The Social Mission of Medical Schools in a Time of Expansion:
The United States Experience

Candice Chen, M.D., M.P.H.
Assistant Professor of Pediatrics and Health Policy
The George Washington University
Department of Health Policy

Abstract

Medical schools are socially accountable to address the priority health needs of the nation. Three inter-related issues have persistently challenged the U.S. health care system – insufficient primary care physicians, geographic maldistribution and an underrepresentation of minorities in the health care professions. These issues limit access, quality and cost-effectiveness in the health care system. Therefore, medical schools must address these three issues in their social mission.

In response to reports of physician and primary care shortages, medical schools have entered a period of expansion. Expansion offers the opportunity to re-evaluate priorities and address deficiencies in the current educational system. A body of evidence exists supporting a variety of medical school policies and programs to address social mission issues. However, an examination of current expansion activities suggest that while some schools are implementing policies to support primary care, rural and underserved practice and diversity in their schools, these activities are limited and potentially offset by other goals such as expanding research portfolios and developing local economies. Federal and state efforts have also focused on social mission goals. However, these programs have been severely cut in recent years and additional funding is limited by tight fiscal budgets.

A review of the current medical school expansion, in light of the social mission of medical education, suggests a number of lessons. Medical schools need greater private and public support to enhance social mission activities. They also need to develop internal commitments to social mission and re-evaluate priorities which may be counteracting primary care, practice in underserved areas and diversity. Osteopathic schools have maintained a flexibility which allows them to implement innovative primary care and underserved practice curricula, and allopathic schools should learn from the osteopathic model. Greater evidence and accountability is needed to ensure public investments yield desired outcomes and future support exists for social mission programs.

Introduction

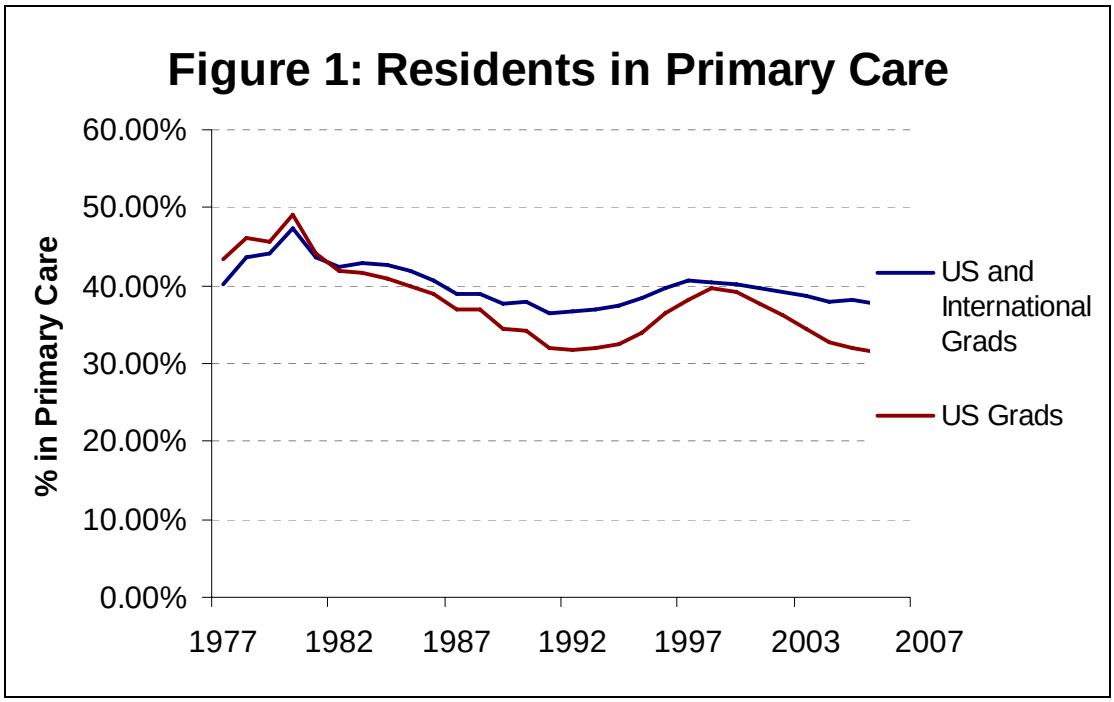
The World Health Organization defines social accountability for medical schools as:

> *"…the obligation to direct their education, research and service activities towards addressing the priority health concerns of the community, region, and/or nation they have a mandate to serve."*[1]

Medical schools in the United States serve many functions. They are premier research facilities; they provide clinical services, often to underserved communities; and they are important engines for local, regional and national economic development. However, the one unique function medical schools serve in the United States is to train and produce physicians to care for the country's population. No other institution serves this same function. The one mission medical schools must meet is to produce physicians to address the priority health concerns of the country. It is within the training function, therefore, that we define the social mission of U.S. medical schools.

While the United States is arguably a world leader in developing new diagnostic and treatment modalities, the nation continues to lag behind other developed countries on basic health care quality and access measures. Three interrelated issues have historically and persistently challenged the U.S. health care system's ability to address these quality and access disparities – the increasing specialization of physicians, the geographic maldistribution of physicians, and the under-representation of minorities in health care fields.

A strong primary care system is associated with more cost-effective, high quality health care.[2,3] Yet the U.S. health care system is dominated by specialty physicians – with two-thirds of physicians practicing in a specialty field and a continuing and increasing trend of U.S. medical students choosing to specialize during graduate medical education training (Figure 1). Primary care workforce shortages of up to 44,000 providers are predicted within the next 15 years[4] and in recent years, Medicare beneficiaries are reporting increasing difficulty accessing new primary care providers.[5] An insufficient primary care workforce also limits the ability of the nation to expand health care coverage and access. As demonstrated in Massachusetts when the state passed health care reform in 2006, it quickly became apparent that there were insufficient primary care physicians in the state to meet the needs of universal coverage.[6]



Source: JAMA Annual Graduate Medical Education data, September 1980-2007.

- Primary Care = Family Medicine, Internal Medicine, Pediatrics
- Overestimates true percent entering primary care practice due to subspecialization following general internal medicine and general pediatric residencies

Geographic maldistribution is an ongoing problem in the United States. Physicians have a tendency to move to areas of higher per capita incomes and lower unemployment.[7] Today, while 19.2% of the U.S. population reside in rural areas, only 11.2% of physicians practice in rural areas.[8] Primary care shortages disproportionately affect rural communities as generalist physicians are the most likely to locate in rural areas.[9] As fewer medical students pursue primary care careers, fewer are also likely to practice in rural and underserved locales.

Diversity in the United States has both a unique historical and current context. African Americans, Hispanic Americans, and Native Americans make up 28% of the U.S. population,[10] yet they account for less than 10% of the physician workforce,[11] only 13% of 2007 medical school graduates,[12] and only 7% of medical school faculty.[13] This mismatch has important implications for the delivery of health care. Evidence indicates minorities seek care from race concordant physicians[14] and minority physicians are more likely to enter primary care, practice in underserved areas and care for minority, poor, and uninsured individuals than their white counterparts.[15,16] Diverse medical school classes also increase the cultural competency of all medical students.[17]

An insufficient primary care workforce, the geographic maldistribution of physicians and the underrepresentation of minorities in the physician workforce underlie the persistent health care access, quality and cost problems in the United States, and medical schools have not been successful in meeting these most critical needs. However, medical schools

are currently in a period of expansion which offers an opportunity to re-evaluate policies and missions, and to make adjustments in order to meet the social mission of medical schools – to produce a diverse, high quality physician workforce equitably distributed both geographically and by specialty to meet the health care needs of the country.

In the definition of social mission, two additional issues should be addressed – the maintenance of high quality graduates and the production of a sufficient number of physicians. The accreditation system to maintain educational quality is well established in the United States. Medical schools undergo rigorous accreditation procedures for both initial and ongoing accreditation, including site visits to schools to ensure all standards are met.[18] Expansion of medical schools is unlikely to change the accreditation process and therefore, while we must remain vigilant in the maintenance of medical school quality, the system which exists has and continues to function well for these purposes.

U.S. medical schools currently produce only three-quarters of the trainees in U.S. graduate medical education (GME) positions. The remaining positions – almost 30,000 - are filled by international medical graduates.[19] Many of these graduates come from developing countries with severe physician shortages and stay within the U.S. following training.[20] This international brain drain results from the mismatch between the number of U.S. medical school graduates and the number of GME positions available in combination with policies such as visa waivers for international graduates willing to work in underserved areas. These international graduates have been important contributors to the U.S. health care system, but the situation highlights the need to address the primary care shortage and geographic maldistribution of physicians while also being responsible international citizens. A full discussion of the GME system and international medical graduate policies is beyond the scope of this paper, but it is worthwhile to note that U.S. medical schools can and should expand to meet current GME capacity and thoughtful future GME expansion should continue to reduce the international brain drain.

The Evidence: Factors Affecting Social Mission

Many factors influence students' choices to enter medical school and subsequently enter primary care fields or practice in underserved settings. These factors range across the pre-medical, undergraduate and graduate medical education, and practice spectrum. Policy makers often concentrate on practice spectrum factors when examining student career choices. Significant income disparities between primary care and specialty practice and lifestyle considerations affect the attractiveness of primary care and underserved practice. The average median compensation across specialty fields is 80% higher than the median compensation for a primary care physician, and an orthopedic surgeon or gastroenterologist can easily make twice the salary of a primary care doctor.[21] Related to the reimbursement system, primary care physicians are under pressure to see more patients while the rising incidence of chronic disease increases the service demands during already shortened visits. These, along with administrative demands, create the sense of the primary care doctor being a hamster on a wheel, contributing to a growing frustration with the field.[22]

In order to effectively address the social mission medical education, changes must be sought across the education and practice spectrum. For the purposes of this paper, we concentrate on the evidence supporting those strategies that are directly relevant to medical schools.

A rich body of literature exists about the factors affecting medicals students' career choices. The factors are generally presented as either student or medical school characteristics. Medical school factors, such as curriculum and culture, are clear actionable areas. Student characteristics are also important factors that can affect recruitment and admission policies and ultimately alter the output of medical schools.

Student Characteristics

A number of student characteristics have been associated with graduates' choices of primary care and underserved practice. Factors associated with primary care include being female, older, and married; having undergraduate degrees in the behavioral sciences or liberal arts; having non-physician parents; having relatively low income expectations; being interested in diverse patients and health problems; and having less interest in prestige, high technology, and surgery.[23,24] The best predictors for choosing a family medicine career are students who are interested in family medicine at matriculation, do not plan a research career, and believe primary care is important.[25,26,27]

Planning to practice in an underserved area is associated with choosing a primary care career as well as eventual practice in an underserved setting. Upbringing in a rural or underserved area has generally been found to be the most significant factor in successful recruitment to rural and underserved areas. Other factors have been inconsistently found to relate to practice in rural or underserved areas. Male gender and older age have been found to be associated with rural practice in some studies, while others found no association.[28] Being a member of an underrepresented minority group has not been associated with rural practice,[29] but it is a predictor of practice in an underserved setting.[30,31]

Medical School Characteristics

A national survey of medical students and residents in the late 1990s suggests that students experience an erosion of their orientation to primary care as they pass through medical school.[32] However, there are medical school factors that increase the likelihood of students choosing primary care and underserved practice. The strongest factors associated with an increase in the number of students choosing primary care include: required third-year family medicine clerkships with a greater number of required weeks showing the greatest association, continuity experiences in primary care settings, primary care tracks, and a greater relative representation of full-time primary care faculty.[33,34,35]

Some medical school characteristics have been inconsistently found to be associated with eventual rural and underserved practice, such as a school's location in a rural state, public

ownership and smaller amounts of NIH funding. The strongest correlate to practice in rural and underserved areas appears to be the dedicated rural or underserved medical education program.[36,37] In his 2008 systematic review of medical school programs to increase the rural physician supply, Howard Rabinowitz suggests if 125 medical schools developed rural programs for 10 students per class, the number of rural physicians produced would more than double in the next decade.[38] In most cases, these rural and underserved medical education programs combine strategies for student recruitment from rural and underserved communities strategies with rural and underserved focused curricula.[39,40,41,42]

Diversity Policies and Programs

Pipeline programs, or programs designed to promote minority and disadvantaged students entry into the health professions, have generally been successful in improving academic performance, test scores and medical school acceptance rates. These programs are established as partnerships between medical schools and high schools or colleges, and supported through the schools as well as private foundations and state and federal programs. The programs with the strongest evidence of success are summer enrichment programs for college age students. However, studies suggest that college interventions sustained over the entire college period also increase the number of underrepresented minorities who enter medical school, and more research is needed in this area.[43]

Affirmative action admissions policies for under-represented minorities have been hampered by legislative and legal challenges. The Bakke case of 1978 challenged the University of California at Davis' special admission program for minority and disadvantaged applicants. The case advanced to the U.S. Supreme Court which ruled admission preferences based solely on race constituted discrimination, however, colleges were legally justified in taking race into account for the purposes of improving the delivery of health care services to underserved communities or for the attainment of a diverse student body. In 2003, the Supreme Court upheld the Bakke ruling in a case challenging the University of Michigan's admission policies. In recent years, states have further challenged admission policies with state legislatures banning affirmative action in California, Washington state and Michigan.[44]

Medical School Expansion: Current Plans and Social Mission

U.S. medical schools are undergoing a period of expansion. The Association of American Medical Colleges (AAMC) estimates allopathic medical school enrollment will increase 21% (3,458 positions) from 2002 to 2013. This increase includes expanded enrollment at 113 of the 125 schools accredited in 2002 as well as the addition of at least nine new medical schools. Osteopathic medical schools are undergoing an even greater expansion. Ten new schools or branch campuses have opened in the past decade, and overall enrollment is expected to grow by 79% (2,440 positions) from 2002 to 2013.[45]

Expansion offers medical schools the opportunity to address social mission, such as re-evaluating their admission and recruitment policies, as they increase class sizes and implement primary care or underserved programs for new and existing students. There is some indication that medical schools are indeed considering social mission in their expansion plans. Thirty-three allopathic schools report expansion plans are targeted to specific populations, including underrepresented minorities, rural communities and urban underserved communities.[46] Thirteen osteopathic schools report growth will be targeted to specific populations. Four osteopathic schools report recruitment of underrepresented minorities and ten schools are recruiting from rural and small-town communities. Most of these schools note regional specificity in targeted populations.[47]

New medical schools deserve special consideration during this period of expansion. To start a new medical school requires considerable community involvement as well as both public and private investment. As Mike Whitcomb notes in his case study of ten new and developing medical schools, institutions often use social mission arguments to support the establishment of a new medical school. They argue that a new medical school will "increase the supply of physicians inclined to practice in the community region, or state" and "provide citizens in the community with greater access to certain kinds of healthcare services." However, it is also emphasized that a new medical school will "enhance the academic standing of the university" and "have a favorable impact on the economy of the community or region where the school would be located."[48] While these motivating factors are not absolutely in contradiction with the social mission, they can diminish or even counteract the pursuit of social mission goals. Both academic standing and economic impact have been linked to research activities and specialty services. A focus on specialty services generally creates a non-primary care friendly culture, and evidence suggests a negative correlation between research and both primary care and underserved practice. Yet if new schools are supported and funded based on social mission arguments, it will be critical to evaluate their success in achieving these goals.

The new medical schools range in their pursuit of social mission goals. Consistent with their history, the new osteopathic schools tend to be private institutions (Table 1). However, the majority of new allopathic schools are public. While new schools are often located in or around large urban areas, many are located in smaller metropolitan area, such as Roanoke (VA), Scranton (PA), Yakima (WA), and Blacksburg (VA). The choice to affiliate with public institutions and locate in less urban areas holds promise for social mission goals, as public ownership and location in more rural areas has been associated with greater eventual rural and underserved practice.

Table 1. New Medical Schools

School Name	Type	Location	Public/ Private	LCME Status
Central Michigan Univ	MD	Mount Pleasant, MI	Public	Applicant
Scripps College	MD	La Jolla, CA	Private	Applicant
Oakland Univ	MD	Rochester, MI	Public	Applicant

Touro Univ	MD	Hackensack, NJ	Private	Applicant
Hofstra Univ	MD	Hempstead, NY	Private	Applicant
Virginia Tech Carilion	MD	Roanoke, VA	Public	Preliminary
Commonwealth Med Coll	MD	Scranton, PA	Private	Open 2009
Florida International Univ	MD	Miami, FL	Public	Open 2009
Univ of Central Florida	MD	Orlando, FL	Public	Open 2009
Texas Tech Univ	MD	El Paso, TX	Public	Open 2009
Rocky Vista Univ	DO	Aurora, CO	Private	Open 2008
Pacific Northwest Univ	DO	Yakima, WA	Private	Open 2008
Touro Coll of Osteo Med	DO	New York, NY	Private	Open 2007
Lincoln Memorial DeBusk	DO	Harrogate, TN	Private	Open 2007
Edward Via Virginia Coll of Osteo Med	DO	Blacksburg, VA	Private	Open 2004
Florida State Univ	MD	Tallahassee, FL	Public	Open 2001

* Does not include expansion branch campuses.

Some of the new medical schools have explicitly stated and incorporated social mission goals into their missions and policies. The Commonwealth Medical College was founded based on the community's perceived need for more local physicians. The school plans to accept 70% of its students from Pennsylvania, despite its status as a private institution, and hopes to ultimately accept students primarily from northeastern Pennsylvania. Applicants' interest in staying in the local community and a commitment to service are strongly considered in the admissions process, and prior to opening the school has developed partnerships with local universities to establish a pipeline program to attract students from rural and/or lower socioeconomic backgrounds. The curriculum incorporates training in community-based settings throughout the four years and has a strong ambulatory care focus, with up to 80% of the third year spent in ambulatory settings (D'Alessandri RM, Katz P, personal communication, March, 2009).

A.T. Still's new campus in Mesa, Arizona is an innovative model with a social mission focus. Opened in 2007, the curriculum is built around training in Community Health Centers. The first year is spent at the Mesa campus, and in the 2nd through 4th years students are based at ten Community Health Centers around the country. While the school has yet to graduate its first class of students, this innovative community focused school is sure to produce physicians more likely to enter primary care and practice in underserved areas.

Medical School Expansion: State and Federal Policies and Social Mission

In many cases, states and the Federal government have weighed in on medical school expansion and the social mission. Particularly in the case of public schools, state legislatures often support new and expanding schools. However, a few states have also explicitly addressed social mission in their expansion plans. The California legislature passed the Programs in Medical Education (PRIME) to support expansion of the University of California medical schools with an explicit focus on meeting the needs of California's increasingly diverse population. The first PRIME program, launched in 2004 at UC Irvine, focuses on the Latino community. UC San Diego's program focuses on health disparities of Californians living in the Mexican border regions and rural communities of inland Southern California. UC San Francisco focuses on the urban underserved, and UC Davis focuses on rural California.

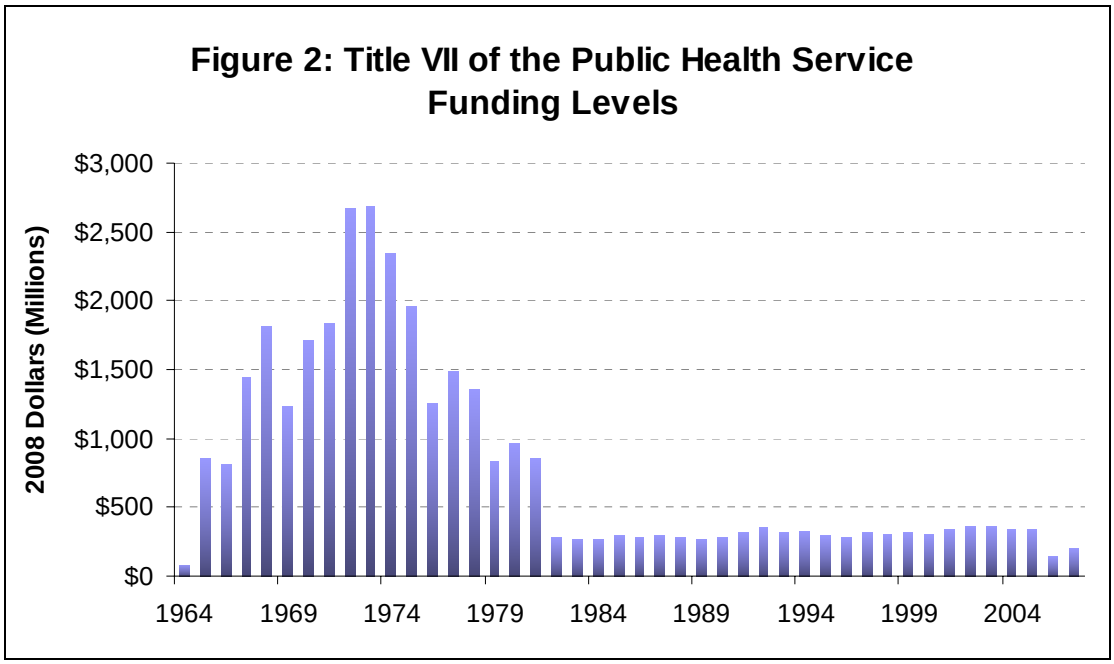
Massachusetts is another state that has demonstrated both a significant social mission need and action by the state legislature to address this need. In 2006, Massachusetts passed state health care reform that brought more than 300,000 previously uninsured people into the health care system. By April 2008, Massachusetts health care reform was featured in a New York Times article that pointed to an insufficient primary care system to meet the needs of universal health care coverage.[49] In August 2008, the governor signed legislation creating a number of primary care incentives including: an expansion of the University of Massachusetts medical school focused on graduates committed to entering primary care and working in underserved regions and establishing learning contract programs providing full waivers of tuition and fees in exchange for at least four years of service in primary care or underserved areas.[50]

The Federal government has also been active in increasing support for medical school social mission goals. The primary programs that have provided explicit support for medical schools are Title VII of the Public Health Service Act and the National Health Service Corps (NHSC) programs. Title VII supports training in primary care and underserved areas as well as diversity programs under the Health Careers Opportunity Program and the Centers of Excellence program. The National Health Service Corps provides both scholarships and loan repayment in exchange for service in primary care and underserved areas.

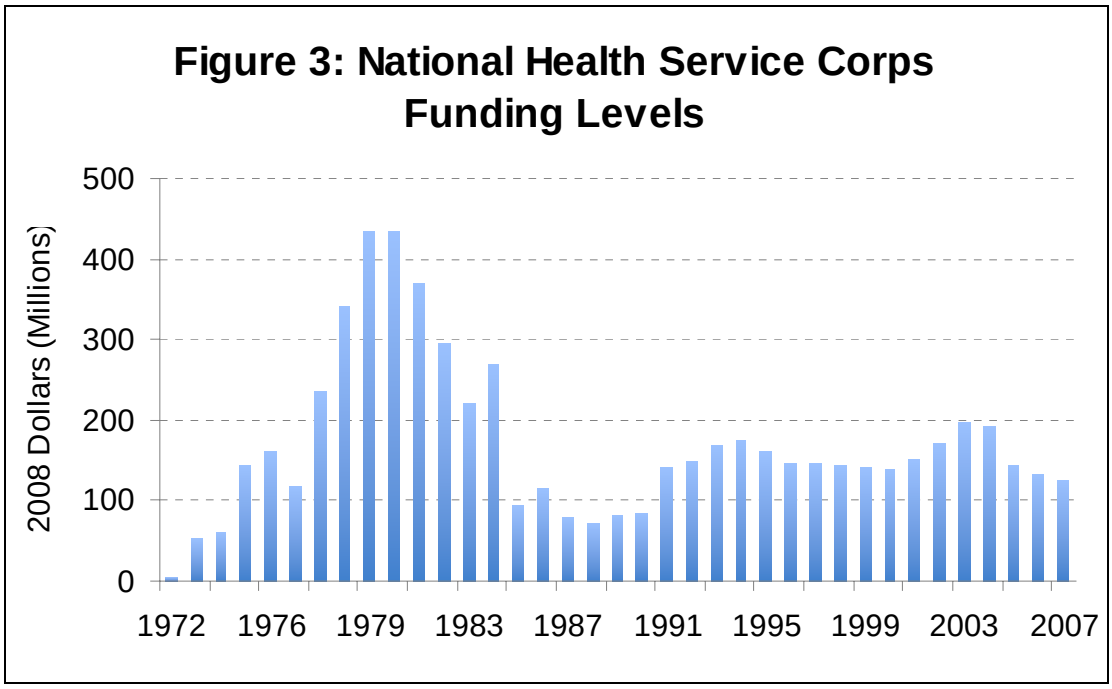
For the past 20 to 30 years, both Title VII and NHSC funding levels have seen significant cuts (Figure 2, 3). However, the American Recovery and Reinvestment Act of 2009 targeted an additional $200 million to health professions training programs, including Title VII, and an additional $200 million to NHSC. Further, the U.S. health care bill signed by President Barack Obama on March 24, 2010 includes a number of provisions to strengthen the primary care workforce, including:

- Increased funding for Title VII programs including the training in primary care programs,
- Increased funding for NHSC and Community Health Centers,
- Establishment of a Teaching Health Centers program to support graduate medical education in health center settings,

- A 10% primary care bonus payment, and
- Establishment of a National Health Care Workforce Commission to review and recommend on current and projected health care workforce supply and demand, including education and training capacity and loan repayment and scholarship programs.



Source: Data provided by the Health Resources and Services Administration



Source: Data provided by the Health Resources and Services Administration

Discussion

A number of organizations are calling for medical schools to engage in greater social mission initiatives, particularly in this time of expansion.[51,52,53] Some states and the Federal government have increased support for social mission programs. However, state initiatives are inconsistent and both state and federal government programs are being limited by tight fiscal budgets. Individual medical schools are also implementing social mission policies and programs, but again, these efforts are inconsistent and rather limited. A number of lessons are apparent in our review of medical school social mission evidence and activities in this time of expansion.

Federal and state support for social mission programs has been limited in the past 20-30 years. Greater investment in Title VII of the Public Health Service Act, National Health Service Corps, and state level primary care, scholarship and diversity programs are needed to significantly bolster and support medical schools' efforts to implement social mission programs. This is particularly important as new medical schools are established and existing medical schools expand. In addition, Federal and state programs, such as research and graduate medical education funding, should be re-evaluated and re-structured to support social mission goals rather than obstruct them.

Medical school social mission activities are limited, and other medical school goals - such as developing and expanding research portfolios and driving local economies - are at cross-purposes with social mission. Expansion provides an opportunity for medical schools to re-evaluate their priorities. While medical schools provide many functions to society, they are the only institutions that produce physicians to care for the population of the nation. Schools must develop and prioritize internal commitments to produce a diverse and well distributed (both in specialty and location) physician workforce that meets the societal needs of the country.

Osteopathic schools are a model of curricular flexibility, and they have implemented innovative programs to address social mission goals. Osteopathic medical schools developed along a unique pathway in the United States. Unlike their allopathic counterparts, osteopathic schools generally have small research portfolios and do not own their affiliated teaching hospitals. As such, osteopathic schools are focused on the training mission and graduates are more likely to enter primary care and practice in rural and underserved areas. Osteopathic schools have also maintained the flexibility to implement innovative programs such as the A.T. Still model of training in Community Health Centers. Allopathic schools, in contrast, have become increasingly mired in the large academic medical center, often emphasizing research and service over training for both financial and status reasons.

An allopathic model that should be re-examined is the community-based medical school. The community-based medical schools were born out of the last major medical school expansion in the United States in the 1960s and 1970s. The AAMC defined community-

based medical schools on three criteria: 1) schools that do not have an integrated teaching hospital and consequently rely on community hospitals for teaching, 2) schools accredited after 1975, and 3) non-federal schools.[54] Similar to their osteopathic counterparts, the community-based schools generally have small research portfolios, many are based in less urban areas and emphasize primary care in their curriculums. The AAMC currently recognizes 18 public and private community-based medical schools.

In the face of worsening primary care trends, continued geographic access issues, and faltering minority enrollment, allopathic schools should learn from the osteopathic and community-based models to prioritize the training mission and promote innovative policies and programs to address social mission.

Evidence and accountability are needed. Current understanding of the extent to which medical schools are implementing social mission programs is limited. As schools argue social mission goals in their expansion and development plans, greater research is needed to demonstrate the extent to which schools are implementing evidence based programs and to evaluate the outcomes and success of these programs. This research is needed to build on the current body of evidence and to ensure future policies and funding in support of these programs.

Social mission – to strengthen the primary care workforce, expand access in rural and underserved areas and increase diversity in the health profession – is essential to meeting the health care needs of the United States and has been woefully de-prioritized in federal, state and medical school policies. However, amidst increasing public attention and reports of physician and primary care shortages, medical schools have entered a period of expansion. Expansion offers an opportunity to address the needs of the health care system and the deficiencies in the current education system. While medical schools need external support to implement social mission policies and programs, medical education leaders also need to develop an internal commitment to social mission and re-evaluate the internal structures and priorities of their institutions that may be limiting innovation and forward progress. Further, medical schools should be held to a level of evidence based practice and accountability for their social mission activities.

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