

**ADVISORY COMMITTEE ON TRAINING
IN PRIMARY CARE MEDICINE
AND DENTISTRY**

***THE REDESIGN OF PRIMARY
CARE WITH IMPLICATIONS
FOR TRAINING***

**Eighth Annual Report to
the Secretary of the
U.S. Department of Health and Human Services
and to the U.S. Congress**

January 2010

Advisory Committee on Training in Primary Care Medicine and Dentistry

Section 748 of the Health Professions Education Partnerships Act of 1998 authorizes the establishment of an Advisory Committee on Training in Primary Care Medicine and Dentistry. The Act directs the Secretary to establish an advisory committee to be known as the Advisory Committee on Training in Primary Care Medicine and Dentistry (ACTPCMD). The Advisory Committee was constituted to:

- Provide advice and recommendations to the Secretary concerning policy and program development and other matters of significance concerning the activities under Title VII, section 747.
- Not later than 3 years after the date of enactment, and annually thereafter, prepare and submit to the Secretary, the Committee on Health, Education, Labor, and Pensions of the Senate and the Committee on Energy and Commerce of the House of Representatives, a report describing the activities of the Advisory Committee, including findings and recommendations made by the Advisory Committee concerning the activities under section 747.

Congress created the Advisory Committee to obtain insight and objectives from primary health care providers, educators, and trainees who work on the front line. The members below include such health professionals as physicians and physician assistants, as well as general and pediatric dentists, from the disciplines of primary care medicine and dentistry.

The views expressed in this document are solely those of the Advisory Committee on Training in Primary Care Medicine and Dentistry and do not necessarily represent the views of the Health Resources and Services Administration nor the United States Government.

Members of the Advisory Committee on Training in Primary Care Medicine and Dentistry

Nathaniel B. Savio Beers, M.D., M.P.A.
Deputy Director of Policy and Planning
DC Department of Health
Community Health Administration
Washington, DC

Mary Burke Duke, M.D.
Associate Professor
Departments of Medicine and Pediatrics
University of Kentucky
Lexington, KY

James F. Cawley, M.P.H., PA-C
Director, PA/MPH Program
Department of Prevention and Community Health
The George Washington University
Washington, DC

Katherine A. Flores, M.D.
Director
UCSF Latino Center for Medical Education and Research
University of California, San Francisco
School of Medicine/Fresno Medical Education Program
Fresno, CA

Diego Chaves-Gnecco, M.D., M.P.H.
SALUD PARA NIÑOS Program Director and Founder
Assistant Professor
University of Pittsburgh School of Medicine
Pittsburgh, PA

Stephanie L. Janson, PA-C
Physician Assistant
Consultants in Cardiovascular Diseases, Inc.
Erie, PA

William Alton Curry, M.D.
Associate Dean for Primary Care and Rural Health
School of Medicine
University of Alabama
Birmingham, AL

Sheila H. Koh, D.D.S., R.N.
Associate Professor
Department of Restorative Dentistry and Biomaterials
The University of Texas Health Science Center
Houston, TX

Kevin J. Donly, D.D.S., M.S., Vice Chair
Chair and Clinical Director
Department of Pediatric Dentistry
University of Texas Health Science Center
San Antonio, TX

Desiree Lie, M.D., M.S.Ed.
Director, Division of Faculty Development
Department of Family Medicine
University of California Irvine Medical Center
Orange, CA

Lolita M. McDavid, M.D., M.P.A., Chair
Medical Director, Child Advocacy and
Protection
Rainbow Babies and Children's Hospital
Case Western Reserve University
Cleveland, OH

Dennis J. McTigue, D.D.S., M.S.
Professor, College of Dentistry
Ohio State University
Columbus, OH

Eugene Mochan, D.O., Ph.D.
Associate Dean for Primary Care/
Continuing Education
Philadelphia College of Osteopathic
Medicine
Philadelphia, PA

Perri Morgan, Ph.D., PA-C, Vice Chair
Director of Physician Assistant Research
Physician Assistant Division
Department of Community and Family
Medicine Duke University
Durham, NC

Charles P. Mouton, M.D., M.S.
Professor and Chair
Department of Community and Family
Medicine
Howard University College of Medicine
Washington, DC

Lauren L. Patton, D.D.S., Vice-Chair
Professor and Director
General Practice Residency Program
University of North Carolina
Chapel Hill, NC

Stephen C. Shannon, D.O., M.P.H.
President and CEO
American Association of Colleges of
Osteopathic Medicine
Chevy Chase, MD

Harry S. Strothers III, M.D., M.M.M.
Professor of Family Medicine
Morehouse School of Medicine
East Point, GA

James A. Thomas, Ph.D.
Medical Student/Research Associate
Department of Physiology and College of
Medicine
University of Virginia
Charlottesville, VA

Raymond J. Tseng, D.D.S., Ph.D.
Resident
Department of Pediatric Dentistry
University of North Carolina
Chapel Hill, NC

Barbara J. Turner, M.D., M.S.Ed., Chair
Professor of Medicine
University of Pennsylvania School of
Medicine
Philadelphia, PA

Surendra K. Varma, M.D.
Professor and Vice Chair
Department of Pediatrics
Texas Tech University
Lubbock, TX

**Staff, Division of Medicine and Dentistry, Bureau of Health Professions,
Health Resources and Services Administration,
U.S. Department of Health and Human Services, Rockville, MD**

Daniel G. Mareck, M.D.
Director, Division of Medicine and
Dentistry (DMD)

Jerilyn K. Glass, M.D., Ph.D.
Executive Secretary
Advisory Committee on Training in Primary
Care Medicine and Dentistry

Shari W. Campbell, D.P.M.
Deputy Director, DMD

Eva M. Stone
Program Analyst and Committee
Management Specialist

Report Writing Group

Perri Morgan, Ph.D., PA-C (Chair)
William Alton Curry, M.D. (Co-Chair)
Sheila H. Koh, D.D.S., R.N. (Co-Chair)
Katherine A. Flores, M.D.
Eugene Mochan, D.O., Ph.D.
Stephen C. Shannon, D.O., M.P.H.
Harry S. Strothers III, M.D., M.M.M.
Surendra K. Varma, M.D.

Table of Contents

Advisory Committee on Training in Primary Care Medicine and Dentistry	1
Members of the Advisory Committee on Training in Primary Care Medicine and Dentistry.....	2
1. Introduction	1
2. Discussion	3
2.1. Recommendations designed to bring about direct improvements in Title VII, section 747 programs.....	3
Recommendation 1: Congress should restore and enhance funding for Title VII, section 747 programs at \$235 million for the next fiscal year and ensure that this larger appropriation is distributed more broadly across the multiple disciplines covered by these programs.....	3
Recommendation 2: The Secretary should ask Congress to modify the charge of the Advisory Committee on Training in Primary Care Medicine and Dentistry to include making recommendations directly to Congress, in addition to the Secretary.....	6
Recommendation 3: Training grants should provide funds to develop, implement, and evaluate training programs that promote inter-professional practice in the Patient-Centered Medical-Dental Home model of care.....	7
Recommendation 4: Training grants should support primary care clinical training in community-based settings for providers and trainees in various disciplines, including those in Title VII programs (i.e., physicians, dentists, physician assistants) by funding proposals to recruit and support community-based clinical educators.....	9
Recommendation 5: The Bureau of Health Professions should provide support for grantees to evaluate Title VII, section 747 programs and to track trainees in the long term.....	10
2.2. Recommendations addressing Federal policies necessary to support primary care as the backbone of the health care system.....	12
Recommendation 6: Congress and Centers for Medicare & Medicaid Services should restructure health care financing to attract health care providers to enter and stay in primary care careers.....	12
Recommendation 7: Congress and Centers for Medicare & Medicaid Services should revise funding policies for Graduate Medical Education and other educational programs to foster and support the use of community-based (non-hospital) sites for primary care training for physicians, dentists, and physician assistants.	14
Recommendation 8: Congress should expand the National Health Service Corps loan repayment programs with additional programs to address the severe primary care workforce shortages.	16
Recommendation 9: Congress should support Patient-Centered Medical-Dental Home demonstration projects designed to evaluate innovative funding and reimbursement	

strategies that promote accessible high-quality care, while stemming the growth in health care costs. 17

Recommendation 10: Congress should direct the Secretary of Health and Human Services to establish an independent health care workforce planning body that can evaluate needs and make recommendations. 21

References.....23

1. Introduction

The crisis in primary care

A primary care workforce that is adequate both in numbers and preparation is central to the goal of attaining accessible, high-quality, and affordable health care for all of our citizens.

Unfortunately, there are strong indicators that the number of primary care practitioners in our country will be insufficient to care for the population under either the current or a reformed health care system. A redesign of health services must emphasize the centrality of primary care in order to achieve the goals of cost-effective, quality patient care. Therefore, we stress the need to: 1) develop educational initiatives to fill the gaps in the primary care workforce rapidly; 2) support system changes that promote efficient inter-professional models of care in which individuals from a variety of areas of expertise collaborate to meet patient health care needs; and 3) align financial incentives to support primary care to achieve the desired access, quality, and efficiency outcomes.

Title VII, section 747 programs and related health care workforce programs

A well-prepared, effective primary care workforce can reduce health care costs and play a significant role in the prevention and management of illness. For example, improved access to primary care can reduce the future burden of chronic diseases, such as obesity, by addressing nutrition and health maintenance during childhood (Daniels, Jacobson, McCrindle, Eckel, & McHugh Sanner, 2009).

The Title VII, section 747 programs have had a significant impact on the nation's supply of primary care clinicians (Reynolds, 2008) by contributing to the development of a well-trained primary care workforce. Title VII, section 747 provides funding for approved training of students, interns, and residents in family medicine, general internal medicine, and general pediatrics; training of physician assistants; training of residents in general dentistry and pediatric dentistry; and training of individuals who plan to teach in family medicine, internal medicine, pediatrics, and physician assistant training programs. Since its inception, Title VII, section 747 has helped to develop, expand, and improve training programs for primary care providers; promote diversity in the workforce; and ensure that curricula within the health professions respond to the changing demands and emerging health needs of the U.S. population.

Title VII, section 747 programs operate within a broader context that includes complementary Federal programs, such as the National Health Service Corps (NHSC) and the Centers for Medicare & Medicaid Services (CMS). The NHSC promotes primary care by providing repayment of educational loans for individuals who practice primary care in underserved areas; CMS supports graduate medical education (GME) by paying teaching hospitals for costs incurred while training residents. Incentives provided by these programs can enhance the success of Title VII, section 747 programs in producing an adequate primary care workforce. In addition, Federal policies affecting reimbursement for health care services impact the likelihood that potential graduates of Title VII, section 747 programs will choose to practice in primary care. In order for Title VII, section 747 programs to be successful, incentives within all of these Federal policy areas should be aligned toward the common goal of revitalizing primary care.

Our recommendations are presented in two groups. The first group of five recommendations directly addresses Title VII, section 747 programs. Since we recognize that the success of these Title VII programs is closely linked with other Federal health policies, we also offer a second set of recommendations addressing these related policies.

Recommendations

A. Recommendations designed to bring about direct improvements in Title VII, section 747 programs

- Congress should restore and enhance funding for Title VII, section 747 programs at \$235 million for the next fiscal year and ensure that this larger appropriation is distributed more broadly across the multiple disciplines covered by these programs.
- The Secretary should ask Congress to modify the charge of the Advisory Committee on Training in Primary Care Medicine and Dentistry to include making recommendations directly to Congress, in addition to the Secretary.
- Training grants should provide funds to develop, implement, and evaluate training programs that promote inter-professional practice in the Patient-Centered Medical-Dental Home (PCM-DH) model of care.
- Training grants should support primary care clinical training in community-based settings for providers and trainees in various disciplines, including those in Title VII programs (i.e., physicians, dentists, physician assistants) by funding proposals to recruit and support community-based clinical educators.
- The Bureau of Health Professions should provide support for grantees to evaluate Title VII, section 747 programs and to track trainees in the long term.

B. Recommendations addressing Federal policies necessary to support primary care as the backbone of the health care system

- Congress and Centers for Medicare & Medicaid Services should restructure health care financing to attract health care providers to enter and stay in primary care careers.
- Congress and Centers for Medicare & Medicaid Services should revise funding policies for Graduate Medical Education and other educational programs to foster and support the use of community-based (non-hospital) sites for primary care training for physicians, dentists, and physician assistants.
- Congress should expand the National Health Service Corps loan repayment programs with additional programs to address the severe primary care workforce shortages.
- Congress should support Patient-Centered Medical-Dental Home demonstration projects designed to evaluate innovative funding and reimbursement strategies that promote accessible high-quality care, while stemming the growth of health care costs.
- Congress should direct the Secretary of Health and Human Services to establish an independent health care workforce planning body that can evaluate needs and make recommendations.

2. Discussion

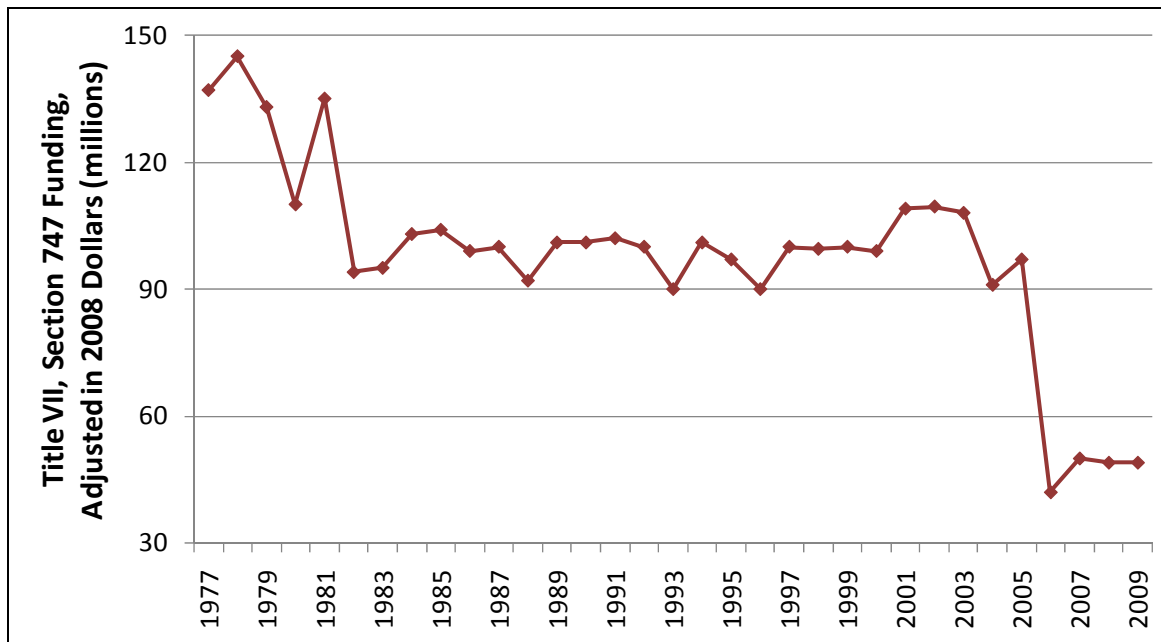
2.1. Recommendations designed to bring about direct improvements in Title VII, section 747 programs

Recommendation 1: Congress should restore and enhance funding for Title VII, section 747 programs at \$235 million for the next fiscal year and ensure that this larger appropriation is distributed more broadly across the multiple disciplines covered by these programs.

Problem/Opportunity for improvement

The Title VII programs can make significant contributions to accomplishing the goals of health care reform. However, in recent years, funding for the programs has been cut significantly (Harrison, et al., 2009). The FY2009 funding for Title VII, section 747 is less than a third of what it was in FY1977 in real terms. These sequential catastrophic funding reductions have significantly impacted the ability of training programs to develop the Nation's primary care health workforce.

Figure 1: Title VII, Section 747 Funding



Source: Harrison, et al., 2009

In 2009, Congress mandated minimum funding levels for two of the disciplines covered under Title VII, section 747: family medicine and dentistry. These funds will be well-spent to train essential providers, but after the required allotment was reserved for these disciplines, minimal funding remained to support training in the other vital program areas of general internal medicine, general pediatric medicine, and physician assistant programs. We believe that all of these disciplines are important and that current funding allocations neglect the training of important groups of primary care clinicians. Congress should appropriate additional funds to continue and increase support for family medicine and dentistry programs, but also to broaden

the support so that the large discrepancies in funding among the primary care disciplines are eliminated.

There is significant research demonstrating the benefits of a robust primary care workforce. In the United States, an increase of just one primary care physician is associated with 1.44 fewer deaths per 10,000 persons; adults with a primary care physician rather than a specialist had 33% lower costs of care after adjusting for demographic and health characteristics (Starfield, 2006). Patients with a regular primary care physician have lower overall health care costs than those without one (Weiss & Blustein, 1996; De Maeseneer, De Prins, Gosset, & Heyerick, 2003). Higher ratios of primary care physicians to population are associated with reduced hospitalization rates (Parchman & Culler, 1994). Patients with a regular primary care provider have 19% lower mortality (Franks & Fiscella, 1998), are 7% more likely to stop smoking, and are 12% less likely to be obese (Arora, et al., 2009).

Title VII, section 747 funding has provided critical support in many areas related to developing the primary care workforce. The program funds primary care education, faculty development, and the creation of innovative primary care curricula and models of care. The program has long emphasized education and training of primary care providers for underserved populations and has stressed prevention and early intervention. The program has also emphasized a multidisciplinary focus while supporting primary care leadership development. Title VII, section 747 programs have been unique in attempting to promote primary care as a career choice among graduates of medical, dental, and physician assistant (PA) training institutions.

Program areas are funded through competitive grants and cooperative agreements awarded to organizations that train and educate health care professionals. The program areas have included residency training in primary care, pre-doctoral training in primary care, faculty development in primary care, academic administrative units, PA training, and general and pediatric dentistry residency training.

Collectively, grants in these program areas have helped to improve many aspects of the Nation's primary care workforce. They have led to improvements in primary care education, including innovative curricula, workforce capacity building, and faculty development. They have helped to identify and develop primary care education and training innovations along with best practices, and disseminated them to programs, accrediting bodies, and other constituents. In addition, they have helped to improve the diversity and number of primary care faculty and students, with special emphasis on individuals from disadvantaged backgrounds and on underrepresented minorities.

Key stakeholders have recognized the contributions of these training programs. For example, in 1994, the General Accounting Office (now called the Government Accountability Office) acknowledged that the program was important for funding innovative projects and providing seed money for starting new programs. The General Accounting Office further pointed out that the program was considered important in the creation and maintenance of family medicine departments (General Accounting Office, 1994).

In 2002, a study by the Robert Graham Center for Policy Studies reported that students who attended medical schools that received Title VII, section 747 family medicine funds were more likely to practice family medicine or primary care in a rural area or in a Health Professional Shortage Area (HPSA) (Meyers, et al., 2002). Fryer and colleagues (2002) concluded that Title VII, section 747 funding led to higher rates of students entering family practice and practicing in HPSAs; pre-doctoral training and departmental development funding were strongly related to achievement of Title VII, section 747 objectives. Edelstein and colleagues (2003) found that

Title VII, section 747 funding of pediatric dentistry training programs was effective in shaping careers of professionals dedicated to serving the underserved, in recruiting underrepresented minority dentists, and in delivering dental services to the underserved. In addition, Title VII, section 747 contracts awarded to national primary care organizations have led to increased collaboration and enhanced innovation in ambulatory care education and training for students, residents, and faculty (Davis, et al., 2008). Title VII also fostered the development of primary care research capacity (Newton & Arndt, 2008).

These improvements in primary care education have led to improvements in the pipeline and, consequently, the supply of primary care providers. Early Title VII grants led to an increase in the production of physicians and dentists through grants for construction, renovation, and expansion of schools. Later grants helped to train physicians, dentists, and PAs in the fields of primary care, defined as family medicine, general internal medicine, general pediatrics, and general and pediatric dentistry. During this era, nearly every allopathic and osteopathic medical school established divisions of general internal medicine and general pediatrics and departments of family medicine; these disciplines offered primary care residencies, medical student clerkships, and faculty development programs (Reynolds, 2008).

Title VII support has made significant contributions to the supply of primary care providers in the U.S. For example, by 2000, the number of family practice residencies had grown from 12 in 1969 to more than 493. The number of PA training programs had grown from 12 in 1970 to 129 in 2000, all of which were fully accredited. By 2000, there were 104 general internal medicine residencies nationwide. More than 16,000 general internists had trained in these primary care residencies during the previous 15 years, with more than two-thirds of graduates continuing to practice general medicine (Reynolds, 2008). Title VII support for dentistry has resulted in over 560 new general dentistry residency positions in the past 25 years and over 160 new pediatric dentistry residency positions in the past decade. The general dentistry Title VII programs have increased access to dental care for indigent populations, medically compromised patients, geriatric patients, and patients with special health care needs. Pediatric dentistry Title VII programs treat high-risk children from low-income families and produce graduates who are more likely to treat Medicaid or State Children's Health Insurance Program (SCHIP) recipients and other high-risk populations in their practices.

In addition, Title VII funding has provided a key means to address the geographic maldistribution of health care providers by exposing students to underserved sites during their training. Research has consistently demonstrated that trainees frequently choose to practice in the same sites in which they train (Cawley, 2008). Title VII has historically increased service learning activities in American medical and dental education, and underserved areas have benefited from these programs. In particular, from 1992 to the present, Title VII grants emphasized caring for vulnerable populations, greater diversity in the health professions, and curricula innovations. Title VII grantees have responded by designing curricula and creating clinical experiences to teach care of patients with HIV, the elderly, the homeless, and other vulnerable populations. Many grantees recruited underrepresented minorities into their programs as both trainees and faculty; all grantees designed and implemented new curricula to address emerging health priorities (Reynolds, 2008).

In light of the emerging primary care provider shortage and in recognition of the need to develop Patient-Centered Medical-Dental Homes (PCM-DH), as detailed in the ACTPCMD's Seventh Report (Advisory Committee on Training in Primary Care Medicine and Dentistry, 2008), increased funding is needed to expand and enhance our primary care training programs. Congress should increase the budget for Title VII, section 747 programs to provide expanded

support for all program areas. Finally, additional funds will be required to support data acquisition and analysis for evaluating program outcomes (see Recommendation 5, below). Together, these needs justify our recommendation to increase funding for Title VII, section 747 to \$235 million.

Benefits of adopting this recommendation

- Increased funding will lead to increased capacity for training of primary care clinicians, which is crucial to support improved outcomes and containment of growth in health care costs.
- Title VII, section 747 programs increase students' exposure to underserved areas, which helps address inequities in distribution of primary care providers.

Recommendation 2: The Secretary should ask Congress to modify the charge of the Advisory Committee on Training in Primary Care Medicine and Dentistry to include making recommendations directly to Congress in addition to the Secretary.

Problem/Opportunity for improvement

We request a modification of the authorization language for our committee because we need the ability to communicate directly with Congress to affect policy in a timely manner. We are asking for an authorization similar to that of the Council on Graduate Medical Education (COGME). The ACPCMD offers complementary but unique expertise to that of COGME and should have similar input into policy formation. We have found that the multiple layers of review currently required for our reports have delayed our input to Congress regarding important policy decisions. In particular, our committee has relevant recommendations that should be considered by Congress when decisions are being made regarding Title VII, section 747.

Benefits of adopting this recommendation

- This change would allow communication of the advisory committee's consensus recommendations through other approaches in addition to the single annual report.
- Congress will benefit from the direct communication from experts in a broad array of primary care disciplines in defining policies that will affect the way that Americans receive primary care.
- This change will increase the timeliness of our communications and allow Congress to receive expert advice while deliberating on specific policies.
- Having an advisory committee that can communicate with policymakers will make the guidance from Congress to the Health Resources and Services Administration (HRSA) more informed and effective.

Recommendation 3: Training grants should provide funds to develop, implement, and evaluate training programs that promote inter-professional practice in the Patient-Centered Medical-Dental Home model of care.

Problem/Opportunity for improvement

Health care in the U.S. is often fragmented, with different providers handling different aspects of patient care. This fragmentation can result in communication gaps, increased errors, avoidable hospitalizations, and reduced access to care. There is growing evidence that effective inter-professional practice can reduce fragmentation and improve coordination which, in turn, improves patient outcomes, increases provider satisfaction, and reduces and contains costs through more effective utilization of resources (Remington, Foulk, & Williams, 2006; Reeves, et al., 2008; Hammick, Freeth, Koppel, Reeves, & Barr, 2007). Optimal outcomes at lower costs can be delivered when providers coordinate care and follow the patient across each component of an integrated delivery system. As presented in detail in the ACTPCMD's Seventh Report (Advisory Committee on Training in Primary Care Medicine and Dentistry, 2008) the PCM-DH model is built upon the documented value of an inter-professional team providing primary care to achieve better health outcomes, higher quality service, a more positive patient experience, lower costs, and more efficient use of resources (Starfield, Shi, & Macinko, 2005).

A patient who receives care from a PCM-DH has continuous access to a team that provides comprehensive and coordinated care for the large majority of that individual's health care needs. Outcomes can be improved and costs contained through improved care management, improved communication, a decrease in the duplication of tests, and a decrease in hospitalizations (Paulus, Davis, & Steele, 2008; Drinka & Clark, 2000).

The American Academy of Pediatrics first advanced the concept of a primary care medical home model as a central location for archiving a child's medical record and as an accessible, continuous, comprehensive, family-centered, coordinated, and compassionate approach offering culturally effective care (American Academy of Pediatrics, 2009). The American Academy of Family Physicians (AAFP), the American Academy of Pediatrics (AAP), the American College of Physicians (ACP), and the American Osteopathic Association (AOA), endorsed the principles of a patient-centered medical home model in a joint statement issued in February 2007 (American Academy of Family Physicians, American Academy of Pediatrics, American College of Physicians, & American Osteopathic Association, 2007). The PCM-DH principles those groups endorsed included the following:

- Each patient has an ongoing relationship with a personal physician trained to provide first contact, continuous, and comprehensive care;
- The patient's personal physician leads a team of individuals at the practice level who collectively takes responsibility for the ongoing care of the patient;
- Care is coordinated and/or integrated across all elements of the complex health care system; evidence-based health care and clinical decision-support tools guide decision making; and
- Reimbursement or payment appropriately recognizes the added value provided to patients who have a patient-centered medical home (American Academy of Family Physicians, American Academy of Pediatrics, American College of Physicians, & American Osteopathic Association, 2007).

In 2001, the American Academy of Pediatric Dentistry adapted the medical home concept to a Dental Home which addresses the ongoing relationship between the dentist and the patient, inclusive of all aspects of oral health care, delivered in a comprehensive, continuously accessible, coordinated, and family-centered way.

A research team from the RAND Corporation and the University of California at Berkeley undertook a rigorous evaluation of care provided according to PCM-DH principles. In almost 4,000 patients with diabetes, congestive heart failure (CHF), asthma, and depression, under this model, researchers found that patients with diabetes had significant reductions in cardiovascular risk; CHF patients had 35% fewer hospital days; and patients with asthma or diabetes were more likely to receive appropriate therapy (Higashi, et al., 2006).

Utilizing a PCM-DH model, Blue Cross Blue Shield of North Dakota Diabetes Care Management reduced hospital admissions by 6% and reduced emergency department visits by 24%. The program saw savings of \$1213 per patient for a total of \$233,000 (Adams, Grundy, Kohn, & Mounib, 2009). Geisinger Health Systems' preliminary data on use of a PCM-DH model show a 20% reduction in hospital admissions and a 7% savings in total medical costs (Paulus, Davis, & Steele, 2008). In addition, findings from Closing the Divide: How Medical Homes Promote Equity in Health Care, based on The Commonwealth Fund 2006 Health Care Quality Survey, show that racial and ethnic disparities in access to care and quality of care are largely eliminated when adults have a medical home, insurance coverage, and access to high-quality services and systems of care (Beal, Doty, Hernandez, Shea, & Davis, 2007).

Among the challenges to establishing effective, integrated, inter-professional teams are a lack of mutual understanding of each team member's role and the lack of united training programs for providers (Brashers, et al., 2001). In an inter-professional practice context, all members of the team must understand the scope of practice of each of the other members of that team. Team members must work collaboratively using an inter-professional approach that integrates the unique contributions of various providers. In order to prepare health care providers appropriately for a practice in which they can achieve these benefits, the education of providers must include core competencies in inter-professional practice and experience working on inter-professional teams. This training will enable them to work collaboratively with effective coordination and communication.

Benefits of adopting this recommendation

- Facilitation of the implementation of the PCM-DH model will lead to improved coordination of care, better care management, improved outcomes, and cost containment.
- Reduced fragmentation of care and improved coordination and communication can lead to increased provider and patient satisfaction.
- Access to a PCM-DH can reduce racial and ethnic disparities in health care quality and access.
- Training in inter-professional settings will prepare health care providers for effective inter-professional practice.

Recommendation 4: Training grants should support primary care clinical training in community-based settings for providers and trainees in various disciplines, including those in Title VII programs (i.e., physicians, dentists, physician assistants) by funding proposals to recruit and support community-based clinical educators.

Problem/Opportunity for improvement

Most primary care providers will ultimately practice in community-based settings such as health centers and clinics, physician offices, and community hospitals. However, limited availability of preceptors and instructors, higher travel costs, and space constraints create challenges for community-based training, compared to in-patient hospital-based training. As training programs expand in many disciplines, competition for clinical placement sites increases.

Insufficient availability of preceptor sites is constricting the primary care provider pipeline. Surveys of allopathic and osteopathic medical schools and PA training programs showed that availability of clinical training sites and clinical preceptors are rate-limiting barriers. Glicken & Lane (2007) noted that PA training programs identified insufficient clinical training opportunities and limited clinical preceptors as the leading barriers to expansion of PA training capacity. Surveys by the Association of American Medical Colleges and the American Association of Colleges of Osteopathic Medicine in 2008 found that 57% of the 121 respondent U. S. allopathic medical schools and 60% of the 25 respondent osteopathic medical schools indicated concern about the adequacy and availability of clinical training sites (Association of American Medical Colleges, Center for Workforce Studies, 2009; Levitan, 2008).

Costs associated with community-based training include staff support to recruit and train preceptors, costs to monitor the quality of students' educational experiences at remote sites, and support for development of the PCM-DH model of care. In addition, students at remote sites need assistance with travel costs and expenses of locating and financing housing for short-term placements.

Students often choose to practice in sites where they trained. One-third of PAs met their first clinical employer through their clinical rotations (Cawley, 2008). Therefore, supporting community-based primary care preceptor sites may help to increase the flow of primary care graduates to practice in these sites.

Benefits of adopting this recommendation

- Primary care clinical training will be more effective when training is delivered to the student in the same context in which he or she will practice.
- The pipeline for training primary care clinicians will not be constrained by lack of community clinical preceptor sites.

Recommendation 5: The Bureau of Health Professions should provide support for grantees to evaluate Title VII, section 747 programs and to track trainees in the long term.

Problem/Opportunity for improvement

Measurement of the effectiveness of Title VII, section 747 is critical to demonstrating its strategic importance in developing the health care provider workforce. Various stakeholders have criticized these Title VII programs for failing to develop evaluations of programmatic effectiveness. As the Congressional Budget Office noted in 2007, the Office of Management and Budget found that although the programs are well managed, they did not have a clear purpose defined in the authorizing legislation. An earlier report by the General Accounting Office in 1997 found that the effectiveness of the programs had not been demonstrated, partly because of a lack of clear program objectives and appropriate data (Congressional Budget Office, 2007). Although there has been evidence that suggests that Title VII programs have been substantially successful in promoting a primary care workforce, some of the criticism has some merit since these programs do not have any long-term data regarding their outcomes. Recognizing the value that such outcome data would have for justifying continued Congressional appropriations for Title VII programs, the Committee recommends that the HRSA's Bureau of Health Professions (BHPr) collect and evaluate outcomes data related to Title VII, section 747 programs as outlined in the ACTPCMD's Fifth Report, *Evaluating the Impact of Title VII, Section 747 Programs* (Advisory Committee on Training in Primary Care Medicine and Dentistry, 2005).

Potential approaches to facilitating evaluation of the effectiveness of Title VII, section 747 include:

- Contracting an external review team to evaluate the effectiveness of current Title VII programs in training health professionals for the primary care workforce;
- Establishing supplemental funding for each Title VII grantee to identify and track trainees who matriculate through Title VII programs; and
- Creating a central data repository to track information on Title VII programs and trainees who complete funded training.

The mechanism to fund the evaluations could be in the form of a special Request for Proposals (RFP) under the Title VII supplement program. Designating one HRSA-funded site as the coordinating center and funding six to ten HRSA-funded programs as initial evaluation sites would provide an in-depth, robust assessment of the effectiveness of HRSA Title VII programs. Additional data from HRSA-funded sites could be added through additional HRSA supplements after the evaluation instruments and data collection protocols are established during the initial phases of evaluation. Subsequent RFPs would include set-aside funds for grantees to collect and forward the data necessary for tracking outcomes.

Another option could be to fund a separate evaluation contract award. The recipient of this award would be contracted to contact each HRSA Title VII grantee and solicit contact information on program participants. Each participant would subsequently be contacted and asked to provide information on current activities, feedback on the grant program, and socio-demographics.

The objectives of such efforts should include establishing consistent measures that provide for programmatically relevant reporting on program effectiveness without placing undue burden on

grantees for collecting and analyzing data. The recommendations set out in the ACTPCMD's Fifth Report should be the basis of the evaluation procedures.

Data from such studies should be stored in a central data repository that can be a major data source for investigators studying ways to enhance the primary care workforce. There are several models of shared central repositories, such as the various Centers for Disease Control and Prevention (CDC) surveys, the University of Michigan center, and the CDC's National Center for Health Statistics (Centers for Disease Control and Prevention, 2009).

Benefits of adopting this recommendation

- Effective evaluation of outcomes provides a way to demonstrate both the near- and long-term benefits of Title VII, section 747 programs and how these programs can contribute to overall health care reform objectives.
- A shared central data repository would become a resource for researchers and would facilitate identification and dissemination of best practices.
- The evaluation and outcome data can be used to prove effectiveness and efficiency of Title VII, section 747 programs to stakeholders.

2.2. Recommendations addressing Federal policies necessary to support primary care as the backbone of the health care system

Recommendation 6: Congress and Centers for Medicare & Medicaid Services should restructure health care financing to attract health care providers to enter and stay in primary care careers.

Problem/Opportunity for improvement

Dwindling numbers of U.S. allopathic medical school graduates are choosing to enter the field of primary care medicine. The percentage of those U.S. medical graduates choosing family medicine decreased from 14% in 2000 to 8% in 2005 (Pugno, Schmittling, Fetter, & Kahn, 2005). Seventy-five percent of internal medicine residents

eventually become subspecialists or hospitalists rather than general internists (West, Popkave, Schultz, Weinberger, & Kolars, 2006).

Among U.S. osteopathic medical school graduates there has been a similar, if less marked, decline in the selection of primary care.

Graduating seniors' intent to pursue primary care dropped from 44% in 1999 to 29% in 2008 (American Association of Colleges of Osteopathic Medicine, 2008). In 2008, 37% of PAs were working in

primary care (family/general

medicine, general pediatrics, or general internal medicine) (American Academy of Physician Assistants, 2008). This represents a decline since 1997 when fully 50% were engaged in primary care (American Academy of Physician Assistants, 2007).

The work-related stresses felt by primary care physicians are so widely recognized that medical students view primary care as the career choice with more work at less pay (Bodenheimer, 2006). Because office visit fees are relatively low, primary care physicians schedule many short, rushed visits to keep their practices afloat financially; however, these brief appointments potentially compromise patient outcomes (Zyzanski, Stange, Langa, & Flocke, 1998) and foster the unsustainable physician work life that contributes to students' avoidance of primary care careers (Dorsey, Jarjoura, & Rutecki, 2003).

Medical students fund a large proportion of the cost of their medical education through educational loans; the median indebtedness of medical school students graduating in 2006 was expected to be \$120,000 for students in public medical schools and \$160,000 for students attending private medical schools. About 5% of all medical students will graduate with debts of \$200,000 or more (Association of American Medical Colleges, 2005). Osteopathic physicians

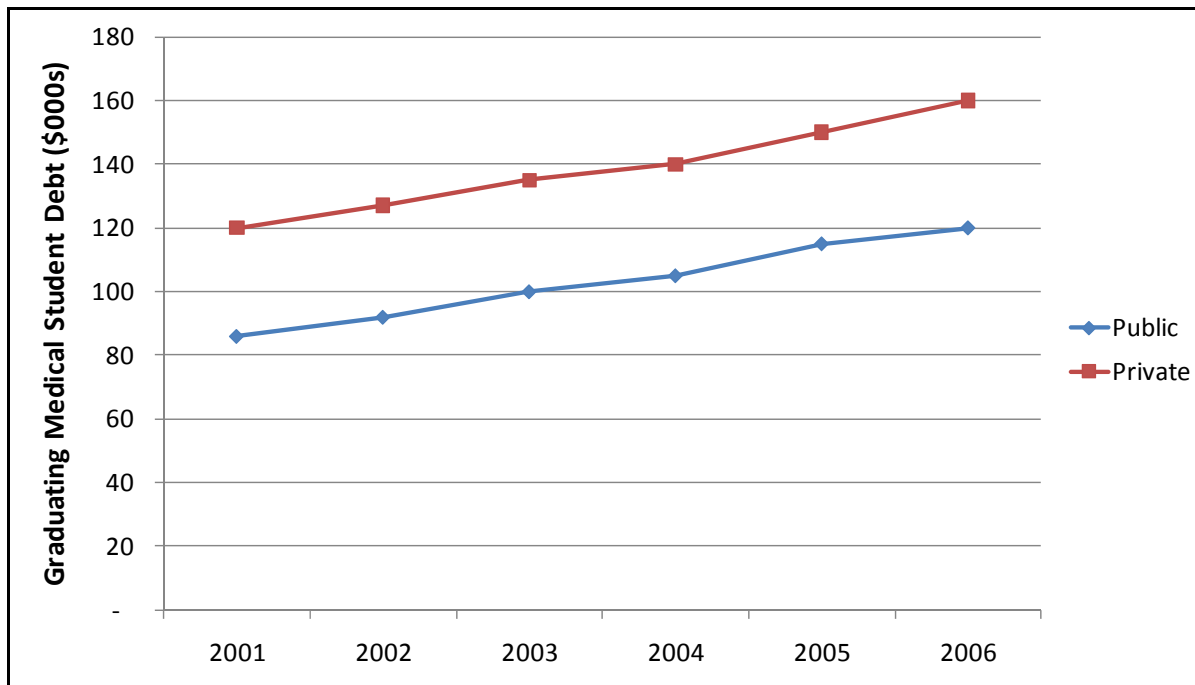
This trend [of medical school graduates opting to enter higher-paid sub-specialties rather than careers in primary care medicine] has fueled a growing shortage of primary care doctors in the United States. "On the eve of (health care) reform, we have a very real primary care crisis," said Dr. Ted Epperly, president of the American Academy of Family Physicians (AAFP).

Epperly estimates that the primary care arena will be 40,000 doctors short of where it needs to be by 2020 to support the demand for medical care. "We need 150,000 family doctors in total by then," Epperly said.

(Kavilanz, 2009)

graduated with similar mean debts of \$134,000 for public schools and \$154,000 for private schools in 2006 (American Association of Colleges of Osteopathic Medicine and Association of American Medical Colleges, 2006).

Figure 2: Graduating Medical School Indebtedness



Source: Association of American Medical Colleges, 2004

Noncompetitive salaries discourage medical students from choosing careers in primary care (American College of Physicians, 2006b). With high debt burdens at graduation, jobs in specialty fields are more attractive to new physicians as they offer higher salaries than primary care positions. Specialists earn nearly twice as much as primary care physicians, despite working the same number of hours. A 30-minute routine procedure performed by a specialist is frequently reimbursed at two-and-a-half to three times the amount paid to a primary care physician who has spent the same amount of time with a complicated patient (deGier, 2007).

As Bodenheimer, Berenson, and Rudolf noted (2007), the Resource-Based Relative Value Scale (RBRVS) system, adopted by Medicare in 1992 and copied in part by private insurers, was designed to lessen the fee disparity between office visits—the bread and butter of primary care—and procedures provided by specialists. However, the RBRVS has failed to prevent the widening income gap between primary care and specialty care because:

- Diagnostic and imaging procedures have increased at a more rapid pace as compared to the number of office visits;
- The process of updating fees every 5 years is greatly influenced by the Relative Value Scale Update Committee, which has heavy representation from procedural specialists;
- Medicare's formula for controlling physician payments penalizes primary care physicians; and
- Private insurers usually pay for procedures, but not for office visits, at higher levels than those paid by Medicare.

It would be desirable to develop new payment models that blend the best of fee-for-service, capitation, and salary, while mitigating each approach's deficiencies (Robinson, 2001; Berenson & Horvath, 2003). For example, primary care physicians who care for patients with multiple chronic conditions could be paid using an approach similar to that of capitation in which a fixed per capita amount is paid for each patient served (Goodson, et al., 2001; Goroll, Berenson, Schoenbaum, & Gardner, 2007). Surgeons and other specialists responsible for episodes of care over a limited time period might be paid case rates on the basis of diagnoses; specialists providing one-time professional services might continue to be paid on a fee-for-service schedule. Public and private payers, working with physicians, have a common interest in promoting a vibrant primary care sector as a medical home for patients and families because if this concept is properly supported, it can contribute to substantial reductions in health care costs (Bodenheimer & Fernandez, 2005).

As discussed earlier, there is growing evidence of the beneficial impact of primary care providers on health care outcomes and cost. Areas with higher ratios of primary care physicians to population have substantially lower health care costs than areas with lower ratios. This may be the result of the better preventive care and lower hospitalization rates associated with good primary care. Care for illnesses common in the population, such as pneumonia, is more expensive when provided by specialists rather than generalists, despite the fact that there are no differences in outcomes (Starfield, 2005).

A revised reimbursement model should acknowledge the value of both providing and receiving coordinated care in a system that incorporates the elements of the PCM-DH. In addition, such a system would align incentives so providers and patients would choose practices that deliver care according to the PCM-DH model. The revised reimbursement model could also include a qualification process for physicians and practices in which they must demonstrate proper application of PCM-DH principles prior to becoming eligible for the revised reimbursement model.

Benefits of adopting this recommendation

- A redesigned reimbursement system that compensates primary care providers for time spent in care coordination and communication would help reduce the compensation disparity between primary care providers and specialists.
- New payment models could promote a vibrant primary care sector and the PCM-DH model, which can lead to positive patient outcomes, health care cost containment, and improvement in the morale and job satisfaction of primary care providers.

Recommendation 7: Congress and Centers for Medicare & Medicaid Services should revise funding policies for Graduate Medical Education and other educational programs to foster and support the use of community-based (non-hospital) sites for primary care training for physicians, dentists, and physician assistants.

We concur with the recommendations of COGME in its 19th report, *Enhancing Flexibility in Graduate Medical Education* (Council on Graduate Medical Education, 2007). In addition, we emphasize the following specific suggestions:

- Federal funding for medical and dental residency education should follow trainees into community-based sites. Support for practices and clinics that are affiliated with academic centers should be included because they are also under-supported when funding is directed to hospitals.
- CMS education funding should go beyond GME residency funding and include primary care training for interdisciplinary teams in ambulatory care settings. The rationale for this change is that in order for inter-professional teams to function well together, they should be trained together.
- When hospital or training programs close, funded training positions should be transferred to other organizations, including non-hospital organizations. We specifically advocate that non-hospital entities be eligible for any new training program funding.
- Funding should be directed specifically to training in non-hospital sites that serve underserved and rural populations.
- Private health care payers should be required to join with the government in funding community-based primary care education.
- Funding should support clinical sites that prepare trainees for inter-professional practice by educating medical, dental, physician assistant, and other trainees together on health care teams.

Problem/Opportunity for improvement

Primary care that is delivered effectively in community settings (i.e., non-hospital environments such as health centers and clinics, physician offices, schools, workplaces, nursing homes, hospices, and home care) can reduce costs and improve outcomes (Landon, et al., 2007). This care can reduce the need for patients to seek care at more expensive settings, such as emergency departments and hospitals.

In order to prepare physicians, dentists, and PAs for practice in community settings, trainees should learn in settings similar to those in which they will eventually practice. However, there are barriers standing in the way of expanding community-based training. For example, the structure of current funding mechanisms for physician education is linked to in-patient, hospital-based care. COGME described this problem eloquently in its 19th report, *Enhancing Flexibility in Graduate Medical Education* (Council on Graduate Medical Education, 2007), and made recommendations to address support for community-based training. By tradition, many medical, dental, and PA training programs rely on hospital-based clinical training sites. These patterns should be changed in order to prepare trainees to practice most effectively in the community.

An example of a successful community-based education program is the Dental Pipeline Program. Beginning in 2001, the Robert Wood Johnson Foundation granted \$19 million to this community-based instruction program designed to reduce disparities in access to dental care (Brodeur, 2009). One of its primary strategies is to place dental training in community clinics and practices treating underserved patients. Successes of this program include:

- The reaching out of dental schools to communities with substantial unmet oral health needs, linking their educational and service goals;
- The development of community-based education curricula;

- The development of new extramural rotations or greater capacity for offsite student opportunities by those institutions that already have some established extramural activities (Kuthy, 2009).

Payment reform is also required at the educational level in order to encourage greater numbers of health professions students to consider careers in primary care. Medicare spends \$8.8 billion annually on GME, almost all of which flows to hospitals rather than directly to residency programs (Bodenheimer, Grumbach, & Berenson, 2009). This payment mechanism therefore inhibits training in ambulatory care settings, which is critical for the development of primary care skills to deliver preventive care and longitudinal disease management. The Medicare Payment Advisory Commission (MedPAC) and COGME have called for more flexible approaches to Medicare GME payment (Council on Graduate Medical Education, 2007). Family medicine advocacy groups have proposed that Medicare GME funding for primary care residency training be rerouted away from hospitals and paid directly to residency programs. As Bodenheimer, Grumbach, and Berenson (2009) noted, “Far-reaching medical-education reform would redirect a substantial portion of Medicare’s GME billions to strengthening primary care residencies and preparing residents to lead the implementation of innovative models of primary care (para.12).”

Benefits of adopting this recommendation

- Community-based settings (i.e., non-hospital settings) such as health centers and clinics, physician offices, schools, workplaces, nursing homes, hospices, and home care can offer training opportunities more representative of where providers are likely to practice, making the training more effective.
- Rerouting Medicare GME funding away from hospital facilities and directly to residency programs would encourage training in non-hospital ambulatory care settings which is critical for the development of primary care skills, thus encouraging the development of primary care providers.
- Utilization of community-based, non-hospital sites will provide more diverse patient populations for undergraduate and graduate medical education than may be available at hospital sites.

Recommendation 8: Congress should expand the National Health Service Corps loan repayment programs with additional programs to address the severe primary care workforce shortages.

Problem/Opportunity for improvement

Inequities in the distribution of health care professionals continue to be a persistent U.S. health care policy problem. The supply of physicians, for example, is much lower in rural areas relative to population, and rural residents are older, sicker, and poorer than the overall population. Despite recent growth in the overall numbers of health care professionals, the distribution problem persists in rural areas, inner cities, and in some outlying suburban areas.

Research during the past decade reveals a combination of factors that have worked in concert to aggravate the distribution problem. Among these are increasing specialization among physicians

and dentists (Bodenheimer, 2006), preferences for affluent suburban and urban practice locations (Rosenblatt & Hart, 2000), and lower rates of health insurance coverage in rural and inner city areas (DeLia & Belloff 2006). Together, these factors have impacted the distribution of health care professionals. Evaluations conducted by stakeholders such as the OMB and the U.S. Government Accountability Office (GAO) have shown that National Health Service Corps (NHSC) placements have provided much-needed services and have resulted in retention of many providers in underserved areas. Medical students with NHSC scholarships are much more likely to become primary care physicians, to practice in underserved areas, and to practice in a community health center. However, NHSC positions are available to only 3 – 4% of physicians (Phillips, et al., 2009).

Benefits of adopting this recommendation

- Expansion of NHSC programs will help to address severe primary care workforce shortages in underserved areas.
- Improved access to primary care providers will lead to improved health care outcomes for patients in underserved areas.
- Loan repayment plans such as those provided by the NHSC reduce a major financial barrier to medical student selection of primary care careers.

Recommendation 9: Congress should support Patient-Centered Medical-Dental Home demonstration projects designed to evaluate innovative funding and reimbursement strategies that promote accessible high-quality care, while stemming the growth in health care costs.

Problem/Opportunity for improvement

This support should include commissioning a study by a respected external organization, such as the Institute of Medicine, to examine critical barriers and facilitators to the success of primary care including Federal support for the PCM-DH, assistance needed to transform practices successfully, training for practice in the PCM-DH, and incentives to increase interest in primary care. As part of this:

- CMS needs to work with primary care leadership organizations to develop strategies to re-define how to deliver and reimburse primary care.
- CMS should pilot and evaluate reimbursement strategies that compensate for nontraditional

“Currently, reimbursement for office visits does not capture many activities that primary care practices must perform for their patients, especially those with chronic conditions. Under the Medicare Patient-Centered Medical Home demonstration, additional payments would be made to qualifying practices for care coordination activities, including communication with patients and families by telephone and secure e-mail.”

[If the Physician Group Practice Demonstration were expanded] “under this approach, groups would be rewarded for improved performance on quality measures and assessments of patients’ experience by being allowed to share in the savings if costs for their Medicare patients were lower than projected. Under both of these approaches, primary care physicians should receive higher incomes. Moreover, these models provide resources and incentives for enhanced practice capabilities and team orientation to make primary care practice more satisfying and manageable.”

(Bodenheimer, Grumbach, & Berenson, 2009)

approaches to care such as group visits, telephone and electronic communication, care management, and incorporation of non-traditional provider types (such as patient educators, patient navigators, and community health workers).

- CMS should pilot and evaluate reimbursement strategies for time spent on telephone and e-mail consultations and care coordination.
- CMS and other payers should provide financial incentives to practices that demonstrate performance in providing preventive services, care management of chronic disease, use of electronic medical records, and other components of the PCM-DH model. Special attention should be given to providers caring for underserved populations.

Case Study: Group Health Cooperative of Puget Sound

Group Health Cooperative of Puget Sound, a large, consumer-owned integrated delivery system in the Northwest, is rolling out a major transformation of its primary care practices. In 2007, Group Health piloted a Patient-Centered Medical Home redesign at one of its Seattle clinic sites. The redesign included substantial workforce investments to reduce primary care physician panels from an average of 2,327 patients to 1,800; expand in-person visits from 20 to 30 minutes and use more planned telephone and email virtual visits; and allocate daily “desktop medicine” time for staff to perform outreach, coordination, and other activities. The redesign emphasized team-based chronic and preventive care and 24/7 access using modalities including electronic health record (EHR) patient portals.

A 12-month controlled evaluation of the pilot clinic redesign found the following:

- **Better quality:** The pilot clinic had an absolute increase of 4% more of its patients achieving target levels on Healthcare Effectiveness Data and Information Set (HEDIS) quality measures, significantly different from the control clinic trend; pilot clinic patients also reported significantly greater improvement on measures of patient experiences, such as care coordination and patient activation.
- **Better work environment:** There was less staff burnout, with only 10% of pilot clinic staff reporting high emotional exhaustion at 12 months compared to 30% of staff at control clinics, despite being similar at baseline. Group Health has seen a major improvement in recruitment and retention of primary care physicians.
- **Reduction in ER and inpatient hospital costs:** Patients had 29% fewer ER visits and 11% fewer ambulatory sensitive care admissions.
- **Better value proposition:** An additional investment in primary care of \$16 per patient per year was associated with offsetting cost reductions, with the net result being no overall increase in total costs for pilot clinic patients (the total net cost trend was a savings of \$17 per patient per year, which was not statistically significant). Unpublished data from the 24-month evaluation reportedly show a statistically significant decline in total costs.

As a result of the success of the pilot clinic redesign, Group Health is currently implementing the Patient-Centered Medical Home model at all 26 of its primary care clinics serving 380,000 patients (Grumbach, Bodenheimer, & Grundy, 2009).

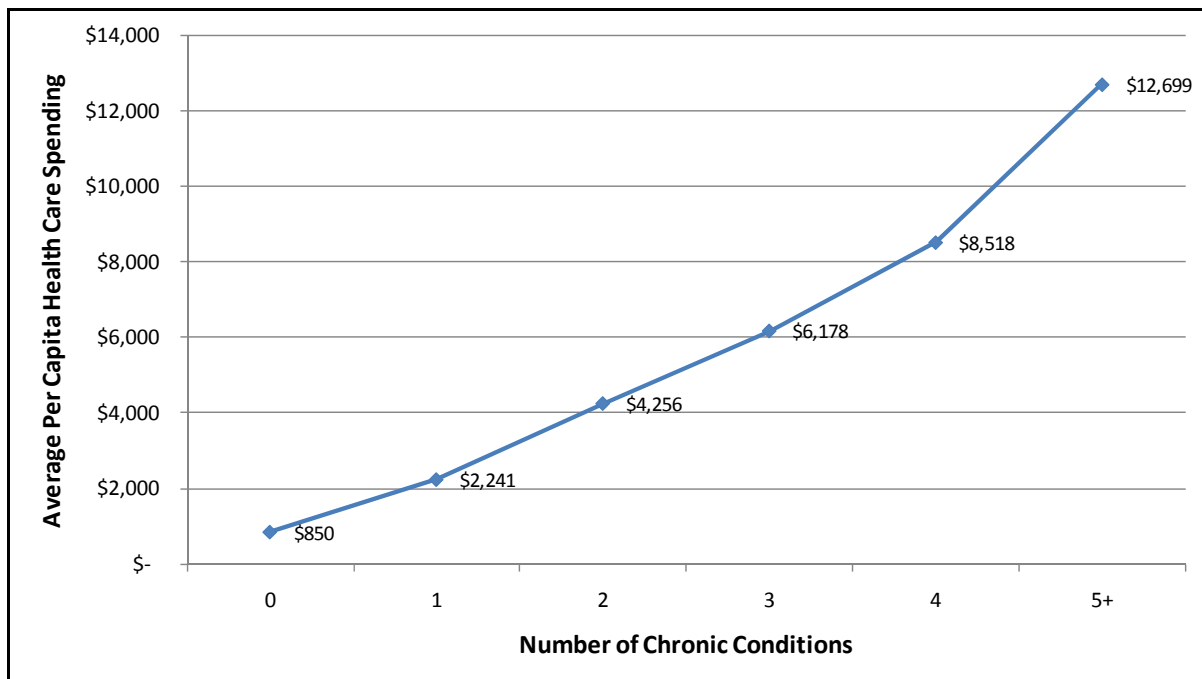
Problem/Opportunity for improvement

Structural factors in the U.S. health insurance system undermine the effectiveness and efficiency of primary care. These issues should be addressed as part of an overall effort to redesign primary care. The GAO testified in 2008 that a strong primary care-based system offers higher quality

and lower costs, arguing that the current undervaluing of primary care is harmful (Primary Care Professionals, 2008). The current reimbursement system by insurance providers does not provide adequate incentives and support for proactive and preventive care; instead, the emphasis remains on episodic treatment of acute care and reimbursement for procedures, resulting in increased costs.

More than 40% of the U.S. population has a chronic medical condition; about half of these individuals have multiple chronic conditions (American College of Physicians, 2006a; Wu & Green, 2000; Anderson, 2005). The costs for treating patients with chronic conditions are significantly higher than the costs of treating patients without chronic conditions (Robert Wood Johnson Foundation, 2001b). The current health insurance reimbursement system does not supply financial support for health care providers to deliver effective treatment for many of these chronic conditions.

Figure 3: Health Care Spending Increases and Number of Chronic Conditions



Source: Robert Wood Johnson Foundation, 2001a

Widespread adoption of models like the PCM-DH model and the Chronic Care model require a revised reimbursement structure. Changes in reimbursement would pave the way for practice reorganization. Practice reorganization, in turn, would improve the satisfaction, performance, and productivity of the primary care workforce, thus attracting new additional entrants into this field of medicine (Bodenheimer, Grumbach, & Berenson, 2009).

Several options for funding mechanisms have been proposed. One option would include a management fee to pay for various aspects of care coordination. Value-based payment has become popular with some groups in the health care industry. These would lead to “pay-for-performance” programs that are incorporated into fee-for-service systems. For such reforms to achieve their objectives, they must be accompanied by practice reform. Willingness to reorganize and commit to a high standard of primary care delivery, such as implementing a PCM-DH model of care, might be a prerequisite for practices to qualify for payment under a reformed payment approach (Goroll, 2008).

Benefits of adopting this recommendation

- A reimbursement system without the current disincentives for proactive care would facilitate treatment of chronic conditions and preventive treatment, leading to improved health care outcomes.
- Innovations in funding could facilitate adoption of practice models such as the PCM-DH model that can contain costs and improve outcomes.
- PCM-DH models of care promise to increase the appeal of a primary care career because of its highly valued central role in the delivery of health care, efficiencies, and exciting collaborative care, thereby ameliorating expected primary care provider shortages.

Case Study: Community Care of North Carolina

Community Care of North Carolina (CCNC) built a partnership between Medicaid, primary care physicians, and other community health care providers to achieve quality, utilization, and cost objectives in the management of care for over 750,000 Medicaid recipients across North Carolina. “CCNC has created a modified version of the medical home where patients are assigned to a primary care home that provides comprehensive longitudinal care, where case managers provide wrap-around services, where practice-specific data are used to improve care, where practices learn from each other, and where community partners support care” (Steiner, et al., 2008, para. 38).

Within the CCNC program, approximately 1,200 primary care practices across North Carolina manage the care of about 80% of the state's Medicaid population, or almost 10% of North Carolina's population. For a management fee (in addition to the usual fee schedule of Medicaid), the practices provide ongoing comprehensive primary care and arrange care with other qualified health care professionals as needed. The state Medicaid office funds the small statewide infrastructure and each of the 14 individual networks with a staff that provides outreach to network practices and case management for high-risk patients (at a rate of \$3 per member in the network per month). In addition to the usual Medicaid fee schedule, the state Medicaid office pays individual CCNC community practices an additional \$2.50 per member in the practice per month to fund practice innovations that improve disease management for CCNC patients.

The program provides a range of benefits. For example, hospitalization rates among asthmatic children dropped by 34% and emergency department visits decreased by 8%. As compared to individuals in other Medicaid programs without medical homes, in 2000, there were 23% fewer hospital admissions per 1,000 asthmatic CCNC enrollees under the age of 21; in 2002, there was a 9% lower hospital utilization rate among diabetic enrollees. Overall among the subset of the enrollees who are asthmatic or diabetic, the program saved the state as estimated \$5.4 million over a 3-year period (Ricketts, Greene, Silberman, Howard, & Poley, 2007). Estimates of annual savings in 2006 range from \$161 to \$300 million. As Steiner and colleagues noted, “The program supports itself fiscally and has shown important improvements in quality of care. It is a model of care that has moved beyond theory and could be implemented across the country” (Steiner, et al., 2008, para. 38).

Recommendation 10: Congress should direct the Secretary of Health and Human Services to establish an independent health care workforce planning body that can evaluate needs and make recommendations.

Problem/Opportunity for improvement

There are strong indications that the numbers of primary care practitioners in our country will be insufficient to care for the population under either the current or a reformed health care system. Deficits in the supply versus need for other health professionals also exist and/or are forecast as well. Rural and underserved areas are particularly subject to undersupply of health professionals, and major demographic changes in the U.S. population, including an increasing racial and ethnic diversity, pose additional challenges for selecting and training an adequate health care workforce.

The education and clinical training of health professionals require significant investments of time and resources of health professional students and public and private educational and health care organizations. In addition, direct and indirect federal and state funding are major components of health professional education and training. Yet while some states have attempted to develop workforce plans for health professions, there has been no effective planning body to make authoritative recommendations on the needs for health professions on state, regional, or national levels. This lack of planning has been recognized by many organizations that have studied this issue and there have been a number of calls for the establishment of a body charged with making such recommendations.

HRSA has several programs under Title VII and Title VIII that promote health professional workforce planning. ACTPCMD, COGME, the Advisory Committee on Interdisciplinary Community-Based Linkages (ACICBL), and development programs for nursing and public health have all addressed workforce issues. Other programs have supported health professions workforce research. However, the Nation needs a unified, independent, objective body to assess the current status of the health professions workforce and project future needs, taking into account the complexity and changing nature of the nation's health care system. The juxtaposition of shortage, system change, and the long-term planning needed to address these issues require that data-driven decisions be made regarding how the Nation's resources will be used in training future health professionals. We need to recognize that more guidance, structure, incentives, and possibly disincentives are needed to correct the current skewed distribution of specialties that features ever-shrinking numbers of primary care providers.

Academic health centers must meet the charge of addressing the Nation's health workforce needs. This is particularly crucial as it relates to our primary care workforce; efforts are needed to accelerate the pace of change in order to prepare future providers to meet the needs of the public and changes needed in the delivery system. These challenges are intensified by globalization, scientific and technological advances, and demographic shifts. To meet such demands, the Secretary of Health and Human Services should establish an independent health care workforce planning taskforce to determine workforce needs, with a particular early focus on the primary care workforce.

Benefits of adopting this recommendation

- Data-driven decisions can be made about future health professional workforce needs and the best use of resources to address those needs.

- Various health professions data can be integrated, breaking down the current “silo” approach.
- Particular areas of the workforce crisis (e.g. primary care) can be analyzed and addressed from a systems change and interdisciplinary approach.
- Data developed can be used for state and regional as well as national planning purposes.
- Rationalization of health workforce planning can be achieved with this approach.
- Health care practitioner training programs will be more accountable to the public.

References

- Adams, J., Grundy, P., Kohn, M. S., & Mounib, E. L. (2009, May 27). *IBM patient-centered medical home pre-launch briefing*. Retrieved July 27, 2009, from http://www.slideshare.net/IBM_IBV/ibm-patientcentered-medical-home-pre-launch-briefing
- Advisory Committee on Training in Primary Care Medicine and Dentistry. (2005, November). *Fifth annual report to the Secretary of the U.S. Department of Health and Human Services and to Congress: Evaluating the impact of Title VII, section 747 programs*. Retrieved July 27, 2009, from <http://bhpr.hrsa.gov/medicine-dentistry/actpcmd/reports.htm>
- Advisory Committee on Training in Primary Care Medicine and Dentistry. (2008, December). *Seventh annual report to the Secretary of the U.S. Department of Health and Human Services and to Congress: Coming home: The Patient-Centered Medical-Dental Home in primary care training*. Retrieved July 27, 2009, from <http://bhpr.hrsa.gov/medicine-dentistry/actpcmd/reports.htm>
- American Academy of Family Physicians, American Academy of Pediatrics, American College of Physicians, & American Osteopathic Association. (2007, February). *Joint principles of the patient centered medical home*. Retrieved July 27, 2009, from <http://www.pcpc.net/content/joint-principles-patient-centered-medical-home>
- American Academy of Pediatrics. (2009). *What is a medical home?* Retrieved July 1, 2009, from <http://www.medicalhomeinfo.org/>
- American Academy of Physician Assistants. (2007). *Annual census*.
- American Academy of Physician Assistants. (2008, September 25). *Annual census*. Retrieved July 27, 2009, from <http://www.aapa.org/images/stories/2008aapacensusnationalreport.pdf>
- American Association of Colleges of Osteopathic Medicine. (2008). *A report on a survey of osteopathic medical school growth, 2007-08*. Retrieved November 2, 2009, from http://publish.aacom.org/resources/bookstore/Documents/college_growth_report_2008.pdf
- American Association of Colleges of Osteopathic Medicine and Association of American Medical Colleges. (2006). *AACOM and AAMC 2006 graduate survey*.
- American Association of Colleges of Osteopathic Medicine (2008). *AACOM survey of first year students and graduating seniors, 1999-2008*.
- American College of Physicians. (2006a, January 22). *The advanced medical home: A patient-centered, physician-guided model of health care: A policy monograph of the American College of Physicians*. Philadelphia: American College of Physicians.
- American College of Physicians. (2006b, January 30). *The impending collapse of primary care medicine and its implications for the state of the nation's health care: A report from the*

American College of Physicians. Philadelphia: American College of Physicians.

Anderson, G. F. (2005). Medicare and chronic conditions: Sounding board. *New England Journal of Medicine*, 353(3), 305–09.

Arora, V., Gangireddy, S., Mehrotra, A., Ginde, R., Tormey, M., & Meltzer, D. (2009). Ability of hospitalized patients to identify their in-hospital physicians. *Archives of Internal Medicine*, 169(2), 199–201.

Association of American Medical Colleges. (2004, March 23). *Medical school tuition and young physician indebtedness*. Retrieved December 27, 2009, from http://services.aamc.org/publications/showfile.cfm?file=version21.pdf&prd_id=102

Association of American Medical Colleges. (2005, March). *Medical education costs and student debt*. Washington, DC: Association of American Medical Colleges. Retrieved July 1, 2009, from https://services.aamc.org/Publications/showfile.cfm?file=version35.pdf&prd_id=121&prv_id=137&pdf_id=35

Association of American Medical Colleges, Center for Workforce Studies. (2009, May). *Medical school enrollment plans through 2013: Analysis of the 2008 AAMC survey*. Retrieved October 9, 2009, from <http://aamc.org/workforce/enrollment/enrollmentreport.pdf>

Beal, A. C., Doty, M. M., Hernandez, S. E., Shea, K. K., & Davis, K. (2007, June 27). Closing the divide: How medical homes promote equity in health care: Results from The Commonwealth Fund 2006 Health Care Quality Survey. *The Commonwealth Fund*, 62. Retrieved July 1, 2009, from http://www.commonwealthfund.org/publications/publications_show.htm?doc_id=506814

Berenson, R. A., & Horvath, J. (2003, January–June). Confronting the barriers to chronic care management in Medicare. *Health Affairs (Millwood)*, (Supplement, Web Exclusives), W3–37–53. (PMID: 14527234) Retrieved July 27, 2009, from <http://www.ncbi.nlm.nih.gov/pubmed/14527234>

Bodenheimer, T. (2006, August 31). Primary care – will it survive? *New England Journal of Medicine*, 355(9), 861–864. Retrieved February 1, 2009, from <http://content.nejm.org/cgi/content/full/355/9/861>

Bodenheimer, T., Berenson, R. A., & Rudolf, P. (2007, February 20). The primary care–specialty income gap: Why it matters. *Annals of Internal Medicine*, 146(4), 301–306. Retrieved July 1, 2009, from <http://www.annals.org/cgi/reprint/146/4/301.pdf>

Bodenheimer, T., & Fernandez, A. (2005, July 5). High and rising health care costs. Part 4: Can costs be controlled while preserving quality? *Annals of Internal Medicine*, 143(1), 26–31. (PMID: 15998752) Retrieved July 27, 2009, from <http://www.annals.org/cgi/content/full/143/1/26>

Bodenheimer, T., Grumbach, K., & Berenson, R. A. (2009, June 25). A lifeline for primary care. *New England Journal of Medicine*, 360(26), 2693–2696.

Brashers, V. L., Curry, C. E., Harper, D. C., McDaniel, S. H., Pawlson, G., & Ball, J. W. (2001). Interprofessional health care education: Recommendations of the National Academies of Practice expert panel on health care in the 21st century. *Issues in Interdisciplinary Care: National Academies of Practice Forum*, 3(1), 21–31. Retrieved September 26, 2008, from www.napnet.us/files/simpson-concensus.pdf

Brodeur, P. (2009, January). *Community-based dental education*. Retrieved August 8, 2009, from <http://www.rwjf.org/pr/product.jsp?id=37712>

Cawley, J. F. (2008, November). Physician assistants and Title VII support. *Academic Medicine*, 83(11), 1049–1056. Retrieved July 27, 2009, from https://journals.lww.com/academicmedicine/Abstract/2008/11000/Physician_Assistants_and_Title_VII_Support.16.aspx

Centers for Disease Control and Prevention. (2009). *About the National Center for Health Statistics*. Retrieved August 8, 2009, from <http://www.cdc.gov/nchs/about.htm>

Congressional Budget Office. (2007). *Budget options: Function 550: Health*. Retrieved October 9, 2009, from <http://www.cbo.gov/ftpdocs/78xx/doc7821/550.htm>

Council on Graduate Medical Education. (2007, September). *Nineteenth report: Enhancing flexibility in graduate medical education*. Rockville, MD: Council on Graduate Medical Education. Retrieved July 27, 2009, from <http://www.cogme.gov/19thReport/default.htm>

Daniels, S. R., Jacobson, M. S., McCrindle, B. W., Eckel, R. H., & McHugh Sanner, B. (2009). American Heart Association childhood obesity research summit. *Circulation*, 119, 2114–2123. Retrieved August 5, 2009, from <http://circ.ahajournals.org/cgi/content/full/119/15/2114>

Davis, A. K., Reynolds, P. P., Kahn, N. B. Jr., Sherwood, R. A., Pascoe, J. M., Goroll, A. H., et al. (2008, November). Title VII and the development and promotion of national initiatives in training primary care clinicians in the United States. *Academic Medicine*, 83(11), 1021–1029. (DOI: 10.1097/ACM.0b013e31818906c9)

deGier, V. (2007, February 20). *Income gaps between primary care and specialist physicians threaten U.S. health care*. Retrieved August 8, 2009, from <http://www.universityofcalifornia.edu/news/article/8928>

DeLia, D., & Belloff, D. (2006, June 25). *Geographic disparity in health insurance coverage: Inner cities versus outer metropolitan areas*. Presented at the Academy Health Annual Research Meeting Poster Session A. Retrieved July 27, 2009, from <http://www.cshp.rutgers.edu/Downloads/6540.pdf>

De Maeseneer, J. M., De Prins, L., Gosset, C., & Heyerick, J. (2003). Provider continuity in family medicine: Does it make a difference for total health care costs? *Annals of Family Medicine*, 1, 144–8. (PMID: 15043375) Retrieved July 27, 2009, from <http://www.annfammed.org/cgi/content/abstract/1/3/144>

Dorsey, E. R., Jarjoura, D., & Rutecki, G. W. (2003). Influence of controllable lifestyle on recent

trends in specialty choice by U.S. medical students. *Journal of the American Medical Association*, 290, 1173–8. (PMID: 12952999) Retrieved July 27, 2009, from <http://jama.ama-assn.org/cgi/content/full/290/9/1173>

Drinka, T. J. K., & Clark, P. G. (2000). *Health care teamwork: Interdisciplinary practice and teaching*. Westport, CT; London: Auburn House.

Edelstein, B., Krol, D., Ingargiola, P., & De Biasi, A. (2003, May). *Assessing pediatric dentistry Title VII training program success*. Chicago: American Academy of Pediatric Dentistry.

Franks, P., & Fiscella, K. (1998, August). Primary care physicians and specialists as personal physicians: Health care expenditures and mortality experience. *Journal of Family Practice*, 47, 105–9.

Fryer, G. E. Jr., Meyers, D. S., Krol, D. M., Phillips, R. L., Green, L. A., Dovey, S. M., & Miyoshi, T. J. (2002, June). The association of Title VII funding to departments of family medicine with choice of physician specialty and practice location. *Family Medicine*, 34(6), 436–440.

General Accounting Office. (1994, July). *Health professions education: Role of Title VII, section 747/Title VIII programs in improving access to care is unclear*. Washington, DC: HEHS-94-164, Government Printing Office.

Glicken, A., & Lane, S. (2007). Results of the PAEA 2006 survey of PA program expansion plans. *The Journal of Physician Assistant Education*, 18(11). Retrieved July 27, 2009, from <http://www.paeonline.org/index.php?ht=a/GetDocumentAction/i/25261>

Goodson, J. D., Bierman, A. S., Fein, O., Rask, K., Rich, E. C., & Selker, H. P. (2001, April). The future of capitation: The physician role in managing change in practice. *Journal of General Internal Medicine*, 16(4), 250–6. (PMID: 11318926) Retrieved July 27, 2009, from <http://www.ncbi.nlm.nih.gov/pubmed/11318926>

Goroll, A. H. (2008, November 13). Reforming physician payment. *New England Journal of Medicine*, 359(20), 2087–2090.

Goroll, A. H., Berenson, R. A., Schoenbaum, S. C., & Gardner, L. B. (2007, January 9). Fundamental reform of payment for adult primary care: Comprehensive payment for comprehensive care. *Journal of General Internal Medicine*. Retrieved July 27, 2009, from <http://www.springerlink.com/content/x864841076775u6p/fulltext.html>

Grumbach, K., Bodenheimer, T., & Grundy, P. (2009, August). *The outcomes of implementing patient-centered medical home interventions: A review of the evidence on quality, access and costs from recent prospective evaluation studies*. Retrieved July 27, 2009, from <http://familymedicine.medschool.ucsf.edu/cepc/pdf/outcomes%20of%20pcmh%20for%20White%20House%20Aug%202009.pdf>

Hammick, M., Freeth, D., Koppel, I., Reeves, S., & Barr, H. (2007). A best evidence systematic review of interprofessional education: BEME Guide no. 9. *Medical Teacher*, 29(8), 735–51.

- Harrison, B., Bazemore, A. W., Dodoo, M. S., Teevan, B., Wittenberg, H., & Phillips, R. L. Jr. (2009, October 15). Title VII's decline: Shrinking investment in the primary care training pipeline. *American Family Physician*, 80(8), 872.
- Higashi, T., Wenger, N. S., Adams, J. L., Fung, C., Roland, M., McGlynn, E. A., et al. (2007). Relationship between number of medical conditions and quality of care. *New England Journal of Medicine*, 356, 2496–2504.
- Kavilanz, P. B. (2009, July 18). *Family doctors: An endangered breed*. Retrieved July 27, 2009, from http://money.cnn.com/2009/07/16/news/economy/healthcare_doctors_shortage/index.htm?postversion=2009071807
- Kuthy, R. A. (2009). Assessment of the dental pipeline program from the external reviewers and national program office: Response to the pipeline evaluation. *Journal of Dental Education*, 73(2 supplement), 331–339.
- Landon, B. E., Hicks, L. S., O'Malley, A. J., Lieu, T. A., Keegan, T., McNeil, B. J., & Guadagnoli, E. (2007, March). Improving the management of chronic disease at community health centers. *New England Journal of Medicine* 356(9), 921–934. Retrieved August 20, 2009, from <http://content.nejm.org/cgi/content/abstract/356/9/921>
- Levitan, T. (2008). *A report on a survey of osteopathic medical school growth, 2007-08*. Chevy Chase, MD: American Association of Colleges of Osteopathic Medicine. Retrieved November 12, 2009, from http://publish.aacom.org/resources/bookstore/Documents/college_growth_report_2008.pdf
- Levitan, T., Shannon, S. S., & Meron, J. (2009, April). *Some factors impacting osteopathic medical school graduates' specialty selection – A preliminary exploration of recent historical data*. Retrieved January 10, 2010, from <http://www.aacom.org/resources/other/Documents/Factors%20Impacting%20Specialty%20Selection.pdf>
- Meyers, D., Fryer, G. E., Krol, D., Phillips, R. L., Green, L. A., & Dovey, S. M. (2002, August 15). Title VII funding is associated with more family physicians and more physicians serving the underserved. *American Family Physician*, 66(4), 554.
- Newton, W., & Arndt, J. E. (2008, November). Learning from history: The legacy of Title VII in academic family medicine. *Academic Medicine* (83)11, 1030–1038. (DOI: 10.1097/ACM.0b013e3181892933) Retrieved October 9, 2009, from http://journals.lww.com/academicmedicine/Abstract/2008/11000/Learning_From_History__The_Legacy_of_Title_VII_in.12.aspx
- Paulus, R. A., Davis, K., & Steele, G. D. (2008, September 10). Continuous innovation in health care: Implications of the Geisinger Experience. *Health Affairs*, 27(5), 1235–45. Retrieved February 1, 2009, from <http://content.healthaffairs.org/cgi/content/abstract/27/5/1235?ijkey=xGyM8BnoFl/q2&keytype=ref&siteid=healthaff>

Parchman, M. L., & Culler, S. (1994, August 1). Primary care physicians and avoidable hospitalizations. *Journal of Family Practice*, 39, 123–8. (PMID: 8057062) Retrieved July 27, 2009, from http://findarticles.com/p/articles/mi_m0689/is_n2_v39/ai_15828746/?tag=content;col1

Phillips, R. L. Jr., Dodoo, M. S., Petterson, S., Xierali, I., Bazemore, A., Teevan, B., et al. (2009, March 2). *Specialty and geographic distribution of the physician workforce: What influences medical student & resident choices?* Washington, DC: The Robert Graham Center: Policy Studies in Family Medicine and Primary Care.

Primary Care Professionals. (2008, February 12). *Testimony before the Senate Committee on Health, Education, Labor, and Pensions*. Washington, DC: U.S. Government Accountability Office.

Pugno, P. A., Schmittling, G. T., Fetter, G. T. Jr., & Kahn, N. B. Jr. (2005). Results of the 2005 national resident matching program: Family medicine. *Family Medicine*, 37(8), 555–64. (PMID: 16145633) Retrieved July 27, 2009, from <http://www.ncbi.nlm.nih.gov/pubmed/16145633>

Reeves, S., Zwarenstein, M., Goldman, J., Barr, H., Freeth, D., & Hammick, M. (2008). Interprofessional education: Effects on professional practice and health care outcomes. *Cochrane Database of Systematic Reviews*, 1, article CD002213. (DOI:10.1002/14651858.CD002213.pub2)

Remington, T. L., Foulk, M. A., & Williams, B. C. (2006). Evaluation of evidence for interprofessional education. *The American Journal of Pharmaceutical Education*, 70(3), 70, article 66.

Reynolds, P. P. (2008). A legislative history of federal assistance for health professions training in primary care medicine and dentistry in the United States, 1963–2008. *Academic Medicine*, 83(11), 1004–1014. (DOI: 10.1097/ACM.0b013e318189278c) Retrieved October 9, 2009, from http://journals.lww.com/academicmedicine/Abstract/2008/11000/A_Legislative_History_of_Federal_Assistance

Ricketts, T. C., Greene, S., Silberman, P., Howard, H. A., & Poley, S. (2007). *Evaluation of Community Care of North Carolina asthma and diabetes management initiatives: January 2000–December 2002*. Retrieved July 27, 2009, from http://www.shepscenter.unc.edu/research_programs/health_policy/Access.pdf

Robert Wood Johnson Foundation. (2001a). *Medical panel survey*.

Robert Wood Johnson Foundation. (2001b). *A portrait of the chronically ill in America, 2001*. Princeton, NJ: Robert Wood Johnson Foundation. Portland. Retrieved November 16, 2009, from <http://www.rwjf.org/files/publications/other/ChronicIllnessChartbook2001.pdf>

Robinson, J. C. (2001). Theory and practice in the design of physician payment incentives. *The Milbank Quarterly*, 79(2), 149–77, III. (PMID: 11439463) Retrieved July 27, 2009, from <http://www.milbank.org/quarterly/7902feat.html>

Rosenblatt, R. A., & Hart, L. G. (2000, November). Physicians and rural America. *Western*

Journal of Medicine, 173(5), 348–351. Retrieved July 27, 2009, from <http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=1071163>

Starfield, B. (2005, November/December). The primary solution: Put doctors where they count. *Boston Review*.

Starfield, B. (2006, October 3). *Presentation to The Commonwealth Fund, Primary Care Roundtable: Strengthening adult primary care: Models and policy options*. Retrieved July 27, 2009, from <http://www.pcpcc.net/content/evidence-quality>

Starfield, B., Shi, L., & Macinko, J. (2005). Contribution of primary care to health systems and health. *The Milbank Quarterly* 83(3), 457–502. Retrieved August 5, 2009, from http://www.jhsph.edu/pcpc/Publications_PDFs/2005_MQ_Starfield.pdf

Steiner, B. D., Denham, A. C., Ashkin, E., Newton, W. P., Wroth, T., & Dobson, L. A. (2008, July). Community Care of North Carolina: Improving care through community health networks. *Annals of Family Medicine*, 6(4), 361–367. Retrieved July 1, 2009, from <http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=2478510>

Weiss, L. J., & Blustein, J. (1996). Faithful patients: The effect of long-term physician patient relationships on the costs and use of health care by older Americans. *American Journal of Public Health*, 86, 1742–7. (PMID: 9003131)

West, C. P., Popkave, C., Schultz, H. J., Weinberger, S. E., & Kolars, J. C. (2006, November 21). Changes in career decisions of internal medicine residents during training. *Annals of Internal Medicine*, 145(10), 774–9. (PMID: 17116922) Retrieved July 27, 2009, from <http://www.annals.org/cgi/content/abstract/145/10/774>

Wu, S., & Green, A. (2000, October). *Projection of chronic illness prevalence and cost inflation*. Santa Monica, CA: RAND Health.

Zyzanski, S. J., Stange, K. C., Langa, D., & Flocke, S. A. (1998, May). Trade-offs in high-volume primary care practice. *Journal of Family Practice*, 46(5), 397–402. (PMID: 9597997) Retrieved July 27, 2009, from <http://www.ncbi.nlm.nih.gov/pubmed/9597997>