKS

Our analysis demonstrates that significant changes in GME occurred over the past 9 years. Among the findings are two that are especially significant:

- PY1 positions in GME are increasing, but not rapidly enough to accommodate the growing numbers of allopathic and osteopathic medical school graduates. Without a substantial increase in residency positions, fewer medical school graduates, including those from other countries, will be able to enter the medical training pathway in the United States, and the needed growth in physician supply will be severely limited.
- The degree of subspecialization increased in all fields. If this trend continues, increasing subspecialization in internal medicine, pediatrics, and even family medicine will likely result in a reduction in the number of new graduates expected to practice primary care.

The AAMC will continue to collect and analyze GME data as a means to better understand these trends and inform policy.

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HEALTH REFORM AND GRADUATE MEDICAL EDUCATION

ASSOCIATION OF ACADEMIC HEALTH CENTERS

The recently enacted Patient Protection and Affordable Care Act (PPACA, Pub L 111-148) embodies the most significant changes in federal health policy in 40 years. Provisions related to hospital reimbursement, reductions in disproportionate share hospital (DSH) payments (once reduction in uninsured thresholds are reached), fraud and abuse, quality improvement, research, manufacturers' payments to physicians and teaching hospitals, graduate medical education (GME), student loans, and health workforce will affect academic health centers in ways both anticipated and unanticipated by the drafters.

PPACA Section 5503 amended Section 1886(h) of the Social Security Act regarding the reallocation of unused residency slots but does not include a number of additional proposed amendments considered during the health reform debate. This analysis by the Association of Academic Health Centers (AAHC) examines the new provision as well as the ongoing debate over additional GME reforms and assesses their strategic implications for AAHC member institutions.

OVERVIEW OF PPACA'S GRADUATE MEDICAL EDUCATION PROVISIONS

Legislative Background

The Medicare program covers a portion of costs associated with GME through two payments: direct graduate medical education (DGME) payments, which help fund resident stipends and benefits, as well as other costs directly related to residency training; and indirect medical education (IME) payments, which help cover the higher patient care costs incurred by teaching hospitals. Medicare DGME payments totaled about \$3 billion, and IME payments totaled about \$6.5 billion in fiscal year 2009.¹ Medicare's share of direct GME costs are based on each hospital's ratio of Medicare inpatient days to total days, with teaching hospitals largely bearing the remaining costs of training and other missions. The Medicaid program also provides some support for GME in most states and the District of Columbia.

In 1997 the Balanced Budget Act capped the number of residency slots supported by Medicare at the then-current level. Hospitals may choose to create additional slots above the hospital-specific cap, but Medicare does not fund them. The Balanced Budget Act also capped the number of residents used in the IME payment formula.

Because increasing healthcare coverage resulting from health reform is expected to increase demand for physician services, the health reform debate renewed discussion among policymakers about raising the cap, which many see as an impediment to educating more physicians. In May 2009, House and Senate bills were introduced to increase the number of residency training slots by 15% (or approximately 15,000 slots) and distribute the new slots in a way that would give preference to teaching hospitals that commit to expanding or creating more primary care and general surgery residencies, emphasize community-based training, or are in areas with rapidly growing populations. The proposed legislation also would redistribute residency slots currently lost when the hospital that supports them closes and remove barriers to resident training in nonhospital settings.

Summary of PPACA Provisions

PPACA includes some, but not all, of the provisions contained in the House and Senate bills. Beginning in July 2011, it will redistribute unused residency slots, with 70% of the redistributed slots allocated to states with the lowest physician-toresident populations. However, it does not include provisions to increase the total number of residency slots.

PPACA made several technical changes relating to GME reimbursement, including a provision allowing hospitals to count didactic time in outpatient settings for direct cost calculations and to count didactic time in inpatient settings for indirect

¹ MedPAC Report to Congress, June 2010. While the focus of this analysis is federal funding of GME, it should be noted that, according to American Association of Medical Colleges, state funding of GME eroded by about \$0.6 billion from 2005 to 2009, as fewer states fund GME, at lower levels, than they have in the past.

cost calculations, as well as a provision allowing hospitals to count resident time at nonhospital sites, as long as the hospital is incurring the costs of stipends and fringe benefits while the resident is in that setting. PPACA also includes reductions in DSH payments, the size of which will depend on the level of health insurance coverage expansion achieved. PPACA is estimated to cut Medicaid DSH payments by about \$14.0 billion and Medicare DSH payments by about \$22.1 billion over 10 years.

The legislation also authorizes \$25 million in fiscal year 2010, \$50 million in fiscal years 2011 and 2012, and "such sums as may be necessary" in subsequent years for grants to "teaching health centers" (THC) to establish or expand primary care residency programs. THCs may apply for awards of up to \$500,000 per year for up to 3 years to cover the costs of establishing or expanding a primary care residency program and cover technical assistance provided by entities including area health education centers (AHECs).

POST-PPACA GRADUATE MEDICAL EDUCATION REFORM DEBATE

Long History of Reform Debate

The debate over GME reforms, including proposals to redirect expenditures toward primary care, has been ongoing for decades. For example, in 1985 the journal *Health Affairs* published a commentary by then–Indiana Senator Dan Quayle proposing that as much as 70% of available GME positions be allocated to primary care specialties.² Much more recently, the Council of Graduate Medical Education (COGME) stressed in their 19th report (issued in September 2007), among other priorities, the need to realign GME with future workforce needs, such as transforming primary care practice into more robust Medical Homes.³

Following the enactment of PPACA and its comparatively limited GME provisions, the focal point of the policy debate shifted to the proposal unanimously approved by the Medicare Payment Advisory Commission (MedPAC) during its meeting on April 1–2, 2010. MedPAC recommended cutting \$3.5 billion of what it deemed to be excessive IME payments and using the savings to fund incentive payments based

² A copy of the Health Affairs Commentary, titled "Graduate Medicare Education: A Proposal for Reform," is available online at http://content.healthaffairs.org/cgi/reprint/4/1/89.pdf.

³ COGME's 19th report is available for download at http://www.cogme.gov/19thReport/default.htm. An excerpt from COGME's May 5, 2009 letter to Secretary Sebelius and key Congressional Committees summarizing the recommendations contained in the report is reprinted in Appendix 1.

on new performance-based standards established by the Secretary.⁴ A more detailed discussion of the state-of-play in the Congressional debate surrounding the MedPAC proposal is included in a recent *New England Journal of Medicine* health policy report by John Iglehart.⁵

Four Broad Categories of Proposed Reforms

In the broadest terms, four categories of GME reforms have been discussed by various commentators, advisory groups, health professions organizations, health professions education organizations, and/or individual policymakers during the past decade. Numerous proposals, in addition to those already mentioned above, have addressed different combinations of some, but not necessarily all, of these four categories of GME reform.

1. Broadening the pool of contributors to fund GME beyond Medicare and

Medicaid.—As noted above, GME is currently funded by Medicare with some supplemental state-level funding. Various organizations (including the AAHC in the mid-1990s) have called for all payers to contribute to funding GME on the grounds that all payers benefit from GME. For example, one organization has called for an annual contribution from private insurers of \$20 per beneficiary, which would generate approximately \$4 billion.⁶

2. Making the funding "follow the student."—Currently Medicare DGME and IME payments are made to teaching hospitals rather than directly to training programs. A number of organizations have argued that funding should "follow the student" rather than be given to teaching hospitals. Advocates of this approach argue that payment for training should be made directly to the training program to allow programs to offer the kind of training necessary to meet community needs and to be accountable for the training, believing that the current system does not support primary care training in all sites where care is delivered. They also argue that residency programs must meet accreditation standards and are responsible for appropriate training but do not in fact have control of funding to ensure appropriate training.

⁴ See Chapter 4 of MedPAC's June 2010 report, which can be downloaded online at

<sup>www.medpac.gov/documents/Jun10_EntireReport.pdf. Chapter 4's recommendations are reprinted in Appendix 2.
A copy of John Iglehart's NEJM health policy report, titled "Health Reform, Primary Care, and Graduate Medicare Education," is available online at http://healthcarereform.nejm.org/?p=3770.</sup>

⁶ See Society of Teachers of Family Medicine, available online at http://stfm.org/advocacy/issues/gme.cfm.

3. Expanding and reallocating the currently capped number of residency slots.

—As noted above, expanding the number of residency slots is often argued to be crucial to creating a supply of physicians necessary to meet expected increased demand for services resulting from health reform and concurrent demographic trends. In terms of reallocation of the slots, several objectives have been identified, including geographic redistribution, redistribution toward nonhospital settings, and significantly increased targeting toward the training of generalists and specialists willing to practice in underserved communities.

4. Expanding GME to a broader spectrum of health professionals.—DGME and IME are currently directed toward the training of physicians. Other health professions have argued that the lack of comparable funding is contributing to critical shortages in their health professions. This problem is viewed as especially critical in light of healthcare reform, which will generate needs that can only be met efficiently and cost-effectively by maximizing the contribution of all health professions.

Points of Contention

The strongest point of contention surrounding GME, as the discussion above regarding MedPAC's proposal suggests, is cost. Citing the continued growth of residency slots not funded by Medicare, critics have argued that federal funding of GME is neither necessary nor appropriate. Other critics, while acknowledging an appropriate federal funding role, argue that the public receives poor value for its multi-billion dollar investment due to ineffective targeting of GME expenditures toward public policy priorities. This concern is reflected in growing interest in, if not insistence on, incorporation of metrics and performance-based incentive payments as a *quid pro quo* for continued federal funding.

All four categories of proposed reforms discussed above have met with resistance from some stakeholders. For example, private payers have objected to all-payer funding of GME on the grounds that their contribution is implicit in the higher rates they pay compared with public payers. Because DGME and IME payments are now well established, these payments have become an entrenched element of teaching hospitals' budgeted revenue streams, making any alterations objectionable. Similarly, the entrenched allocation of residency slots also gives rise to resistance to change; as a result, many reallocation proposals are limited to reallocating new or unused slots. Not surprisingly, proposals to reallocate a portion of GME payments to health professionals other than physicians have also raised objections from recipients of current payments.

Although a broad consensus exists within the health professions community that reform is needed, including the need for a greater emphasis on primary care, significant divisions are evident within the health professions community regarding how best to accomplish those objectives. For example, the House and Senate legislation, as mentioned previously, has been criticized by some within the health professions community as "pro-primary care language camouflaging a clandestine specialty-driven agenda."

STRATEGIC IMPLICATIONS FOR ACADEMIC HEALTH CENTERS

Because academic health centers include, by definition, multiple health professions schools, they would be directly affected by all four categories of GME reform. How well an individual academic health center can balance the competing interests implicit in these categories of reform is likely to be strongly influenced by its prevailing cultural values and degree of alignment. In particular, academic health centers associated with teaching hospitals that rely heavily on GME funds will face significant challenges should the nature of GME funding be altered significantly for the first time in several decades.

Although strong arguments can be made for broadening the financing base for GME beyond Medicare as the nature of the healthcare system continues to evolve away from inpatient care, the current economic climate makes any expansion of GME funding a hard political sell. Federal budgetary pressure to increase the return on investment in GME, if not reduce GME expenditures outright, suggests that expansion of performance-based approaches may be inevitable if funding levels are to be preserved, and are likely to be prerequisite to any political consideration of broader reforms and expanded funding. Thus, academic health centers have an interest in and opportunity to influence the nature and extent of any performance standards and incentives.

Finally, the political constraints affecting the likelihood of achieving GME reform and expansion raise the question of whether academic health centers should look to new partners to support GME. For example, health reform's expansion of coverage

creates opportunities for new players, such as major retailers, to enter or expand their presence in the healthcare marketplace, but only if an adequate supply of health professionals is available to support the expanded coverage. Stakeholders looking to establish or expand their market presence may find it in their own interest to partner with academic health centers to support innovative new approaches to funding GME.

CONCLUSIONS

PPACA's enactment left many of the most pressing GME reform issues unaddressed. The current economic and government budgetary environment may make contraction of federal GME funding more likely than expansion, and suggests that performance standards and incentives will become enduring features of federal GME funding from this point forward. The difficulty academic health centers will have navigating the political shoals of GME reform suggests it may be time to form or expand partnerships with nongovernment stakeholders to support GME in innovative ways.

APPENDIX 1: EXCERPT FROM MAY 5, 2009 COGME LETTER TO SECRETARY SEBELIUS AND KEY CONGRESSIONAL COMMITTEES SUMMARIZING THE RECOMMENDATIONS CONTAINED IN COGME'S 19TH REPORT

In a May 5, 2009 letter to Secretary Sebelius and key Congressional Committees, COGME's Chair and Vice Chair summarized the recommendations contained in COGME's 19th report as follows:

"Recommendation 1 of the 19th COGME report calls for aligning GME with future healthcare needs. This is entirely in keeping with MedPAC's recommendation and the current interests of the Senate Finance and HELP committees. The future of healthcare is moving more care, particularly complex care, into the community and even patients' homes. Our current training infrastructure and funding will not prepare physicians for this future. There is a concerted effort to transform primary care practice into more robust, more complex Medical Homes. We must train the next generation of physicians in this model and GME funding could facilitate this. Medicare's investment in graduate medical education training should be accountable for the health of the public, particularly Medicare beneficiaries, and should move training into new places and models.

Recommendation 2 of the 19th COGME report calls for a broadening of the definition of 'training venue.' There is currently an imbalance in the locus of training that is not adequately preparing a physician workforce for outpatient care, where most of healthcare takes place, nor in exposing young physicians to rural and underserved settings. Medicare and Medicaid beneficiaries would benefit from physician training moving out of the hospital into rural and community health centers and physician offices, both directly, in terms of service, but later as physicians exposed to working in these settings decide it is a career option. Training in community, rural and underserved settings. The Government Accountability Office has emphasized the intractable problem of physician distribution twice in the last decade. GME funding has become a barrier rather than a facilitator of improving physician distribution and access to care.

Recommendation 3 of the 19th COGME report is to remove regulatory and statutory barriers limiting flexible GME training programs and training venues. Recent

regulatory efforts to pay for community-based GME by private practice physicians had the unintended consequence of retrenching training back in hospitals. CMS had the good goal with the 'Community Preceptor' regulation of paying for community physician education of trainees. Unfortunately the required payment, or reporting required to avoid it, had the reverse effect of pulling those positions back into hospitals. This new regulation and Medicare's 40 year old model of paying for physician training stand in the way of progress. If Medicare GME funding is retooled, the regulatory process must also be directed by statute, not just report language, to create incentives to accommodate these changes.

Recommendation 4 of the 19th COGME report calls for making accountability for the public's health the driving force for graduate medical education. The nearly \$10 billion spent annually on GME can no longer afford to be bent to the needs of hospitals. We appreciate the need to help teaching hospitals with the problems of workforce and financial solvency that GME currently serves, but we cannot afford the byproduct of an overly-specialized and expensive physician workforce. With modification the byproduct of GME funding could be a reshaping of the role of teaching hospitals in meeting the needs of the public. Clearly, 25% growth in subspecialty training when there is no societal imperative for this makes this dependence even more explicit and at odds with societal needs."

APPENDIX 2: MEDPAC JUNE 2010 REPORT, CHAPTER 4 RECOMMENDATIONS

- **4-1** The Congress should authorize the Secretary to change Medicare's funding of GME to support the workforce skills needed in a delivery system that reduces cost growth while maintaining or improving quality.
 - The Secretary should establish the standards for distributing funds after consultation with representatives that include accrediting organizations, training programs, healthcare organizations, healthcare purchasers, patients, and consumers.
 - The standards established by the Secretary should, in particular, specify ambitious goals for practice-based learning and improvement, interpersonal and communication skills, professionalism, and systemsbased practice, including integration of community-based care with hospital care.
 - Performance-based GME funding under the new system should be allocated to an institution sponsoring GME programs only if that institution met the new standards established by the Secretary, and the level of funding would be tied to the institution's performance on the standards.

The IME payments above the empirically justified amount should be removed from the IME adjustment and that sum would be used to fund the new performance-based GME program. To allow time for the development of standards, the new performance-based GME program should begin in 3 years (October 2013).

4-2 The Secretary should annually publish a report that shows Medicare medical education payments received by each hospital and each hospital's associated costs. This report should be publicly accessible and clearly identify each hospital, the direct and indirect medical education payments received, the number of residents and other health professionals that Medicare supports, and Medicare's share of teaching costs incurred.

- 4-3 The Secretary should conduct workforce analysis to determine the number of residency positions needed in the United States in total and by specialty. In addition, analysis should examine and consider the optimal level and mix of other health professionals. This work should be based on the workforce requirements of healthcare delivery systems that provide high-quality, high-value, and affordable care.
- **4-4** The Secretary should report to the Congress on how residency programs affect the financial performance of sponsoring institutions and whether residency programs in all specialties should be supported equally.
- **4-5** The Secretary should study strategies for increasing the diversity of our health professional workforce (e.g., increasing the shares from underrepresented rural, lower income, and minority communities) and report on what strategies are most effective to achieve this pipeline goal.



DISCUSSION HIGHLIGHTS FROM SECOND DAY

MONDAY, OCTOBER 25, 2010

CHARGE TO BREAKOUT GROUPS

We want to focus over the rest of today on recommendations that we can make that directly affect the financing and regulation of GME to move it in the direction that we think will benefit both the public interest and the interest of our graduates. Below are some of the issues raised in the discussion to date that we should consider:

- 1. Flexibility in training. Are there things that we could recommend to create an atmosphere in which much more substantial innovations could be made?
- 2. Distribution of the sites of training. What recommendations could we make that would create incentives for more education to occur outside of academic health centers, either in alliance with academic health centers or separate from academic health centers?
- 3. Linkage of accountability with payment. Whether within the current mechanisms or by some separate mechanism, should there be an explicit linking of payment with a variety of outcome measures?
- 4. How do we value student choice? Should the choices students have be directed by what society needs? To what extent are there policies that affect limitation or non-limitation of student choice?
- 5. What's the rationale for paying for GME, and if there is a rationale, would it support an all-payer system?
- 6. Do predictions of physician shortages take into account new models for care delivered? How confidant are we of current predictions, overall and specialty by specialty?

- 7. Should there be a mechanism to say no to a new program because we do not need it?
- 8. What is the role of interprofessional education and teamwork in GME, and how should it be accomplished and supported?
- 9. How can redesign of the healthcare system take into account the educational need as part of reform delivery?
- 10. If there were to be new money available to support GME, what would be the payment mechanism to target certain desired outcomes? Will it be necessary to have similar mechanisms to justify the continuation of current funding?

REPORTS FROM BREAKOUT GROUPS

Note: These reports and the discussion highlights that follow offer examples of the large number of ideas and issues the groups discussed. Some of the comments take different positions on the same issue, and not all the issues discussed reached consensus or were included in the conclusions and recommendations:

Small-group Discussions on the Regulation of GME

- Our recommendations around regulation and government should be tied to a current message about the total good of GME, and that to me means tying it to the overall mission of improving health to the public recognizing that we believe that our healthcare system needs dramatic improvements to better meet that measurement in improving the health of the public, and specifically of course we need improvements in the quality of care, patient safety, access to care, and the cost of care.
- In the short term (the next year or so), our group does not recommend calling for new federal funds to expand GME. We also recommend being very careful about redistribution of the \$3 billion of the IME that we discussed earlier.
 We acknowledge that if the redistribution can be designed around great accountability, that would be worthwhile.

- We could recommend regulatory changes if we change where the money goes. We talked for some time about the role of the regulatory organizations, thinking about the complex organization chart with oversight of GME in our country. And we have a specific recommendation related to ACGME, and that is to consider a recommendation that ACGME take a more active role. It may need help to do that.
- One aspect of our recommendation about ACGME is to be more active in that type of training, that relates to quality of care, safety, cost, and access. A second area of recommendation would be to consider ACGME in the active position of saying no to new programs or program expansions.
- We felt that the experiences in all these educational activities in terms of outcomes and skill sets must be much more effectively generalized across all of the RRCs and the ACGME. We think that there is still no clear coherence in what some of those fundamental outcomes and skill sets ought to be.
- Graduate medical education is in fact a legitimate cost for Medicare and Medicaid because it is designed to prepare an appropriate workforce to care for the elderly and those who are chronically ill. The elderly who are Medicare eligible is a growing group. They have a great deal of chronic illness, and they're in great need of integrated care, which includes enhanced ambulatory as well as inpatient care. Team care has to be integrated, and in this regard the role of GME is of special importance in terms of the future of a population that is the target of a very substantial portion not only of federal funding but overall healthcare funding.
- We really wanted to see integration and team care in the ambulatory environment in terms of continuity and other kinds of activities. And we examined some of the obstacles to doing that, why for so long if we wanted more ambulatory care, it doesn't happen. Part of it is because, as someone put it, "we cling to residents as workers, it inhibits the educational experience." And I think that's a fair statement, but current Medicare regulations preferentially pay for hospital care and they make it very hard to do ambulatory care.
- If you're going to have students do ambulatory care and do it in a proper and appropriate way they need time. They need time to both understand their patients and interact with other people. We would like to see efforts made to

change Medicare regulations in this regard. That is, there is going to be funding available for additional residency slots, and that could be tied to an increased opportunity for ambulatory experiences.

- There will be a need for an increased number of residents in graduate medical education. Certainly, we ought not to have a system in which we do not have a residency position available to every graduate of an American school, and we also see the advantages of having positions available for some international medical graduates and recognize that if you have one for one, there will be some key areas where need is greater than at other times. We thought that it would be appropriate to set some target, but we were not comfortable in identifying that number specifically because it would depend dramatically on a variety of other factors, including U.S. citizens graduating from schools off shore.
- Careful consideration should be given to reallocation of physicians, including eliminating the transitional year, which a number of us are not convinced adds a great deal of value and would increase the number of positions for specific areas.
- We talked about doing away with any funding of fellows. If fellows are so valuable and those are the areas that institutions and hospitals want to grow then they should fund them.

Small-group Discussions on the Financing of GME

- Long term, we recommend moving towards a diversified payer base. We felt
 that was a more politically palatable term than an-all payer system for GME,
 and our idea included giving payers credit on their medical loss ratio for their
 contributions to the GME fund, but we also said that it would imply at least
 exploring provider contributions since we're training their workforce. Trainee
 contributions could be for some of the higher-paid, maybe more oversupplied
 subspecialties, and turning to ACOs as those develop and evolve to contribute to
 this diversified payer base.
- Short term, we talked about patients and a per-encounter-based tax as another possibility. All of those things should be explored. We supported a minor revision of the MedPAC recommendation, which was to initially start with \$750 million rather than the \$3 billion that was recommended of Medicare IME into a fund for new and innovative programs, not just tweaks on existing programs, but new and innovative GME programs that met public need.

- We advocated moving away from a silo GME approach to graduate health professions education funding.
- We wanted to expand the GME/GHE fund with other resources, such as Department of Labor funds, Title VII, maybe even having a pre-national health service core residency program. There is some political recognition that there are a lot of scattered fragmented places that GME funding comes from, and there might be political support for putting some of these pots together. Some of these reallocated IME dollars and some of the new dollars in this GME/GHE fund would be available to any qualified institutional applicant who could provide training across the continuum, so that means it could go to hospitals, but they would have to substantiate real ambulatory experience, and it could go to ambulatory practice groups, but they would have to document that they could provide the hospital experience. The accrediting agencies would need to be a little more proactive in ensuring that there was a true continuum of care.
- We talked about establishing preference points. You would basically have riskadjusted funding streams for GME. And the way you might do this would be to give preference points to expand programs that work in safety net provider sites or underserved populations who provide trainees with those experiences and those skills. They might get preference points for a program that used technology to go to distant areas so that you had real experience with the same rural areas by telemedicine. You could get preference points for programs that teach their GME trainees in team-based settings. You could give additional preference points for programs that actually train teams of practitioners shoulder to shoulder, so this would be a way of using your funding to drive the development of certain types of programs.
- Eligible recipients would be rewarded for innovation related to things like reduced time for training, interprofessional training, appropriate linkages between undergraduate medical education and GME so it's more seamless so we would look for ways to stimulate opportunities for programs to innovate. We would encourage transition of training in an ambulatory care site and encourage sponsoring institutions to form alliance
- Subspecialty training would be self funded. Individuals who want to subspecialize
 would have the chance to actually work in a non-ACGME model where they
 would actually see patients on their own, but also be able to train at the same
 time. Our funding source would still be still primarily federal.

- We would guarantee federal funding for 3 years of training, except for specific disciplines where there is a shortage, such as surgery and neurosurgery. The target of funding would be current sponsoring instructions or it could be an NCO.
- We wanted to establish overarching principles that we are here to serve the public need. Eligible sponsors of GME must be held accountable for quality of care and outcomes for populations, and eligible sponsors need to demonstrate the capacity to train quality physicians. We want to establish certain principles that would drive the entire system. Sponsors would have to demonstrate their ability to train in a diversity of sites and that they had adequate resources for training. They would also have to show the competencies of their graduates.

Discussion Highlights

- One of the greatest assets, maybe the greatest asset we have in American healthcare is the steady influx of talented young women and men who have chosen healthcare professions as a career. And I think we have to be very cautious about forcing that talented group of people into career paths that we want them to go into but that they don't view as being very attractive because they will find other things to do.
- We're not as far apart as it sounds like initially because it depends on whether we're thinking about the principles that underlie a new system or the practical aspects and the people who are thinking about the practical aspects are making smaller incremental suggestions because it's hard to see at this moment how all the details will play out. We have to emphasize the principles, because the details of it are going to change from year to year. But we also have to develop enough detail in terms of the current numbers and environment so that it will seem doable to the rest of the world.
- First we should ensure or make the argument that the physician-to-population ratio in this country should not be allowed to fall.
- The public dollar should be spent on what the public needs. If people want to go into interventional cardiology, radiology, and interventional radiology, and it's determined that we don't need any more of those people, we shouldn't spend the public dollar on that. When you do that, then the market adjusts. If interventional radiologists are still making half a million dollars a year, somebody will figure out how to fund their training. It's not going to be very hard to do.

- Part of the conceptual problem we have is that occasionally we slip into the
 mistake of trying to fix the health system by fixing the GME system. I don't think
 it works that way. I would argue that the GME system today is working really well
 with the health system that we have today, which is not geared toward improving
 health and well-being. It's geared toward many other purposes, not the least of
 which is to grow its market share of the U.S. economy, to make money, and it's
 really successful in that by any economic measure that you choose.
- At the same time, I would argue that the very success of that system is pricing us out of world markets and that the cost of the healthcare system is unsustainable and that unless we find ways to change that, we are all going to be in deep trouble over the next 2 to 5 years.
- We have to make sure when we design our GME programs that we give our physicians and our clinicians the skills they need that will empower them to redesign the healthcare delivery system. If we just train them in the old system, they won't have the skills to proactively be the ones that are fixing the system. We should make sure we train the next generation to do it.
- We came together to make recommendations about how GME was going to be more responsive to fulfill the public needs and to prepare trainees for a world that's changing. We did not explicitly say the charge was to come together to train more physicians. We may have concluded that in order to fulfill the public need, we need to train more physicians, but we're not first and foremost charged with training more physicians.
- I think there's another piece to the argument, and that is the willingness to support changes in current funding and the elimination of transition programs, etc., to show that we're not just in this to protect the status quo. We're willing to see funds redistributed that currently exist and then there may well be additional funds needed to meet that target.
- There were a couple of other redistributions within existing GME that were suggested, and they went to varying degrees of severity to no coverage for fellowship, that is, coverage only up to first board basically, to guaranteed coverage for 3 years with exceptions where there's demonstrated need, which is a little more severe.

- For surgeons, none of them will be totally trained in 3 years, so there's going to be a whole slew of surgical exceptions and that makes us look like whiners .Until we get our track system out there, which is going to be great for surgery because we'll say okay, you'll only get one certificate, now do your vascular tracks and your thoracic tracks and it will stimulate us but until then you'll have half-trained surgeons, hopefully with hospitals that want them. It will take all your surgical specialties and perhaps some cardiology and really put them in a bucket.
- It seems like we skipped a step. We started with the affirmation of the importance
 of meeting the needs of the public, and then we jumped to how to serve
 those needs, but I think there needs to be an affirmation in the middle of the
 importance of caring for patients in different settings: recognizing all parts of the
 healthcare delivery system from hospitals to ambulatory care sites to communitybased care needs to be somewhere in that transition.
- I would like to see a succinct mission statement saying that our goal is to provide an adequate physician workforce that can provide high-quality integrated crosseffective care for a growing number of Medicare patients and individuals with chronic illness as well as the rest of society, so that you pass it around quality and integrate it around cross-effectiveness and the changing need so that each of those then get passed.
- One of the questions that's been repeatedly asked is why there is not more innovation. And under the current arrangement, you can get a waiver, you can do a variety of things. We have identified a number of things that inhibit innovation, including regulatory issues, like how people are evaluated by their RRCs. I don't think we should lose that element. We're not saying that you must do X, Y, and Z to keep your funding. On the other hand, you do want to create an environment in which those people who would like to innovate are going to have an opportunity to do that.
- Is there any realistic possibility of having those individuals who choose the ultrahigh-paying areas become responsible in some way later on for reimbursing the cost or in some way bearing the burden of their own education? There have been attempts in the past to impose more educational costs to residents. One of the many problems with those attempts was that they were uniform across the board, and then the person who wants to go into psychiatry has a legitimate complaint, but given the extraordinary gaps in income that have developed in recent years

between the ultra-high-paying subspecialties and everyone else, is it at all viable to say that the ophthalmologist who does only Lasik surgery, in some way you're responsible for repaying your educational costs?

- You're prefacing this report, I think appropriately with the notion that graduate medical education is a public good, and that medical care is a public good. But this has been the tension in medical education from the very beginning, that the area that has always been hardest for academic medical centers to raise money for is student scholarship and educational cost, and the reason is that tension. Do doctors exist to serve or are we profiting from the system? Is medicine a public service, or is it a business commodity? We're not going to resolve that now, but I think recognition of that issue might be helpful in further consideration and to the degree that we reiterate that medicine has done good work for the past 100, 150 years, we're in a much better position today than we were in 1910.
- One option that we haven't talked about throughout this whole meeting is that after your core training, should there be a service repayment as opposed to financial repayment for people in higher-compensated specialties? For example, inner city hospitals need neurosurgeons and interventional cardiologists, so is another option to link a service repayment to support?
- In our group the new money generated came from \$750 million of the IME that would be administered by a new entity. It would be taken out of the Medicare system, and this new entity, since it no longer was based on healthcare dollars, would be able to administer it in a way that made the new programs accountable for all the criteria we enumerated. And the idea was this new entity could move in the direction of separating out patient care from education dollars and as we progressed over time, the new entity would grow and the Medicare system would shrink and that would be a way of ensuring accountability and all the other good things that some people think come from trying to put some distance between education and healthcare.



BIOGRAPHIES

GME POLICY WORKGROUP

Molly Cooke, MD, FACP, is a Professor of Medicine at the University of California, San Francisco, where she holds the William G. Irwin Endowed Chair and is Director of The Haile T. Debas Academy of Medical Educators. Dr. Cooke has been active in medical education program development throughout her career. She was the founding director of "Foundations of Patient Care," an innovative six-quarter, preceptorship-based course for first- and second-year medical students, and has taught in the Parnassus Integrated Student Clinical Experiences program since its inception. Among her many awards for teaching is the AOA/Robert J. Glaser Distinguished Teacher Award from the Association of American Medical Colleges (AAMC). She is coauthor, with Drs. David Irby and Bridget O'Brien, of *Educating Physicians: A Call for Reform of Medical School and Residency* (Jossey-Bass/Wiley, 2010). Dr. Cooke served as the Governor of the Northern California chapter of the American College of Physicians from 2004 to 2009, and she currently serves as a Regent of the College. Dr. Cooke received her undergraduate and medical degree from Stanford University.

Linda Cronenwett, PhD, RN, FAAN, is Professor and former Dean of the School of Nursing, University of North Carolina at Chapel Hill. She also chairs the board of the North Carolina Center for Hospital Quality and Patient Safety and serves as a member of the board of directors of the Institute for Healthcare Improvement and the North Carolina Institute of Medicine. In addition, she is principal investigator for the Quality and Safety Education for Nurses initiative and nursing program director for the Executive Nurse Fellows Program, both of which are funded by the Robert Wood Johnson Foundation. She has served on numerous editorial advisory boards, and her recent publications have focused on quality and safety education and the primary care nursing workforce.

Norman H. Edelman, MD, is Professor of Preventive Medicine, Internal Medicine, and Physiology and Biophysics at the State University of New York at Stony Brook, where he served from 1996 to 2006 in a dual capacity as Vice President for Health Sciences and Dean of the School of Medicine. He served as Dean of the Robert Wood Johnson Medical School from 1987 to 1995. He is an Adjunct Professor of Health Policy and Management in the Mailman School of Public Health at Columbia University. His current scholarly interest is in the healthcare workforce with emphasis on medical residencies. During his administrative tenure, he focused on the development of interdisciplinary and interdepartmental programs such as graduate programs in public health and centers of excellence. Dr. Edelman has published extensively in the field of pulmonary diseases and served on the editorial boards of the *Journal of Applied Physiology*, the *American Review of Respiratory Diseases*, and *Chest*. His more recent publications focus on public health policy. A graduate of Brooklyn College, Dr. Edelman received his medical degree from New York University. He is a Fellow of the American Association for Advancement of Science, and a Member of the Association of American Physicians.

Julie Ann Freischlag, MD, is recognized nationally and internationally as an expert in the diagnosis and treatment of thoracic outlet syndrome. She is the national principal investigator of the VA OVER trial (Open Versus Endovascular Repair) of abdominal aortic aneurysms, a prospective randomized trial which has randomized over 800 patients from 34 medical centers across the country. She is the Editor of the *Archives of Surgery* and serves on several other editorial boards. She has published over 175 manuscripts, numerous abstracts, and book chapters.

Carl J. Getto, MD, is the Senior Vice President for Medical Affairs and Associate Dean for Hospital Affairs at the University of Wisconsin. He is responsible for all activities of the medical staff and house staff in the hospital and clinics and for all graduate medical education at the University. Dr. Getto also served as the interim President and CEO at the University of Wisconsin Hospital and Clinics from October 2007 to February 2008. Prior to this position, Dr. Getto was Dean and Provost of Southern Illinois University School of Medicine. He is also the immediate past chair of the Council on Graduate Medical Education. Dr. Getto is a psychiatrist and has an MBA from the Kellogg School of Business at Northwestern University.

Jennie Chin Hansen, RN, MSN, FAAN, is CEO of the American Geriatrics Society and immediate past President of AARP. She worked for nearly 25 years with On Lok, Inc., a nonprofit family of organizations providing integrated, globally financed, and comprehensive primary, acute, and long-term care community-based services in San Francisco. On Lok is prototype that became the Program of All Inclusive Care to the Elderly (PACE) a global payment , integrated care delivery system for Medicare and Medicaid targeted to complex, multi morbid elders, enacted in 1997. PACE now has programs in 31 states, in urban and rural settings. Since 2005, she has served as Federal Commissioner of the Medicare Payment Advisory Commission. In May 2011 she assumes the role of Board Director of the Institute for Healthcare Improvement. She also serves are a Board Director of the SCAN Foundation.

Eve J. Higginbotham, SM, MD, assumed the position of Senior Vice President and Executive Dean for Health Sciences at Howard University in January 2010. She has published over 100 peer-reviewed articles and coedited four textbooks in ophthalmology. Dr. Higginbotham has been elected to the Institute of Medicine and the American Academy of Arts and Sciences and is an elected member of the Board of Overseers for Harvard University. She earned undergraduate and graduate degrees in chemical engineering from MIT and received her medical degree from Harvard Medical School.

John K. Iglehart is the founding editor of *Health Affairs*, a bimonthly policy journal that he started in 1981 under the aegis of Project HOPE, a not-for-profit international health education organization. Over this same period, he served as a national correspondent of *The New England Journal of Medicine*, for which he has written more than 100 essays called "Health Policy Reports." Before 1981, Iglehart served 2 years as a vice president of the Kaiser Foundation Health Plan and director of its Washington, DC office. Earlier, he held a variety of editorial positions, including the editorship of *National Journal*, a privately published weekly on federal policymaking. He holds a degree in journalism from the University of Wisconsin-Milwaukee and has been a journalist-in-residence at Harvard University.

Michael M.E. Johns, MD, assumed the post of Chancellor for Emory University in October 2007. At Emory Dr. Johns engineered the transformation of the Health Sciences Center into one of the nation's preeminent centers in education, research, and patient care. He previously served as Dean of the Johns Hopkins School of Medicine and Vice President for Medicine at Johns Hopkins University from 1990 to 1996. Dr. Johns is widely renowned as a catalyst of new thinking in many areas of health policy and health professions education. He has been a significant contributor to organizations and policy groups in healthcare, including the Institute of Medicine, the Association of American Medical Colleges, The Commonwealth Fund Task Force on Academic Health Centers, and the Association of Academic Health Centers. He frequently lectures, publishes, and works with state and federal policymakers on topics ranging from the future of health professions education to national health system reform. Dr. Johns was elected to the Institute of Medicine in 1993. He received his bachelor's degree from Wayne State University and his medical degree with distinction at the University of Michigan Medical School.

Michael Karpf, MD, continues an active career with a focus on developing and evaluating innovative educational and clinical programs. He established the Primary Care Training Residency and the General Medicine Fellowships at the University of Pittsburgh, where he served as the Falk Chair in General Medicine and became Vice Chair of the Department of Medicine. Since 2001, Dr. Karpf has served as the chairman of the Advisory Panel on Healthcare Delivery for the Association of American Medical Colleges and the Association of Academic Health Centers Taskforce. In 2003, he assumed the role of Executive Vice President for Health Affairs at the University of Kentucky, where he is responsible for all clinical operations across the university hospital, medical center, and practice organizations. Dr. Karpf received both his undergraduate and graduate degrees from the University of Pennsylvania.

Kenneth M. Ludmerer, MD, is an internist, medical educator, and historian of medicine. He is Professor of Medicine and the Mabel Dorn Reeder Distinguished Professor in the History of Medicine in the School of Medicine and Professor of History in the Faculty of Arts and Sciences at Washington University in St. Louis. Dr. Ludmerer is best known for his work in medical education and healthcare policy. His books include Genetics and American Society (1972), Learning to Heal (1985), and *Time to Heal* (1999), an examination of the evolution of American medical education from the turn of the century to the present era of managed care. Time to Heal was nominated for a Pulitzer Prize and Bancroft Prize and was the first book by a living author to be selected for inclusion in The Classics of Medicine Library. Dr. Ludmerer has been elected to the American Academy of Arts and Sciences, the Association of American Physicians, and the American Clinical and Climatological Association. Among his many honors are the Abraham Flexner Award for Distinguished Service to Medical Education of the Association of American Medical Colleges, the inaugural Daniel C. Tosteson Award for Leadership in Medical Education of Harvard's Carl J. Shapiro Institute, and the Samuel L. Goldstein Leadership Award in Medical Student Education of the Washington University School of Medicine. Dr. Ludmerer received an AB from Harvard College and an MA and MD from The Johns Hopkins School of Medicine.

Claire Pomeroy, MD, MBA, is the CEO of the University of California Davis Health System, where she also serves as Vice Chancellor for Human Health Sciences and as Dean of the School of Medicine. Dr. Pomeroy is passionate about interprofessional education of a diverse workforce, reducing health disparities, advancing scientific discoveries to the marketplace, and establishing partnerships in the greater community. She is a member of the Independent Citizens Oversight Commission that governs the California Institute for Regenerative Medicine and serves on the Board of Directors of the Association of Academic Health Centers; the Association of American Medical Colleges, of which she is chair of the Council of Deans; the National Institutes of Health Office of Research on Women's Health Advisory Committee; and the Board of Governors for the Foundation for Biomedical Research. Dr. Pomeroy earned bachelor's and medical degrees from the University of Michigan and her MBA from the University of Kentucky.

Paul G. Ramsey, MD, is the CEO of UW Medicine and Dean of the School of Medicine at the University of Washington, where he has served in multiple administrative roles since 1978. Dr. Ramsey is a prominent researcher on the assessment of physicians' clinical skills. In 1999 he received the John P. Hubbard Award from the National Board of Medical Examiners for his research contributions in the field of physician evaluation, and he is an elected member of the Association of American Physicians and of the Institute of Medicine of the National Academy of Sciences. He received his undergraduate degree from Harvard College in 1971 and his medical degree from Harvard Medical School in 1975.

Wayne Joseph Riley, MD, MPH, MBA, is the President and CEO and Professor of Internal Medicine of Meharry Medical College in Nashville, Tennessee, the nation's largest, private historically African American academic health science center. He holds additional faculty appointments as a Professor of Medicine at the Vanderbilt University School of Medicine. Dr. Riley earned the Bachelor of Arts (B.A.) degree in anthropology (concentration in Medical Anthropology) from Yale University in New Haven, Conn.; the Master of Public Health (M.P.H.) degree in health systems management from the Tulane University School of Public Health and Tropical Medicine in New Orleans; and the Doctor of Medicine (M.D.) degree from the Morehouse School of Medicine in Atlanta. In May 2002, he earned the Master of Business Administration (M.B.A.) degree from Rice University's Jesse H. Jones Graduate School of Management's (JGSM) MBA for Executives program. Among his many honors and awards is Mastership for the American College of Physicians.

William L. Roper, MD, MPH, is Dean of the School of Medicine and Vice Chancellor for Medical Affairs at the University of North Carolina at Chapel Hill, and CEO of the UNC Healthcare System. As a faculty member at UNC, he is a Professor of Health Policy and Administration in the School of Public Health and Professor of Pediatrics and Social Medicine at UNC's School of Medicine. Dr. Roper previously was Director of the Centers for Disease Control and Prevention, served on the senior White House staff, and was administrator of the Healthcare Financing Administration (responsible for Medicare and Medicaid). Formerly a White House Fellow, he is a member of the Institute of Medicine of the National Academy of Sciences, the Scientific Management Review Board of the NIH, the board of directors of the Partnership for a Healthier America, and is Chairman of the board of directors of the National Quality Forum. Dr. Roper received his medical degree from the University of Alabama School of Medicine and his MPH from the University of Alabama at Birmingham School of Public Health.

Larry J. Shapiro, MD, is an internationally renowned research geneticist and pediatrician. He has held leadership positions at Washington University, where he was Executive Vice Chancellor for Medical Affairs, Dean of the School of Medicine, and the Spencer T. and Ann W. Olin Distinguished Professor. His contributions to academic medicine include patient care, research, teaching and administration. Dr. Shapiro serves on the Council of the National Academy of Sciences' Institute of Medicine and is a member of the American Academy of Arts and Sciences. He earned both undergraduate and medical degrees from Washington University, and in 1996 he received the University's prestigious Alumni Achievement Award.

Kenneth I. Shine, MD, is Executive Vice Chancellor for Health Affairs at the University of Texas Medical System. Previously, as the President of the Institute of Medicine (IOM) from 1992 to 2002, he played an important and visible role in addressing key issues in medicine and healthcare. At IOM he emphasized communication of scientific findings and recommendations, and under his guidance, IOM staff developed CDs, videotapes, guidelines for community-based research, and publications for researchers, practitioners, policymakers, and the public. A cardiologist and physiologist, he received his medical degree from Harvard Medical School. Before becoming president of the IOM, he was Dean and Provost for Medical Sciences at UCLA.

Elliot J. Sussman, MD, MBA, is a Professor of Medicine at the University of South Florida College of Medicine. From 1993 through 2010 he served as President and CEO of Lehigh Valley Health Network (LVHN). Under Dr. Sussman's leadership, LVHN evolved into one of the nation's leading academic community health systems. Dr. Sussman is the immediate Past-Chair of the Board of Directors of the American Association of Medical Colleges. He holds an MBA from the Wharton School at the University of Pennsylvania and a medical degree from Harvard University.

George E. Thibault, MD, became the seventh president of the Josiah Macy, Jr. Foundation in January 2008. Immediately prior to that position he had been Vice President of Clinical Affairs at Partners Healthcare System in Boston and Director of the Academy at Harvard Medical School. He was the first Daniel D. Federman Professor of Medicine and Medical Education at Harvard Medical School, where he is now Federman Professor, Emeritus. For nearly four decades at Harvard, Dr. Thibault played leadership roles in many aspects of undergraduate and graduate medical education, including the New Pathway Curriculum and the new Integrated Curriculum reform. His research has focused on the evaluation of practices and outcomes of medical intensive care and variations in the use of cardiac technologies. Dr. Thibault serves on the President's White House Fellows Commission and he chaired the Special Medical Advisory Group for the Department of Veterans' Affairs. He has been a visiting scholar at the Institute of Medicine and at Harvard's Kennedy School of Government and at many medical schools in the United States and abroad. He is a member of the Institute of Medicine.

Steven A. Wartman, MD, PhD, is President and CEO of the Association of Academic Health Centers (AAHC). Dr. Wartman is a general internist and sociologist who has spent more than 25 years in academic medicine. His interests and publications lie in the areas of healthcare delivery, health policy, medical education, and academic leadership. Prior to his position with AAHC, Dr. Wartman was Executive Vice President for Academic and Health Affairs and Dean of the School of Medicine at the University of Texas Health Science Center in San Antonio. Dr. Wartman graduated from Cornell University and earned his medical degree and doctorate in sociology from Johns Hopkins University.

Debra Weinstein, MD, is Vice President for Graduate Medical Education at the Partners Healthcare System, where she is responsible for overseeing more than 200 graduate medical education programs with 2,000 residents and fellows. Dr. Weinstein serves on the Board of Directors of the ACGME, and of the MGH Institute for Health Professions (an independent graduate school for health professions education). She is Chair of the Massachusetts Medical Society's Publications Committee, which advises regarding the *New England Journal of* *Medicine* and *Journal Watch* publications. Dr. Weinstein is a former Program Director in Internal Medicine and a past chair of the AAMC's Group on Resident Affairs. She is a recipient of the ACGME's Parker Palmer Courage to Lead Award. Dr. Weinstein is a graduate of Wellesley College and of Harvard Medical School, where she is an Assistant Professor of Medicine. She maintains a limited practice in gastroenterology.

Michael E. Whitcomb, MD, served as the Senior Vice President for Medical Education at the Association of American Medical Colleges from 1995 to 2006, and as Editor-in-Chief of the Association's journal, *Academic Medicine*, from 2002 to 2007. Dr. Whitcomb has published extensively on clinical medicine, medical education, and health policy issues and written a number of special reports for government agencies and professional organizations. He recently completed a major report on new and developing medical schools for the Josiah Macy Jr. Foundation. Dr. Whitcomb received his undergraduate degree from The Ohio State University and his medical degree from the University of Cincinnati.

EXPERT PANELISTS

Malcolm Cox, MD, is the Chief Academic Affiliations Officer for the U.S. Department of Veterans Affairs. Previously, he was Chief of Medicine at the Philadelphia VA Medical Center, Associate Dean for Clinical Education at the University of Pennsylvania, and Dean for Medical Education at Harvard Medical School. Over the past 5 years, Dr. Cox has led a major expansion of VA's medical, nursing, and associated health training programs and an intensive re-evaluation of VA's educational infrastructure and affiliation relationships. At the same time, he has repositioned the Office of Academic Affiliations as a major voice in health professions workforce reform and educational innovation. Dr. Cox currently serves on the National Leadership Board of the Veterans Health Administration, the National Advisory Committee of the Robert Wood Johnson Clinical Scholars Program, the National Board of Medical Examiners, and the Accreditation Council for Graduate Medical Education.

Mark E. Miller, PhD, is the Executive Director of the Medicare Payment Advisory Commission. Other positions he has held in over 20 years of health policy experience have included Assistant Director of Health and Human Resources at the Congressional Budget Office, Deputy Director of Health Plans at the Centers for Medicare and Medicaid Services, and Health Financing Branch Chief at the Office of Management and Budget. Dr. Miller earned his doctoral degree in public policy analysis from the State University of New York at Binghamton.

Thomas J. Nasca, MD, MACP, is the CEO of the Accreditation Council for Graduate Medical Education (ACGME) and ACGME International. Dr. Nasca has been involved in medical education since 1981, including many years in leadership positions at the Jefferson Medical College and Thomas Jefferson University Hospital in Philadelphia, culminating in 2001, when he was named the first Anthony F. and Gertrude M. DePalma Dean of the College. He has been involved with medical education on a national level as the Associate Editor of the Nephrology MKSAP for the American College of Physicians, a member of the Internal Medicine In-Training Examination Steering and Writing Committees, President of the Association of Program Directors of the Alliance for Academic Internal Medicine, and the Liason Committee for Medical Education. He is the author of over 100 peer-reviewed articles, book chapters, and other publications and has given over 300 invited lectures and presentations on topics related to medical education. Dr. Nasca graduated from the University of Notre Dame with High Honors and is an Alpha Omega Alpha graduate of Jefferson Medical College. John E. Prescott, MD, serves as the Chief Academic Officer of the Association of American Medical Colleges (AAMC). With AAMC he directs programs related to all stages of the medical education continuum, including preparation for medical school, and undergraduate, graduate, and continuing medical education. Dr. Prescott also leads efforts supporting the Council of Deans, including the collection and analysis of medical school financial and operational data. Prior to joining the AAMC in 2008, Dr. Prescott served as Dean of the West Virginia University School of Medicine and was the founding chair of the West Virginia University Department of Emergency Medicine. Dr. Prescott earned his medical and his bachelor's degrees from Georgetown University.

Russell G. Robertson, MD, is Professor and Chair of the Department of Family and Community Medicine at Northwestern University Feinberg School of Medicine. In March 2011, Dr. Robertson became the Dean of Chicago Medical School at Rosalind Franklin University of Medicine and Science. Dr. Robertson was one of 17 physicians nationwide appointed to the Council on Graduate Medical Education by the U.S. Secretary of Health and Human Services in 2003. As Chair of the Council since 2008, Dr. Robertson and his fellow members advise Congress and the Department of Health and Human Services on issues related to physician supply and distribution. He holds an undergraduate degree from Michigan State University, received his medical degree from Wayne State University, and completed a family medicine residency in Grand Rapids, Michigan.

Paul H. Rockey, MD, MPH, directs the division of graduate medical education at the American Medical Association, where his leadership includes supervision, collection, and dissemination of data on the nearly 9,000 residency and fellowship programs in the United States. Before coming to the AMA in 2003, he was Associate Dean for Clinical Affairs at Southern Illinois University School (SIU) of Medicine for 12 years and continues to serve as an emeritus professor of medicine and medical humanities at SIU. Dr. Rockey also serves on the Board of the Educational Commission for Foreign Medical Graduates. He received his medical degree from the University of Chicago and an MPH at the University of Washington.
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