COUNCIL ON GRADUATE MEDICAL EDUCATION

Eighteenth Report

New Paradigms for Physician Training for Improving Access to Health Care

SEPTEMBER 2007

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The Council on Graduate Medical Education

The Council on Graduate Medical Education (COGME) was authorized by Congress in 1986 to provide an ongoing assessment of physician workforce trends, training issues, and financing policies and to recommend appropriate Federal and private-sector efforts to address identified needs. The legislation calls for COGME to advise and make recommendations to the Secretary of the Department of Health and Human Services (DHHS); the Senate Committee on Health, Education, Labor, and Pensions; and the House of Representatives Committee on Commerce. Since 2002, COGME has been extended through annual appropriations.

The legislation specifies 17 members for the Council. Appointed individuals are to include representatives of practicing primary care physicians, national and specialty physician organizations, international medical graduates, medical student and house staff associations, schools of medicine and osteopathy, public and private teaching hospitals, health insurers, business, and labor. Federal representation includes the Assistant Secretary for Health, DHHS; the Administrator of the Centers for Medicare and Medicaid Services, DHHS; and the Chief Medical Director of the Veterans Administration.

CHARGE TO THE COUNCIL

The charge to COGME is broader than the name implies. Title VII of the Public Health Service Act, as amended, requires COGME to provide advice and recommendations to the Secretary and Congress on the following issues:

1. The supply and distribution of physicians in the United States;
2. Current and future shortages or excesses of physicians in medical and surgical specialties and subspecialties;
3. Issues relating to international medical school graduates;
4. Appropriate Federal policies with respect to the matters specified in items 1–3, including policies concerning changes in the financing of undergraduate and graduate medical education (GME) programs and changes in the types of medical education training in GME programs.
5. Appropriate efforts to be carried out by hospitals, schools of medicine, schools of osteopathy, and accrediting bodies with respect to the matters specified in items 1–3, including efforts for changes in undergraduate and GME programs; and
6. Deficiencies and needs for improvements in databases concerning the supply and distribution of, and postgraduate training programs for, physicians in the United States and steps that should be taken to eliminate those deficiencies.

In addition, the Council is to encourage entities providing GME to conduct activities to voluntarily achieve the recommendations of the Council specified in item 5.

COGME PUBLICATIONS

Reports

Since its establishment, COGME has submitted the following reports to the DHHS Secretary and Congress:

- First Report of the Council (1988);
- Second Report: The Financial Status of Teaching Hospitals and the Underrepresentation of Minorities in Medicine (1990);
- Third Report: Improving Access to Health Care Through Physician Workforce Reform: Directions for the 21st Century (1992);
- Fourth Report: Recommendations to Improve Access to Health Care Through Physician Workforce Reform (1994);
- Fifth Report: Women and Medicine (1995);
- Sixth Report: Managed Health Care: Implications for the Physician Workforce and Medical Education (1995);
- Seventh Report: Physician Workforce Funding Recommendations for Department of Health and Human Services's Programs (1995);
- Eighth Report: Patient Care Physician Supply and Requirements: Testing COGME Recommendations (1996);
- Ninth Report: Graduate Medical Education Consortia: Changing the Governance of Graduate Medical Education to Achieve Physician Workforce Objectives (1997);
- Tenth Report: Physician Distribution and Health Care Challenges in Rural and Inner City Areas (1998);
- Eleventh Report: International Medical Graduates, The Physician Workforce and GME Payment Reform (1998);
- Twelfth Report: Minorities in Medicine (1998);

- Thirteenth Report: Physician Education for a Changing Health Care Environment (1999);
- Fourteenth Report: COGME Physician Workforce Policies: Recent Developments and Remaining Challenges in Meeting National Goals (1999);
- Fifteenth Report: Financing Graduate Medical Education in a Changing Health Care Environment (2000);
- Sixteenth Report: Physician Workforce Policy Guidelines for the United States, 2000–2020 (2005); and
- Seventeenth Report: Minorities in Medicine: An Ethnic and Cultural Challenge for Physician Training, an Update (2006).

OTHER COGME PUBLICATIONS

- Scholar in Residence Report: Reform in Medical Education and Medical Education in the Ambulatory Setting (1991);
- Process by which International Medical Graduates are Licensed to Practice in the United States (September 1995);
- Proceeding of the GME Financing Stakeholders Meeting (April 11, 2001) Bethesda, Maryland;
- Public Response to COGME's Fifteenth Report (September 2001);
- Council on Graduate Medical Education and National Advisory Council on Nurse Education and Practice: Collaborative Education to Ensure Patient Safety (February 2001);
- Council on Graduate Medical Education: What Is It? What Has It Done? Where Is It Going? 2nd edition (2001);
- 2002 Summary Report (2002).

COGME RESOURCE PAPERS

- Preparing Learners for Practice in a Managed Care Environment (1997);
- International Medical Graduates: Immigration Law and Policy and the U.S. Physician Workforce (1998);
- The Effects of the Balanced Budget Act of 1997 on Graduate Medical Education (2000);
- Update on the Physician Workforce (2000);
- Evaluation of Specialty Physician Workforce Methodologies (2000); and
- State and Managed Care Support for Graduate Medical Education: Innovations and Implications for Federal Policy (2004).

For more information on COGME, visit the Council's Web site at:

http://www.cogme.gov or contact:

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Executive Summary

The United States invests significant resources in the education and training of physicians while at the same time it faces significant medical access problems both in rural areas and among the urban uninsured. Physicians, who in part benefit from society's investment in their training, may have an obligation to repay society for some of the benefits they received during their training. A system of mandatory physician national health care service directed toward improved access and reducing disparities could provide a vehicle by which physicians would recompense society while addressing an urgent national need. Though such a system may be attractive to some, its success would not be guaranteed, as both its cost and impact on the practice of medicine are uncertain, and such mandatory service is antithetical to American values. Therefore, in the absence of a mandatory service requirement, how can the American medical profession provide greater incentives to physicians to engage in public service directed toward enhanced access to medical services for those who have historically experienced access problems?

At the September 2005 meeting, the Council on Graduate Medical Education (COGME) decided to review the topic of a mandatory national health care service requirement for physicians. The discussion was guided by two beliefs: First, the development of an adequate physician workforce is necessary to deliver health care to all Americans. An adequate workforce is one that is both sufficient in size and appropriately geographically dispersed such that most Americans do not experience an access problem. The group concluded that even if a perfect system for distributing a medical workforce could be developed, an insufficient number of physicians would, de facto, create medical access problems. Therefore, first and foremost, a sufficient cadre of physicians must be trained.

Second, given the role physicians play in society and the tremendous amount of public resources that are devoted to the training of doctors, physicians have some public obligation to society at large. The group felt that this social obligation should be embraced by the profession and remembered by physicians.

The group explored the problems caused by limited access to health care by many members of the public and the potential nature of the social obligation physician's bear as a result of the graduate medical education (GME) support they received during their training. As it was generally felt that mandatory service is not a viable consideration, the group focused on alternative strategies that could improve access to health care in rural and urban areas.

At the September 2006 meeting of the COGME, three commissioned papers that were presented discussed a mandatory physician national service requirement. Those presentations were as follows:

- Doug Campos-Outcalt, M.D., M.P.A., "Mandatory Social Service for Physicians: A Discussion of Issues" [1]
- Robert Graham, M.D., "Mandatory Service for Physicians: Issues and Approaches" [2]
- Roger A. Rosenblatt, M.D., "Is Mandatory National Service for Physicians Desirable and Feasible?" (presented by Robert Graham, M.D.) [3]

Though these papers raised a range of poignant issues, the most troubling was whether a national service program could adequately address physician geographic or specialty maldistribution. The authors agreed that while physicians have a social obligation to provide medical care to all persons, regardless of their social-income status, mandatory service was neither the desirable nor feasible mechanism for achieving this goal. These papers, and the group's discussions, form the basis for this report.

Briefly, the five recommendations discussed in this report are as follows:

1. Existing programs should be expanded and new models of training developed that focus on delivering care in areas of high medical need. This should include an incentive-based, non-mandatory structure that encourages medical school and residency graduates to serve in such practice settings.
2. Federal loan programs through the National Health Service Corps (NHSC), the Department of Defense, the Department of Veterans Affairs, and State-based loan repayment programs should be enlarged to increase the number of physicians serving in underserved areas.
3. Incentives should be created that encourage medical schools to recruit and prepare physicians for clinical practice in underserved areas.
4. A National Medical School (or system of medical schools)—the "United States Public Health Medical College" (USPHMC)—should be established. The USPHMC would be unique in its emphasis on service, public health issues, epidemiology, and emergency preparedness and response.
5. Funding targeted for physician training that creates a clinical physician workforce to serve populations in areas of limited access to medical care should be increased. For example, reinvigoration of Title VII funding should be considered.

BACKGROUND

THE ACCESS QUAGMIRE

Problems with access to health care are manifold. The problem is most glaring when there is no physician, of any kind, in a geographic area, such as in rural areas of low population density. A similar situation can be found in inner-city urban areas, even though there is a much higher physician-to-patient ratio, where other obstacles create impediments for many needing health care. For instance, in both rural and urban areas, the poor, even when covered by such public insurance as Medicare or Medicaid, may face considerable out-of-pocket costs for transportation to the hospital or doctor. Others, such as those with cognitive disorders, mental health problems, or chemical dependencies, also face access problems. In addition, the near poor, particularly those who are uninsured, may lack the financial means to access services.

Access to health care involves multiple forms and responses. Health maintenance is important to the vitality of the United States. Nonetheless, medicine must also be able to respond effectively to patients who are acutely ill and injured. This range of demands requires that a mix of primary care physicians, surgeons, and specialists in medically and surgically based disciplines exists. A health care system that consists of only specialists or only primary care physicians would not be effective. Effective access to health care requires access to both generalists and specialists.

In February 1998, the COGME released its *Tenth Report* focused on physician distribution and medical care access in rural and inner-city areas in the United States. Eight years later, the concerns articulated in that report persist. A lack of health insurance and the exigencies of geographic location result in limited access to health care for large numbers of people. The two dominant barriers to access (inadequate insurance coverage and geographic location) are clearly separate problems. However, given the aggregate effect of these issues on health care access, they are joined in our discussion.

One option for solving the nation's access problem may be mandatory national service for physicians. One justification for mandatory service would be the public's return on the public's investment in the training of physicians. Below, we examine the United States' prior experience with mandatory physician service in the military and the experience of other countries with mandatory service requirements.

MANDATORY SERVICE FOR THE U.S. MILITARY

Mandatory physician service has a historical precedent in the United States. During the Korean War, there was an increased need for physicians to support the military. An initial plan to meet the military's need was established by Congress in 1950 (Public Law 779) and was labeled the "Doctor Draft Law" [4]. Under the subsequent "Berry Plan," established in 1954, physicians received deferments while acquiring specialized training, after which they fulfilled their military obligations. The Berry Plan, implemented despite the opposition of the American Medical Association, the Association of American Medical Colleges, and the American Hospital Association, was discontinued in 1974 after the Vietnam War.

In total, from 1950 to 1973, there were more than 23,000 physicians enlisted into military service through the Berry Plan and its predecessor [4–7]. It is likely that mandatory military service prompted some physicians to participate in alternative, civilian voluntary service plans akin to the NHSC. However, the impact of a military service requirement on public access to care and other competing public health service programs is unclear.

Eventually the armed services were able to adequately meet their physician workforce requirements without mandatory military service. One of the ways in which this is accomplished today is through the successful Uniformed Services University of Health Sciences, service-linked scholarship programs, physicians voluntarily participating the National Guard and Military Reserve programs, and voluntary enlistees [6,8].

THE GLOBAL EXPERIENCE

The problem of access to medical care is a common concern throughout the world: "Practically all countries have problems bringing about an equitable distribution of health manpower" [9]. Some national attempts to address the issue are instructive. Some nations attempt to solve this through the establishment of mandatory service programs. Australia, for instance, has sought to meet its access needs (in lieu of a mandatory service program) through the active recruitment of international medical graduates (IMGs) [10]. While IMGs have placed physicians in remote areas, such efforts have also created challenges with language skills and verification of credentials. Spike [10] concludes that the result of the Australian effort "is that the most under-serviced regions of the country continue to be under-serviced by less qualified doctors for reasons of political expediency."

Other countries address the issue of inadequate medical access in remote areas by requiring physicians to participate in mandatory service programs. One of the earliest programs was instituted in the Soviet Union in

1920. This program required a three-year commitment to rural areas.

In 1936, Mexico was the first Latin American country to use a mandatory service program. The *pasantia* system initiated a one-year service requirement for medical school graduation [11]. Cuba followed with a compulsory rural service program for medical graduates in 1960, and the Dominican Republic adopted a pasantia system in the 1960s [12,13]. Ecuador and Bolivia have also adopted mandatory service models that attempt to minimize health care maldistribution, especially in rural areas [14].

The system in Ecuador (established in 1970) has been carefully studied [15,16]. A close examination of the Ecuadorian system illustrates the challenges confronting mandatory service programs. All graduates from medical, dental, and nursing schools must perform one year of rural service as a condition to obtaining a medical license. Physicians participating in the program have expressed several concerns, including the appropriateness of their training for placement in rural areas and the importance of public health initiatives, such as clean water, waste disposal, and quality housing in addition to traditional medical services.

Another example is Puerto Rico [17]. In 1978 (despite opposition by students, hospitals, and organized medicine), Puerto Rico began requiring all persons entering the health professions to provide one year of service in a regionalized health care system. This system served 60% of the population, and the requirement involved many different types of health care professionals (e.g., nurses, medical technologists) [17]. In essence, this system acted as a *de facto* compulsory health care draft that deployed physicians to rural areas.

The success of international programs to remedy deficiencies in health care access has not been systematically studied. The ultimate impact of physician supply in Central and South America regarding the provision of health care to underserved areas remains undetermined. Several of the countries, including Argentina, Bolivia, Chile, Columbia, Dominican Republic, Ecuador, and Mexico actually report a physician surplus. This surplus could theoretically, through market force diffusion, further drive physicians into rural areas and, at least in part, improve medical access in their rural areas.

The ultimate translation of these programs into a U.S. model (as well as the limitations they experience) is uncertain. After reviewing these programs, Rosenblatt's commissioned paper for the COGME concluded:

"The impact of these programs had been difficult to assess, and there is a dearth of rigorous studies of their effectiveness and viability. It is clear from existing information that it is possible to create and sustain such programs over a period of decades, although not necessarily with enthusiastic support of those required to serve. Whether these models can be adapted to the U.S. context is more difficult to appraise. Perhaps more problematic is the fact that these programs have not been proved to be effective in improving the problems they were designed to address" [3].

MANDATORY SERVICE CONSIDERATIONS

Overall, mandatory service may not be a favorable approach to addressing the medical access issue. Currently, GME already supports and improves health care access to marginalized persons. Teaching hospitals and their training programs provide a substantial amount of service to lower socioeconomic groups. Nonetheless, the absolute value of this service is poorly quantified. Undoubtedly, in the absence of teaching programs, the impact of indigent care on private physician practices and for-profit hospitals would be substantial.

The barriers to establishing a mandatory service program are manifold. Key hurdles include:

- **Loss of autonomy:** The discipline of medicine requires a tremendous degree of intellectual autonomy, and physicians tend to be independent [18]. Requiring a physician to set aside his or her career at the behest of a mandatory service program is antithetical to the notion of independence.
- **Cost:** Currently, the Centers for Medicare and Medicaid Services (CMS) provides more than $8 billion in Indirect Medical Education and Direct Graduate Medical Education funding for residency and fellowship training. A mandatory program involving all residency graduates that paid a stipend of $75,000/year would amount to an additional $1.8 billion of annual spending. In addition to the stipend costs, there would be additional administrative costs.
- **Creating an aversion:** A mandatory service program would dissuade some talented people from a career in medicine. The degree to which this would occur is speculative. Nonetheless, a mandatory service program might be profoundly discouraging when one considers the effect of yet further deferring income in the presence of a large debt burden caused by student loans.
- **Enforcement:** The most likely manner by which participants would be successfully captured would be through the State licensing process. There would need to be a newfound level of cooperation between State and Federal agencies. Individual State agencies would be responsible for reporting and tracking physicians participating in a Federal program. In the absence of a funded, collaborative effort, this would be difficult.

Recommendations

RECOMMENDATION 1: Increase access to health care using incentive-based models.

Existing programs should be expanded and new models of training developed that focus on delivering care in areas of high medical need. These should incorporate an incentive-based, non-mandatory structure that encourages medical school and residency graduates to serve in such practice settings.

There are existing programs that could improve access to health care without the imposition of a mandatory service requirement. Redesign and expansion of existing programs would be a more favorable solution than the imposition of mandatory service both in terms of cost and the support that such an initiative would garner from the profession.

Working or training in an area of high medical need validates the altruism that initially prompts many physicians to enter the medical profession. Clinical experience in a medically underserved venue provides a substantial understanding of the complex health issues and health care delivery concerns confronting the economically marginalized. Examples of such areas might include (1) rural areas with limited access to medical services; (2) urban centers with limited access to medical services largely owing to socioeconomic barriers; (3) areas of elevated need due to natural or man-made disasters, such as large-scale flooding or hurricanes, severe epidemics involving infectious disease, and mass-casualty incidents; and (4) areas that address military needs. This could involve filling medical service needs at domestic military bases as well as medical support to the families of deployed troops.

There is a considerable need for primary care physicians. It is estimated that for primary care alone, there are 4,742 primary care shortage areas. It would take an additional 8,248 primary care physicians to fill these areas, one-third of which are in large urban locales [19].

Despite the notion that primary care physicians are sorely needed in most areas, there are situations wherein specialists are required to solve regional access issues. In rural areas, there is a clear need for specialty care. For example, the ratio of primary care physicians to population is 100:100,000 in urban areas and 46:100,000 in rural areas. More dramatic is the ratio of specialist physicians: 181:100,000 in urban areas and 18:100,000 in rural areas [20].

The greatest opportunity for filling the aforementioned positions would be through attracting recent medical school or residency graduates. There were 15,925 graduates from U.S. allopathic medical school in 2006 [21] and an additional 2,829 from osteopathic schools of medicine (2006) [22]. There is a brisk rate of increase projected for osteopathic class sizes [23]. Approximately 4,800 IMGs also enter clinical practice each year. Taken as a whole, about 23,500 new graduates would provide a pool from which service program participants could be selected. For the foreseeable future, this number should be fairly constant if Federal GME funding remains fixed.

RECOMMENDATION 2: Increase funding of Federal and State loan repayment programs.

Federal loan programs through the NHSC, the Department of Defense, the Department of Veterans Affairs, and State-based loan repayment programs should be enlarged to increase the number of physicians serving in underserved areas.

Currently, NHSC positions are being adequately filled while Department of Defense positions recently are less consistently filled. The Department of Veterans Affairs repayment program is inconsistently used. These Federal programs could, and should, be expanded. Many States also have loan repayment programs.

In general, physicians tend to practice in metropolitan areas, thus neglecting rural America. The recently projected physician shortage will worsen already existing access problems and drain resources away from underserved areas. As the physician shortage has a local and regional dimension, individual States may consider expanding their physician placement programs to solve their specific needs. Moreover, given the expanding magnitude of medical student indebtedness, debt forgiveness and loan repayment programs may have enhanced appeal.

The Federal government has recognized geographic and specialty maldistribution and has largely responded through funding decisions. From 1991 to 2001, the funding for the NHSC and the Loan Repayment Program increased from $48 million to $78 million. Likewise, Title VII funding (largely supporting primary care initiatives) increased from $176 million to $266 million over the same period. This represents a less than 16% real increase in spending over the decade beginning 1991. This effort to craft a remedy to the disparity in health care access has been further compromised with recent funding cuts, especially in Title VII funding.

National Health Service Corps

In 1970, the NHSC was created to encourage Federal, State, and local collaboration to improve access to health care in Health Professional Shortage Areas (HPSA). Over time, the NHSC has become an integral part of the medical safety net in underserved areas. Initially, the NHSC focused on geographic disparities in health care access by sending physicians into rural areas with low physician-to-population ratios. The NHSC has since expanded the criteria for designation as a HPSA in an attempt to provide greater access for the uninsured populations in urban areas. Today, approximately 20% of all Americans live in a designated HPSA area.

The NHSC provides financial incentives to health care providers interested in working in underserved areas. The financial incentives are in the form of scholarships for medical students and loan repayment for providers who have completed training and are ready to practice medicine independently. Numerous communities across the country depend on NHSC participants as a key source of health care. In fiscal year 2005, 340 scholarship recipients and 1,223 loan repayment physicians entered the field in HPSAs of greatest need. Moreover, an additional 164 scholarships were awarded, and 86 scholarships were continued. Over the last 36 years, the program has placed approximately 27,000 health care providers in service to underserved populations. In 2003, the NHSC boasted 78.4% retention of NHSC clinicians in HPSA sites.

Department of Veterans Affairs

The Department of Veterans Affairs' Education Debt Reduction Program allows physicians to be reimbursed for medical school costs. The annual amount for reimbursement, adjusted periodically for inflation, is between $6,000 and $10,000 per year, depending on the year of participation, with a cumulative maximum award of $48,000. Several challenges exist for this program. First, few people are aware of its existence, even within the Department of Veterans Affairs system. Second, staff must first be hired prior to applying for debt reduction. Thus, the program acts more as a retention incentive, as compared to a recruitment opportunity. Specific procedures for applying to this program are outlined in the VHA Handbook 1021.1 (issue date: ed. May 3, 2002).

State-Sponsored Programs

Following the example of the NHSC, State agencies throughout the United States have created programs to mimic the success of the NHSC in reducing physician shortage areas. These State-sponsored loan repayment programs (SSLRPs) create partnerships with local communities, the NHSC, and other agencies within the Federal government or "go it alone" to offer physicians financial incentives to practice in underserved sites. These diverse programs most commonly recruit primary care physicians still in residency with stipends. Other strategies offer student loan repayment to physicians who are finishing residency training.

Participation in an SSLRP generally requires a commitment of two years of full-time service in an HPSA-designated site. The amount of loan repayment varies widely among States. Rhode Island offers physicians a $35,000 loan repayment per year. In North Dakota, physicians are paid $5,000 per year as loan repayment. Oregon's SSLRP offers participants 20% of their loan per year, allowing physicians to be debt free in five years. Given the enormity of this problem, the NHSC and other State loan repayment and scholarship programs must be more substantially funded in order to serve people who are "medically disenfranchised."

Barriers to Participation

Finally, most programs are inflexible in allowing part-time participation, job-sharing, or other nontraditional practice options. These aforementioned programs have made significant advances in the provision of health care to specific populations. The NHSC model is often praised for its success in recruiting and retaining providers in medically underserved areas that often offer lower provider salaries than that can be earned elsewhere.

Unfortunately, working at an HPSA site does not always guarantee loan repayment. Providers interested in working with the underserved must accept employment and apply for loan repayment with the NHSC. Providers at facilities with higher HPSA scores receive the greatest consideration [24]. Providers at sites with lower scores must wait for remaining funds after a specified date. Because funding is not guaranteed, many needy HPSA sites have several position unfilled because applicants are unwilling to risk this financial uncertainty.

RECOMMENDATION 3: Increase admission of students from underserved areas in medical schools.

Incentives should be created that encourage medical schools to recruit and prepare physicians for clinical practice in underserved areas.

There must be an incentive for medical schools to admit minority students as well as students from underserved urban and rural areas. This would increase the likelihood that graduates return home to practice medicine. The admissions practices of many medical schools raise the thorny question of whether admissions committees cause and perpetuate the physician maldistribution problem.

Medical school class diversity might be enhanced if public or governmental representatives participated in the selection process. Medical school selection processes and admissions committees are unlikely to change in any significant way in the absence of an incentive. To that end, one meaningful enticement would be to alter ranking systems' scoring schemes to favor colleges of medicine whose graduates practice in areas of high medical need.

The creation of incentives for medical schools to produce physicians who will practice in underserved communities complements three other recommendations in this report: (1) increasing Federal and State loan repayment programs; (2) expanding Title VII funding; and (3) the creation of USPHMCs. The first two recommendations address the issue of maldistribution of physicians by specifically reducing the economic barriers for students and trainees. The third recommendation, creating a Federal medical college, addresses targeted recruitment and subsequent training of students who are more committed to staying in underserved urban and rural communities. However, even if our other recommendations are successfully implemented, the outcome will be insufficient to solve the complex issues enfolding the physician manpower maldistribution issue. Both allopathic and osteopathic medical schools need to be partners with the communities that they serve to better address this problem.

Contrary to public perception, there is no explicit "public" policy regarding the supply and distribution of physicians in this country. Accordingly, the supply and distribution of physicians crudely follows normal economic rules of supply and demand, largely based on the existing reimbursement system for physician services. One major reason for the misalignment of physician manpower with public need is the nature of the selection process of entering medical school classes. Factors that predict acceptance to medical school strongly favor those with lifelong socioeconomic and educational advantages. The vast majority of students accepted into medical school come from urban or suburban communities and typically do not migrate to underserved rural or urban areas after training. Even students with initial intentions to practice in needy communities often change career paths given the debt they incur in obtaining their education.

While most public medical schools have a publicly stated mission that includes a commitment to caring for their communities, there is little accountability for medical schools, public or private, to measure outcomes, successes or failures, in meeting the self-proclaimed goals of community service. Instead, medical schools are largely driven by two major factors in the manner in which they operate: prestige and funding.

Prestige is fundamentally desired by all academic institutions, including medical schools. Organizations that rank U.S. medical schools provide a strong incentive for colleges of medicine to select students who enhance the perception of the rating agencies. Ranking organizations do not assess the degree to which medical schools meet public policy needs. Total Federal research funding, degree of difficulty in gaining acceptance to the school, and the faculty-student ratio are three factors that are commonly used but do not directly address physician shortage and maldistribution. One example of a ranking process is that used by the *U.S. News & World Report*. *The U.S. News & World Report* rates medical schools using the following weighted criteria: 40% of the overall ranking is based on "reputation," as determined by a survey of medical school deans and senior faculty; 30% is based on the total National Institutes of Health research funding secured by the medical school and its affiliated hospitals; and 20% is based on student selectivity or the "degree of difficulty" in gaining acceptance. Within this ranking system, no credit is given to the selection of under-represented minorities or students originating from rural or urban underserved communities. Likewise, no rating points are granted for schools whose graduates ultimately provide care to medically underserved populations. In fact, most schools do not even measure this outcome.

Fundamental questions begged by the foregoing are what are the necessary qualifications for entering medical students who have a reasonable chance to succeed throughout their medical education; what is the impact of the current medical school admission practices on the supply and distribution of the physician workforce; can schools reasonably modify qualifications for the greater societal good of a more equitable distribution of physicians in the future; can societal and medical school interests reasonably be aligned; and are there successful models?

States can and should provide incentives to schools to develop special admission tracks focused on students from disadvantaged backgrounds, given that the community origin is a strong predictor of physicians returning to these communities. With the current recommendations to increase medical school class sizes, there exists a timely opportunity to create programs that are supported by State governments to recruit non-traditional students into these additional slots. If the government were to subsidize tuition for a predetermined number of students hailing from specific backgrounds, could the rating agencies perhaps agree to exclude these students from the traditional "prestige" factors so as not to deter the school from embracing this change? Ultimately, communities, legislatures, and rating organizations must align interests to create genuine incentives for change.

Funding is a strong incentive for all endeavors, especially in the academic realm. Both public and private universities rely heavily on funding from multiple sources to achieve their goals. Medical schools have traditionally counted on Federal funding to further their clinical and

basic science research enterprise. More robust research funding enhances the pursuit of prized faculty and the acquisition of cutting-edge technology. However, the allocation of funds is not aligned with efforts to admit and train students hailing from underserved communities.

This report is not the first to make recommendations germane to the selection and distribution of physicians. In 1971, the Millis Report [25] concluded that medical schools should

- "Change admission policies to encourage a more heterogeneous student population (and hence diverse practitioners),
- Increase the number of students, and
- Develop local educational opportunities that would "interdigitate with evolving regional health systems."

In 1970, the Carnegie Commission [26] also evaluated medical education in the United States. The Commission emphasized the need to explore new regional approaches to medical education, such as the Area Health Education Center (AHEC) concept. This proposal also correctly predicted that a regional approach to education could be more closely integrated with regional health services planning.

Finally, there is non-alignment between the supply and distribution of physicians and health policy with any measurable outcomes for the health status of a community. Physician supply is aligned with the demand created for reimbursable services, not the maintenance of healthy communities. Moreover, there is mounting evidence that the delivery of medical services and the performance of procedures correlates poorly to the health status of a community. Given this evidence, there is emerging recognition that, at a minimum, part of the future physician workforce will need to be far more engaged in improving the overall health status of the communities they serve.

There are a number of prerequisites that need to be in place for this recommendation to be widely accepted and ultimately successful.

- **The medical school ranking system needs to be modified.** The current ranking systems should be revised to give greater emphasis to schools that place practitioners in medically underserved communities. Ranking systems should reward schools for selecting students who advance the goal of a diverse cadre of medical practitioners serving in medically underserved areas. As schools change their student mix or expand their class size to create greater opportunities for students from underserved areas, these students should be excluded from the calculation of rankings. The exemption should apply only to a specific percent of the student class (e.g., 10%).
- **Demonstration projects should be Federally funded.** Federal and State funds should be provided to subsidize tuition costs for these students from underserved areas. Research initiatives for community collaboration programs should be funded. Research centers that measure outcomes addressing physician maldistribution as well as other barriers to access should be financially supported.
- **Funding should be provided for programs that create longitudinal education partnerships.** There should be financial incentives for medical schools that work cooperatively with public primary and secondary education leadership to develop programs to mentor and recruit underserved students into medical careers in medicine.
- **Current incentive programs should be maximized.** Programs that have a record of success should be better promoted and expanded, such as the Medicare "bonus" payment available for those physicians working in designated HPSAs.

Ultimately, medical schools must look critically at the structure and effectiveness of their selection processes, not only in light of their own stated missions but in the context of the continuing dilemma of physician maldistribution. The medical education community must candidly acknowledge its contribution to the existing problem of physician maldistribution. Medicals schools need to consider how to incorporate community needs into the school's mission and strategy. One option that should be considered is community representation on admissions committees, in clinical practice strategies, and in other forms of local public representation that would complement existing structures.

RECOMMENDATION 4: Create a national medical school.

A national medical school (or system of medical schools)—the USPHMC—should be established. The USPHMC would be unique in its emphasis on service, public health issues, epidemiology, and emergency preparedness and response.

One way to address the impending physician shortage is to increase medical school class sizes. The COGME Report No. 16 recommended a 15% increase. The Association of American Medical Colleges (AAMC) has subsequently recommended a 30% increase. Though these increases would decrease the magnitude of the projected deficit, beyond relying on "market forces" they do little to attenuate the regional and economic disparities in health care access.

The COGME therefore joins the American Medical Student Association (AMSA) in proposing the

establishment of a new type of Federally funded medical school (the USPHMC) originally detailed in an AMSA monograph [27]. The USPHMC would specifically address the shortage, maldistribution, and lack of diversity in the physician workforce by targeting the societal concerns of health disparities, public health issues, and emergency preparedness. Tuition for medical school will be waived in lieu of subsequent service.

There are number of factors that make the creation of a Federal medical school appealing at this time. The amalgam of these factors drives the need to enhance access to medical care while maintaining a robust and diverse medical workforce.

- The COGME Report No. 16 (2005) projected a shortage of approximately 90,000 full-time physicians by the year 2020. Pursuant to this concern, the COGME Report No. 16 recommended that medical school sizes be enlarged by 15%. The AAMC has since suggested a 30% increase in the number of U.S. medical school enrollees. Existing medical schools are currently expected to expand by less than 15%. In the absence of a robust and sustained increase in medical school class sizes, the needed cadre of medical school graduates must come from *newly created* medical colleges.
- There are substantial health disparities in the United States that are projected to worsen. These critical challenges are borne of racial and ethnic health disparities, a paucity of physicians practicing in rural and urban underserved areas, and too few physicians projected to practice in primary care. Given the schools' focus on training physicians to serve underserved communities, the schools will seek students from these communities as they have a greater likelihood of establishing their medical practices in their home communities on completing medical training and thus are more likely to work within underserved communities and for minority populations.
- The prospect of graduating from medical school without significant debt will encourage qualified under-represented college students to enter medicine and ultimately to serve underserved areas and populations.
- High debt on graduation also discourages physicians from entering primary care practice or practicing in underserved high-need areas. Medical student tuition and debt are at an all-time high. Tuition schedules have been increasing annually; the average annual public medical school tuition for an allopathic school in 2005 was $18,000 and averaged $34,700 per year at private schools [23,28,29]. In 2003, public osteopathic medical school graduates' debt averaged $117,000, while that for private school graduates averaged $141,700. In 2005, public allopathic medical school graduates' debt averaged $110,500, while that for private school graduates averaged $138,000. Nine percent of graduates borrowed more than $200,000, and only 15% graduated without debt. A student who borrowed $120,000 could pay as much as $1,800 a month for 10 years after completing residency [28]. Graduates from a USPHMC would have less debt and therefore be more likely to take positions serving underserved areas and populations.
- The Institute of Medicine has recommended that traditional medical education and public health issues should be more closely aligned. This is particularly relevant when one considers threats to public health, such as large-scale natural disasters (e.g., hurricanes, floods), global pandemics (e.g., avian flu), and the risk of bioterrorism. A new cadre of physicians needs to be trained to serve as experts for these health problems facing the United States.
- Medical education efforts must be aligned with workforce needs. Traditional medical education in the United States has been unsuccessful in reversing geographic physician maldistribution and barriers to health care access. Additional problems include a growing lack of primary care physicians and a limited degree of cultural diversity in medicine. Moreover, the current process of education inadequately fosters and sustains public service values among medical students. Physician attitudes are shaped throughout medical school and residency training and, too often, the altruism embraced by medical students is eroded while progressing through the continuum of medical education.

Proposal for a United States Public Health Medical College

The USPHMC would serve to develop a sustained supply of physicians committed to public service and social responsibility. It is expected that the USPHMC would serve American public interests in a manner parallel to that of the United States Public Health Service (USPHS). The USPHMC would intentionally target cultural competency and rural and urban medical issues as part of its integrated curriculum. Moreover, the admissions process would select people based on the necessary attitudes, knowledge, skills, and experiences to excel in this model. Diversity, career interest, and motivation would be keen criteria in the selection process and would ideally lead to a group that was properly trained and committed to the mission and goals of the USPHS.

We appreciate that the ultimate design of the School would be the product of additional planning and review. However, the initiative should embrace the following features:

- First and foremost, the USPHMC will be committed to serving those most in need of health care.
- The USPHMC system will be dedicated to improving the health of the public, with a clinical emphasis in chronically undeserved areas across racial, ethnic, socioeconomic, and educational boundaries.
- The USPHMC will create physicians who will work in underserved areas with the intention of eliminating health disparities. In addition, these physicians will serve as public health experts.

We recognize that despite the potential benefit of a single new medical school, it would be inadequate by itself to address the magnitude of the physician workforce and health care access challenges. To more adequately address this problem, a network of six to ten schools would be required. The AMSA white paper more completely discusses the formation of a network of USPHMCs [27].

RECOMMENDATION 5: Expand the strategic access (e.g. Title VII) funding cap.

Funding targeted for physician training that creates a clinical physician workforce to serve populations in areas of limited access to medical care should be increased. For example, reinvigoration of Title VII funding should be considered.

Federal funding should support programs that provide a solution to restricted health care access. Such funding could support existing programs and assist in the creation of new programs. One example of an existing funding stream is Title VII funding [30]: "*Title VII of the Health Professions Education Assistance Act was designed to increase the production of primary care physicians who serve medically vulnerable populations. Title VII grants supported the development of curricula in community-oriented primary care and provided clinical training sites where physicians learned to serve vulnerable populations. These grants instilled an understanding of the importance of personal medical homes and a sense of obligation to serve communities and populations.*" This funding was associated with "higher rates of entry into family practice and practice in HPSAs, and pre-doctoral training and departmental development funding were strongly related to achievement of the Title VII, section 747 objectives" [31].

The impact of recent cutbacks in Title VII are not immediately obvious, but the consequences of the cutbacks can be seen in the broader health care system. Title VII funding has historically been a primary mechanism for attracting physicians to areas of need. Title VII funding encouraged graduate medical students to select specialties and locations that have experienced physician shortages in primary care and specialties needed to serve in Community Health Centers (CHCs).

Beginning in 2001, the Administration increased funding for CHCs. Under the current Administration, the number of CHCs and people served has grown impressively. The *Washington Post* (June 19, 2007) found that, since 2001, the 500 new or expanded CHCs served an additional 4.5 million individuals. The reductions in Title VII funding, however, have skewed physicians away from CHCs and, as a result, CHCs are now experiencing chronic shortages that are likely to limit the further expansion of the CHC system. For instance, "[I]n Ohio, the number of health centers rose from 107 to 122 between 2002 and 2005—a 14% increase—and the number of patients seen increased by 26 percent, but the number of physicians increased by only 9 percent" (*Washington Post*, June 19, 2007). In fact, the average health center had a family physician vacancy rate of more than 13%. For the CHC system to be a sustainable success, it needs to be coupled with increased Title VII funding to ensure that CHCs are adequately staffed to care for the needy and uninsured.

Though Title VII is renewed through a yearly appropriations process, recent funding reductions have jeopardized the ability of U.S. medical training programs to produce a sufficient and numerically stable cohort of generalist providers. Given the important goals of Title VII, Section 747 funding to primary care and the complementary relationship between Title VII support and the recent initiatives to meet the needs of the underserved through CHCs, reinvigoration of the funding of these programs should be given serious consideration. In the absence of reinvigorated Title VII funding, other forms of financial support to meet the needs of people in critical access settings will need to be more robust.

Appendix A: Two Models of Successful Recruitment in Underserved Areas

The University of Washington School of Medicine (UWSM) and the Urban Health Program at the University of Illinois (UIC) are examples of two schools that have successfully used their admissions process to expand access to medical care in their communities. The UWSM seeks to increase the number of physicians in their priority five-State, primarily rural service area, whereas the UIC seeks to improve service in the Chicago area. Below, we highlight these two programs.

One of the oldest and most studied regional center programs is based at the UWSM. In 1971, the medical school established a program to meet the unique needs of a four-State region that included Washington, Alaska, Montana, and Idaho; hence the title: the WAMI program. Wyoming has since been added and the acronym changed to WWAMI. This large rural territory includes about one-fifth of the nation's land mass but only 3.3% of the population [32]. When the program originally was designed, the States of Alaska, Montana, and Idaho were among only seven States in the country lacking GME training programs. The WWAMI program met dual needs: It offered medical education for States that could not fund their own medical schools, and it encouraged physicians trained in the region to remain in the region. [32]

When the WWAMI program was established, it had five goals. Measurable outcomes have been attained for each of these goals:

- Admit more WWAMI States students to medical school.
- Train more primary care physicians.
- Place physicians in the areas of greatest need.
- Make medical school resources available to the communities.
- Accomplish programmatic goals without major costs.

By 1973, the number of applicants from the partner-States increased by 155% as compared to ten years earlier. Research findings suggest at least five factors that explain the breadth and depth of the WWAMI's success.

(1) Focus on primary and secondary education. The program fosters success in disadvantaged K-12 students, in particular the middle-school students. There are specific efforts to recruit youths residing on Native American reservations.

(2) Integrated longitudinal plan for medical education across the continuum. Medical school, postgraduate medical education, and continuing medical education are treated as a continuum to accomplish long-term recruitment and retention.

(3) Significant support of community practices to further the goals of the program.

(4) Genuine sense of ownership by the participating physicians, institutions, legislatures and associations.

(5) Educational equivalency among training sites.

As the program developed and evolved, there has been increased participation in clinical practices. For example, in 1985, the University of Washington assumed sponsorship of the AHEC program. The regional AHEC network contains six clinical centers. The Programs for Health Communities (PHC) was established in 1989 as a collaboration between UWSM and the AHEC. PHC has worked with 60 towns in the WWAMI States to strengthen health care delivery.

The WWAMI Center for Health Workforce Studies was established in 1998 to conduct applied research on the distribution and supply of health care providers, with an emphasis on State workforce issues in underserved urban and rural regions in the WWAMI consortium.

The WWAMI Rural Health Research Center was established in 1998 within the UWSM Department of Family Medicine to study issues surrounding rural and underserved health care delivery. It is one of only five Federally funded rural health care research centers.

The largest published study describing training and practices of family physicians was conducted by researchers from the WWAMI Rural Health Research Center in 2003. This longitudinal study reviewed the 26 years of family practice training under this model [33]. Since 1972, the Family Practice Residency Network has trained more than 2,000 family physicians. Approximately 37% of the program graduates practice in communities of fewer than 25,000 people; 23% are practicing in communities of between 25,000 and 100,000 residents; and 37% are practicing in communities of more than 100,000 people. Table 1 highlights WWAMI's success in educating residents from the five-State area who then return to their home State and in attracting nonresidents to remain in the region.

TABLE 1.

Statistics about Graduates from the University of Washington School of Medicine Who Practice in WWAMI States, 1973–1998

	Idaho	Montana	Alaska
No. State WWAMI graduates in practice	243	292	149
No. State WWAMI graduates who returned to practice in home State	107	119	76
State WWAMI graduate return rate	44%	41%	51%
No. non-State UW graduates who practice in the State	66	31	30
Total return rate	71%	51%	71%

* Return rates for Washington and Wyoming are not included. Statistics concerning return rates have been maintained only for States with contracts for medical education through the WWAMI program. Because the first Wyoming class graduated in 2001, return rates are not yet available for that State. From the annual AAMC senior survey, 85% or more of UWSM graduating seniors have consistently expressed the intention to practice within the five State region after completion of training.

Source: Ramsey PG, et. al., Acad Med 2001;76:765–775

Medical school programs that are focused on addressing the specific needs of the urban medically underserved are less prevalent than rural programs. The Urban Health Program (UHP) at UIC was created in 1978 to recruit, retain, and graduate students from groups of underrepresented minorities in the health professions. The ultimate goal is "to train a cadre of underrepresented health professionals" [34].

UIC, the largest medical school in the United States, boasts a 25% minority enrollment and graduates one in every six Illinois physicians. The medical school has a special curriculum track for urban health called the *UMed Program*. Its mission is "[t]o admit, prepare and graduate physicians who will—after completing residency training—practice in urban communities in any specialty deemed as needed for those communities." The four-year curriculum aims to prepare physician leaders for practice in urban communities.

The UHP is designed to reach students early in the educational process—as early as kindergarten—with the intention of preparing young students for a career in the health professions. Similar to the WWAMI model, there is a partnership involving the local community, physician practices, the local AHEC, and legislative leadership. A Community Advisory Council was created to serve as a forum for community leaders, educators, health professionals, and others to assist UIC in its efforts to increase the number of underrepresented health professionals and to improve health care services in underserved urban areas.

The UHP reports that approximately 70% of African-American and Latino physicians who practice in Chicago are UIC graduates. Further, UIC graduates the third greatest number of African-American students from its medical school. It is eclipsed only by the Howard University College of Medicine and the Meharry Medical College. The UIC Medical Center and Clinics serve approximately 50% African-American and 25% Latino patients.

Other medical schools have initiatives that provide outreach to underserved communities, both urban and rural. Only a few have been as successful as the UHP or the WWAMI. Successful programs, demonstrating a long-term commitment coupled with measurable outcomes, tend to share certain characteristics.

- **Vision**. The medical school must articulate a core value that includes a commitment to clinical practice in underserved communities.
- **Partnership**. A medical school cannot, by itself, address all the needs of underserved communities, regardless of the size and complexity. To achieve success, a true partnership must be created with the community, local government and legislature, and the existing community medical practices.
- **Inclusiveness**. All stakeholders in the continuum of education must collaborate to bring scientific education into primary and secondary education to prepare pre-medical students for medical school. Additional resources must be given to schools in underprivileged communities.
- **Investment**. Investment in educational research that is dedicated to measuring community health outcomes must be aligned with service-based objectives. Research and measurement are imperative in understanding how goals are being met.

Appendix B: Proposal for the Operation of a United States Public Health National Medical College

The School would follow the existing model of the Federal military medical school, the Uniformed Services University of the Health Sciences. The USPHMC would operate under the ultimate authority of the Surgeon General of the United States, and oversight would be under the auspices of the DHHS or its Health Resources and Service Administration.

The USPHMC would enroll 600 students annually, thus graduating and placing 150 physicians in high-medical-need areas each year. Students would be selected to generate a medical workforce that reflects the ethnic, cultural, and societal values of a diverse population and to select a socially sensitive cadre of medical students. Thus, students from underserved communities will be given strong consideration. Valued characteristics for applicants will be (consistent with the Sullivan Commission report *Missing Minorities in Health Professions*) leadership, community service, cultural competency, multilingual skills, and broad overall experience.

In exchange for four years of free medical education, a student would be obligated to practice in an underserved area after graduation—generally two years of service for each year of education. After the initial service commitment, there would be an additional ten-year commitment in a Reserve Corps. These physicians would be under the direction of the Commissioned Corps of the USPHS, and these physicians would also be first responders for situations requiring public health emergency responses.

The location of any medical school and the sites for clinical rotations would be strategically determined to serve communities most in need and promote a sense of social responsibility through service to others. The service repayment requirement would not necessary be applied only to the time after residency training. The service repayment could be considered "in effect" if a medical school graduate trained in an approved residency. For example, if a physician entered an approved family medicine residency, the repayment program would start taking effect during the residency. At the completion of a three-year program, such a physician would then owe five additional years in a service repayment program.

The USPHMC would train students during the entire four-year medical curriculum. The first two years of *preclinical* education (emphasizing basic sciences) will be at one of the regional medical school campuses. The final two *clinical* years would occur in existing area regional hospitals, community clinics, and other health care centers that are located in areas of medical need. Traditional medical training with a focus on chronic medical conditions will be integrated with clinical experiences in underserved areas. Additional training would pinpoint public health areas, epidemiology, disease surveillance, occupational and environmental health, the business of medicine, legislative and public policy processes, health education and health promotion, emergency preparedness and response, and biostatistics. Students would receive an MPH (master in public health) degree combined with an M.D. or D.O. (doctor of osteopathy) degree.

Clinical rotations would occur in geographic areas, both urban and rural, that have limited access to medical care. Areas targeted for enhanced health care access would consider maldistribution across racial, ethnic, socioeconomic, and educational parameters. The USPHMC would further train physicians in the importance of public health issues and emergency preparedness. Graduates of this program would be commissioned into a public health service organization or department (e.g., NHSC). in an HPSA (as defined by the Health Resources and Service Administration), Indian Health Bureau, Community Health Center, or other site deemed appropriate. Graduates will select their preferred assignment, in a manner similar to the process used by the NHSC.

The medical school faculty would focus primarily on teaching clinical medicine. The instructors should not be encumbered by grant requirements or heavy clinical service requirements. Additionally, there must be an intentional balance between primary care and specialty disciplines. Though primary care would be an essential area of medical service and training, subspecialty and surgical disciplines are also sorely needed in underserved areas.

Graduates would be encouraged to enter residency training in primary care fields, especially in programs that have an emphasis on community-oriented care. Selected residency programs would be credited against service requirements on a year-for-year basis. For example, an eight-year commitment would be decreased to five years if a preferred three year primary care residency were chosen. Another way in which to encourage an emphasis on primary care training would be to finance these positions more favorably. For example, an elevated per-resident amount payment from CMS for qualified primary care programs could lead to greater payment to house staff in needed disciplines and, thus, increased enrollment in these programs.

Federal-State partnerships would be a natural derivative of the USPHMC. Currently, there are at least 69 State and local programs that provide support for a medical education in exchange for service. States could easily use USPHMC facilities for training physicians who are currently in loan-repayment programs. Through this exchange, States would fund a portion of the operating costs of the USPHMC.

The full operating budget of the USPHMC is undetermined. The major cost burden for capital expenses would derive from creating a teaching facility for the first two years of basic sciences, rather than building an entirely new academic medical center [34]. Moreover, any individual State-sponsored medical school or school receiving a Federal subsidy (including CMS funds for graduate medical education) would be approached to participate in this system. Few new allopathic medical schools have been recently established. Nonetheless, the recent information from the Florida State University College of Medicine that opened in 2002 could serve as a template for fiscal estimates.[34] The annual operating costs of USPHMC would be approximately $33 million.

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