

Remaking Primary Care: From Crisis to Opportunity



April 2009



New England Healthcare Institute

About the New England Healthcare Institute

The New England Healthcare Institute (NEHI) is a nonprofit, health policy institute focused on enabling innovation that will improve health care quality and lower health care costs. Working in partnership with members from across the health care system, NEHI brings an objective, collaborative and fresh voice to health policy. We combine the collective vision of our diverse membership and our independent, evidence-based research to move ideas into action.



Acknowledgements

This report was made possible through a grant from the Josiah Macy, Jr. Foundation. The Foundation supports programs designed to improve the education of health professionals in the interest of the health of the public, and to enhance the representation of minorities in the health profession.

The authors would like to thank George E. Thibault, MD, President of the Josiah Macy, Jr. Foundation for his guidance and support throughout this project. This report would not have been possible without the assistance all of the practitioners, researchers, educators and administrators who so generously offered their time and expertise to support this project.

The views expressed herein are solely those of the New England Healthcare Institute and not intended to represent the individual viewpoints of our sponsors, members or advisors.

Introduction

The current prognosis of primary care in the United States is dire; the American College of Physicians warns of an “impending collapse of primary care” and *The New York Times* has declared a “crisis of care on the front line of health.” As with any complex condition, there is no single cause of, nor solution to, all of primary care’s ills. This report is intended to highlight the range of root causes of the current crisis in primary care and identify a set of innovations that could enhance the quality, efficiency and effectiveness of primary care and discusses important issues related to changes required in health professional education.

Key Findings		
<i>Drivers of the Crisis</i> <ul style="list-style-type: none">• Demand: Aging and Chronic Illness• Supply: Primary Care Workforce Shortage• Drivers of Shortage: Income /Reimbursement Gap and Provider Satisfaction	The Consequences: Patient Access and Quality of Care <ul style="list-style-type: none">• Patient Access• Patient Satisfaction/ Quality of Care	Innovations <ul style="list-style-type: none">• Service Delivery Changes• Site of Care Changes• Workforce Changes• Reimbursement Changes• Medical Education Changes

Project Methodology

The research for this report was conducted in three major stages. In order to gather general background on the current state of primary care practice and the prevailing opinions on the crisis in the field, a broad review of the literature was conducted. A search of PubMed was carried out to identify articles published in the past 15 years that directly addressed the root causes of the crisis, yielding 55 articles. A full list of these articles is provided in Appendix I. Next, a scan of Internet-based sources, including professional associations, federal agencies, and national physician and patient surveys, was conducted to identify quantitative data pertaining to the current state of primary care. Finally, interviews were conducted with 22 experts spanning the primary care spectrum – practicing physicians and nurses, medical and nursing school deans, researchers, representatives from the major professional associations, and employers. A full list of interviewed experts is included in Appendix II. In these interviews, experts were asked to provide their thoughts on the most pressing challenges currently facing primary care and the most promising innovations to redesign primary care.

Defining Primary Care

What is Primary Care?

For purposes of this work, NEHI used the American Academy of Family Physicians (AAFP)¹ definition of primary care: patient-centered, comprehensive first contact and continuing care. Primary care providers offer a wide range of services including diagnosis and treatment of acute and chronic illnesses, disease prevention services, and patient education. A primary care practice serves as the patient's first point of entry into the health care system and as the continuing access point for all needed health care services. Overall, this is a comprehensive and forward-looking definition that encompasses the ranges of services and settings included in modern primary care.

Who Practices Primary Care?

While many types of physicians and other health care professionals may periodically provide primary care services as defined above, this paper focuses on providers for whom primary care services represent the majority of their practice. For purposes of this work, primary care clinicians are medical doctors, osteopathic doctors, nurse practitioners and physician assistants who work in general and family practice, general internal medicine, and general pediatrics. In expert interviews, these fields were most often mentioned as comprising primary care and these fields are also designated as “primary care” by the Health Resources and Services Administration (HRSA).²

The Evolution of Primary Care: An Unfulfilled Promise

Modern Origins

Primary care as a distinct field of medical practice is a relatively modern development, though even this short history has been marked by significant changes in fortune. Originally, medicine was the province of the general practitioner, curing all ills in small community practices. In the post-war period, this traditional model was pushed aside by the explosive growth of specialist and sub-specialist physicians, fueled by scientific and technical advances.

In response, the new concept of primary care became a major focus of health care in the United States in the 1960's. The term "medical home" was first coined by the American Association of Pediatrics in 1967 and family medicine was established as a specialty in 1969. At its inception, primary care in its ideal form – comprehensive, continuous and coordinated care – was seen as easily attainable. By 1978 the international health community was also engaged in the promotion of primary care and the World Health Organization convened the International Conference on Primary Health Care in Alma-Ata, Kazakhstan. The Alma-Ata Declaration affirmed that primary care should be the "central function and main focus" of a health system and many other nations around the world developed domestic health care systems with strong emphases on primary care.³

In the 1980's, the rise of managed care and capitation elevated primary care physicians to new heights as coordinators of care, but eventually led to unwelcome perceptions of primary care physicians as gatekeepers, more hindrance than help. Despite the original hope, the field of primary care never reached its full potential. The tide continued to shift towards specialist care, and the supporting systems, including training and reimbursement, began to skew towards specialists as well.

Today, nearly a half century since its inception, primary care, and the promise it offers, is back at the top of the health care agenda in the United States and considered a key component of emerging health reform activities.

The Hope and the Reality

Evidence has shown that advocating, expanding and improving primary care is sound policy that produces health and economic benefits. A growing body of evidence suggests that a strong, high-quality primary care system is directly related to superior health outcomes in other nations. A recent review of studies, largely from the United States, found that an increase of one primary care physician per 10,000 population was correlated to a reduction in average mortality of 5.3 percent per year.⁴ Other research has found that the fundamental pillars of primary care: first contact access and long-term patient-focused, comprehensive and coordinated care, are associated with better health behaviors, including screening, immunization and health habit counseling.⁵ In financial

terms, studies have also shown a link between strong primary care and decreased per-capita health spending in the United States.⁶

Despite the optimism of years past and the evidence of the enormous potential of primary care, the reality of the primary care system in the United States has fallen short. The current system is seen by practitioners and patients alike as inefficient, fragmented and expensive. The next section of this report seeks to identify the range of factors contributing to the failure of the current primary care system.

Drivers of the Crisis

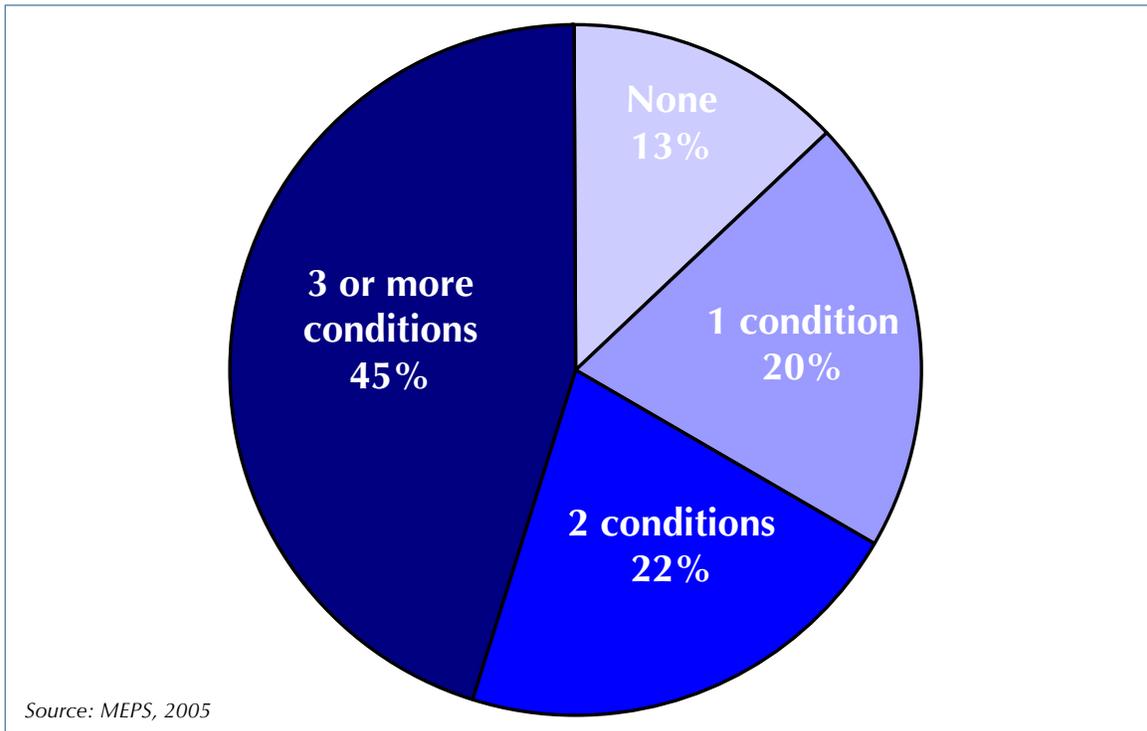
The current crisis in primary care is the result of the confluence of a rising demand for primary care and a decreasing supply of professionals providing these services. The increases in demand mark the beginning of a major demographic shift in the United States: an aging population increasingly plagued by chronic diseases. The demand-side challenges are set against a professional climate where primary care professionals, concerned by lower relative income and reimbursement and fundamentally unhappy with the current state of practice, are avoiding entering the field or leaving the practice of primary care altogether.

Demand: Aging and Chronic Illness

Due to a significant decrease in birth rates and a significant increase in life expectancy over the past century, the demographic make-up of the United States has shifted dramatically. Consequently, the percentage of individuals aged 65 and older is expected to increase from 12.7 percent of the total U.S. population in 2008 to over 20 percent of the total U.S. population in 2050.⁷

As the population ages and the number of older Americans grows, so will the burden of chronic illness. As depicted in Figure 1, recent data indicate that increasing numbers of Americans are living with *multiple* chronic illnesses; currently, 87 percent of Americans aged 65-79 live with at least one chronic condition and 45 percent suffer from 3 or more.⁸ With overall chronic illness prevalence expected to increase by 42 percent between 2003 and 2023, the numbers of Americans suffering from chronic conditions will continue to grow significantly.⁹ The largest increases are expected in the areas of cancer, diabetes and hypertension.

Figure 1: Individuals Aged 65-79 with Chronic Conditions



The growing demand for health services for chronic illness care has already increased the workload for primary care professionals. This trend has been magnified by a shift in where chronic care is provided. In the past, the majority of chronic illness care was provided in hospitals. Today, much of that care is provided in ambulatory settings. This trend is expected to increase and will continue to stress the primary care system's resources.¹⁰ Many analysts are concerned that the supply of primary care professionals will be unable to keep pace with this demand.

Supply: Primary Care Workforce Shortage

The primary care workforce is made up of a diverse group of health professionals. Direct patient care is provided by allopathic and osteopathic doctors, nurse practitioners, physician assistants, and registered nurses. Other health professionals including pharmacists, nutritionists, social workers and medical assistants also provide services within the primary care environment. An adequate supply of all of these health professionals will be required to meet the future demand for services.

- **Physicians**

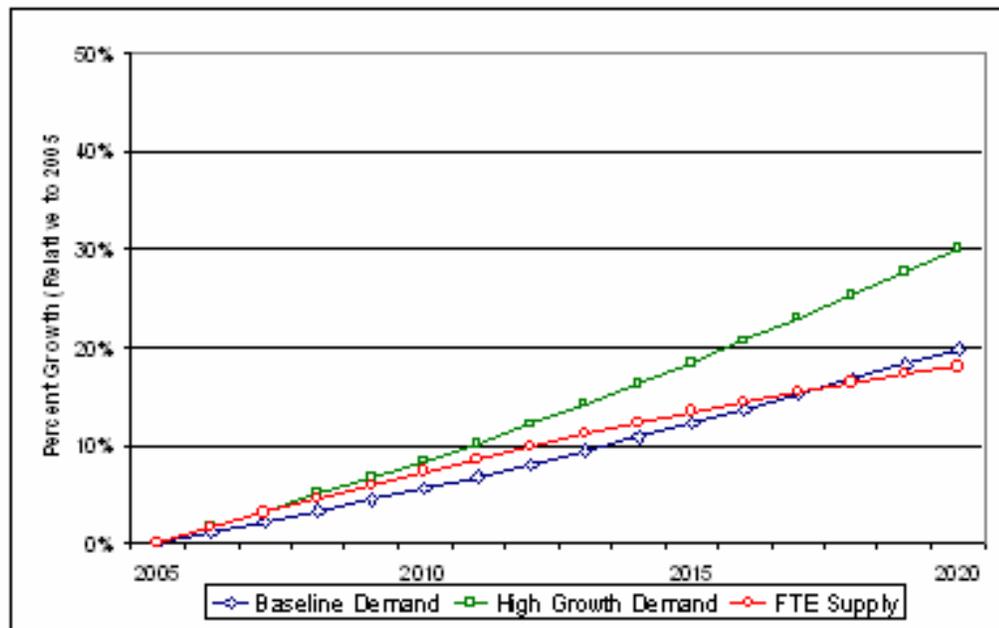
Prior to the rise of specialized medicine, primary care was the main source of medical services in the United States. However, according to data from the American Medical Association, the proportion of all physicians practicing primary care has decreased from an estimated 50 percent in 1950 to just over 30 percent in 2007, driven by

growth in the specialty fields outpacing growth in primary care. As a result, there is a belief that a national shortage of primary care physicians exists. The reality is more complex. Data show that nationally, the U.S. has approximately 90 primary care physicians (PCPs) per 100,000 population – an adequate supply based on the Health Resources and Services Administration (HRSA) definition of a shortage.¹¹ This finding, and the definition of shortage that underlies it, is not without debate. Given the dramatic changes in the practice of health care over the past decade, a reexamination of the current HRSA shortage metrics may be required.

However, there are serious shortages on the regional level and within sub-populations. Rural communities face a major supply challenge, having substantially fewer primary care physicians per capita compared to urban areas (55 PCPs per 100,000 in non metropolitan areas compared to 93 PCPs per 100,000 in metropolitan areas).¹² In fact, it is estimated that 7,000 additional primary care physicians are needed to meet the current demand in designated underserved areas.¹³

Regardless of current conditions, a future national shortage is very likely. According to HRSA estimates shown in Figure 2, in 2020 the nationwide supply of full-time equivalent primary care physicians will be 271,440, compared with a need for 337,400 primary care physicians. The shortage will likely be felt more in certain fields of primary care. The number of adult care generalists is predicted to be short by 35,000–40,000 in 2025.¹⁴ Likewise, the number of geriatricians needed is expected to fall significantly short of the required 36,000.¹⁵

Figure 2: Growth in Primary Care Supply and Demand



Source: HRSA, 2006

The number of medical doctors and osteopathic doctors going into primary care have differed, so it is important to examine each separately.

- Medical Doctors (M.D.)

A 2007 survey of fourth-year medical students found few interested in entering the field of primary care, with only five percent interested in Family Medicine. Of particular note is that while one in four students expressed an interest in Internal Medicine, only two percent planned to enter General Internal Medicine, a key source of primary care practitioners.

- Osteopathic Doctors (D.O.)

Historically, Doctors of Osteopathy (DOs) have been more likely than their allopathic colleagues to practice in primary care. This preference for choosing primary care, combined with substantial growth in the absolute numbers of Board Certified DOs (from 18,528 in 2003/2004 to 22,205 in 2007/2008) has resulted in large numbers of DOs entering primary care practice. Since 2004, the Family Practice and Internal Medicine specialties have seen 1,177 and 1,928 DOs, respectively, enter the fields. However this trend may be changing. While the majority of DOs still practice primary care and the DO profession has made clear its commitment to the ideals of primary care, there was a 56 percent decrease in the percentage of DOs practicing in family

medicine and a 42 percent decrease in the number practicing general medicine between 1984.¹⁶

- [Nurse Practitioners and Physician Assistants](#)

According to the American Association of Nurse Practitioners, the proportion of nurse practitioners working in primary care has held steady at around 60 percent over the past 10 years. However, the proportion of physician assistants in primary care has declined from just over 50 percent in 1997 to 37 percent in 2007. As with their physician colleagues, physician assistants are shifting to specialties with higher incomes and perceived better working conditions.

- [Registered Nurses](#)

Data on the number of registered nurses (RNs) providing direct patient care in the primary care setting is difficult to obtain. However, a serious shortage is already occurring throughout the entire nursing field. The overall shortage of RNs is expected to reach as high as 808,000 by 2020.¹⁷

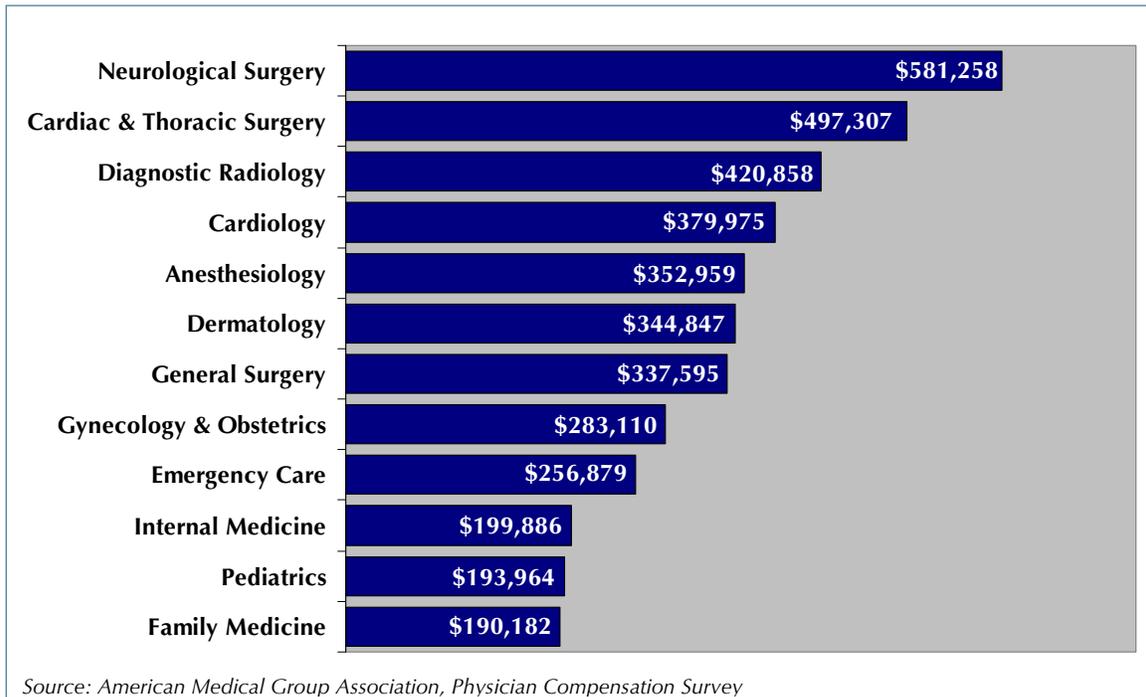
Drivers of Shortage: Income / Reimbursement Gap and Provider Satisfaction

As described, the primary care workforce shortage includes several types of providers, but much of the emphasis is focused on physicians. Research and expert interviews identified two key trends negatively affecting the supply of primary care physicians: the income/reimbursement gap and growing provider dissatisfaction with working conditions with high work loads, long hours and a feeling that their work is undervalued by the health care system.

- [Income/Reimbursement Gap](#)

Frequently mentioned in the literature and by experts is the income gap between primary care physicians and specialty physicians. According to the 2008 American Medical Group Association Physician Compensation Survey, the three lowest paid fields were internal medicine, family medicine and pediatrics. The highest paid specialty, neurological surgery, brought in three times the income of family medicine physicians.

Figure 3: Median Physician Income by Field in 2007



The comparatively low levels of compensation in primary care result from lower payer reimbursements for primary care compared to specialty services. A recent National Health Policy Forum analysis found that the Relative Value Units (RVUs)¹⁸ of the Centers for Medicare and Medicaid Services (CMS) fee schedule are weighted more heavily toward the specialties. The average RVUs for one hour of care provided in noninvasive cardiology is 8.7, compared to 4.2 in family practice and 4.0 in internal medicine.¹⁹

The impact of the compensation gap was cited by most experts as a key factor in medical students' and medical residents' decisions to practice in specialties, and in practicing primary care physicians' decisions to leave the field. Yet the worst pay-related effects may still lie ahead. A recent survey found that 82 percent of physicians reported that their practices would be "unsustainable" if proposed cuts to Medicare reimbursements were made.

- [Provider Satisfaction](#)

Though difficult to quantify, primary care providers' increasing dissatisfaction with their work is another key factor driving practitioners out of primary care. A dichotomy exists between the passionate, talented professionals in primary care and the increasing complexity of their work and declining working conditions. Primary care physicians are responsible for acute care, chronic care, preventive care, mental health,

substance abuse/domestic violence screening, psychosocial needs, and family support; requiring an “astonishing” breadth of knowledge, according to one of our experts.

Due to both low payment schedules and increasing work demands, providers are forced to see more patients and provide more “care.” Experts have described primary care practice as being “a hamster in a wheel,” with never-ending patient, paperwork and administrative duties. This low morale also affects medical students and residents. During their primary care clerkships and rotations, these trainees are often exposed to frustrated primary care physicians, hardly role models to inspire a new generation to practice in the field.

The Consequences: Decreased Patient Access and Decreased Quality of Care

The combined impact of increased demand for primary care services and decreased supply of professionals practicing in the field has been felt directly by patients. Whether it be in the form of practices closed to new patients, long waits for appointments or dissatisfaction with the care they receive, patients everywhere are living with the consequences of the current primary care crisis.

- [Decreased Patient Access](#)
Recent trend data shows that the mismatch between supply and demand has begun to impact patients' ability to access needed services, particularly in the area of primary care. The implementation of health care reform strategies designed to expand health insurance coverage has led to an increased demand for services, particularly in primary care, and resulted in access issues for patients. As shown in Figure 3, in the two years following health reform in Massachusetts (see sidebar), the percentage of practices reporting their panels closed to new patients rose from 25 percent to 35 percent in family medicine, from 31 percent to 48 percent in internal medicine, and from 10 percent to 22 percent in pediatrics. Likewise, the average wait time for a new patient to see the doctor rose from 33 days to 50 days in internal medicine.

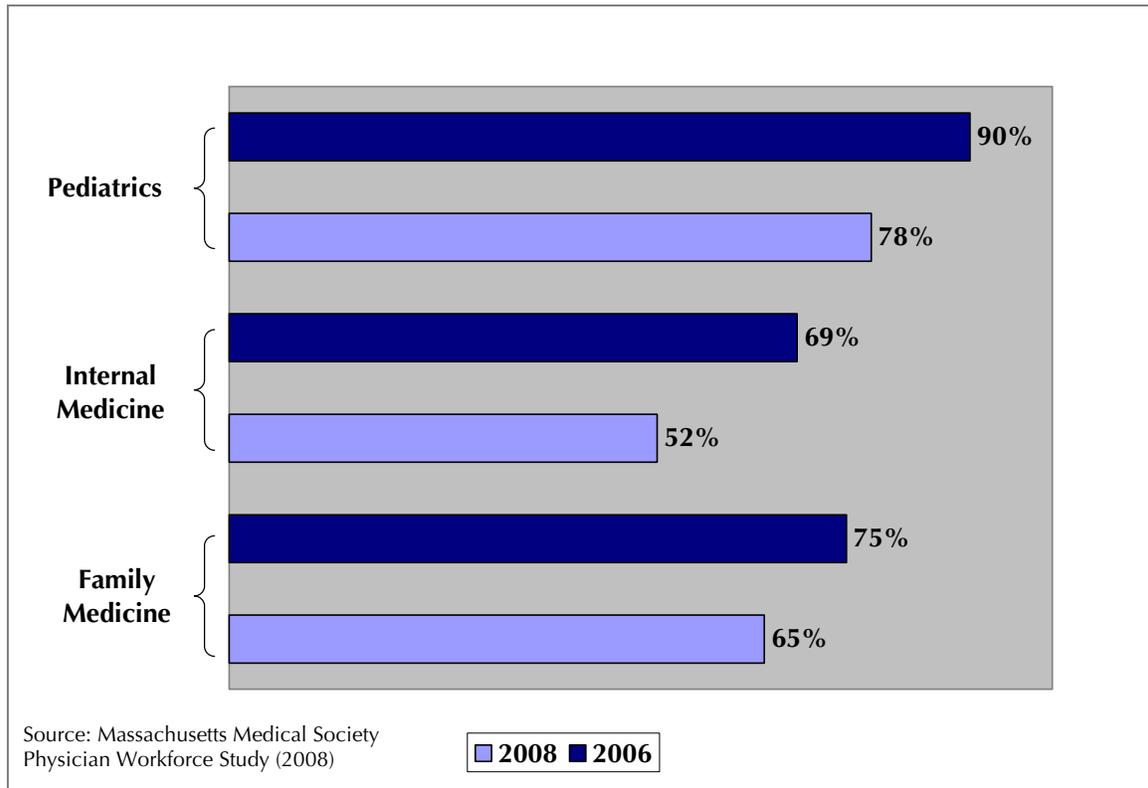
Massachusetts Health Reform Experiment

The Massachusetts health care reform approach was designed as a stepwise process; expanded insurance coverage followed by enhanced access to care, followed by improvements to the quality and efficiency of the care provided. Much of NEHI's work is focused on the later step related to improving the practice of health care in the United States.

The first phase of Massachusetts' reform experience has been widely successful. More than 400,000 residents have been added to the rolls of the insured. Yet many of these are unwilling, or unable, to use the most appropriate care settings. According to a *Boston Globe* article, "a sizable number of patients who obtained state-subsidized insurance have continued to use the ER - at a rate 14 percent higher than Massachusetts residents overall, according to state data compiled at the *Globe's* request. Those state-subsidized patients with the lowest incomes, who formerly received free care in emergency rooms and now pay a nominal fee, are using ERs at a rate 27 percent higher than the state average. The data excluded patients whose injuries or ailments were serious enough to warrant admission to a hospital."

Part of the solution to this challenge is to identify the root causes of non-urgent emergency department use and develop strategies to address these drivers. Another is to reform and refocus the primary care system through reimbursement reform, the development of innovative models of medical education, and the creation of a new model of patient-centered care delivery.

Figure 3: Percent of Massachusetts Practices Accepting New Patients



Even when panels are open to new patients, access problems persist. Although 94 percent of office-based primary care physicians recently reported that they were accepting new patients, many acceptances were contingent upon the patient's expected payment. Only 74 percent of these physicians were accepting new Medicare patients and 64 percent accepting any new Medicaid patients.²⁰

Unfortunately, this lack of access to primary care does not diminish patients' need for services. The result is the use of less appropriate sites of care, causing unnecessary expense for the health care system. The use of the emergency department for non-urgent care has increased significantly over the past 10 years, with the national proportion of total visits classified as non-urgent rising from below 10 percent in 1997 to nearly 15 percent in 2005.²¹ Some experts estimate that nearly half of all ED visits could have been handled in the ambulatory care setting.²²

- [Decreased Patient Satisfaction/Quality of Care](#)

Even for patients who are able to access care, anecdotal evidence is building suggesting an erosion of the patient-provider relationship. According to one expert, the constant push to see ever larger numbers of patients, largely the result of physicians' need to generate sufficient revenue within the current reimbursement model, has been a key driver in the loss of that relationship. The classic 15-minute visit model has

remained the norm, but is viewed by most experts as simply inadequate to address the complex health care needs of older patients and those with chronic conditions. The quality of care traditionally provided in the primary care setting has also been slipping. Studies have shown that two-thirds of people with hypertension are inadequately treated²³ and half of all patients do not understand how to take their medication.²⁴

Innovations

In recent years, the promise of a high-quality primary care system has remained largely unfulfilled, yet most analysts believe the potential still exists. A sentiment shared by many experts was that while the current crisis in primary care presents a tremendous set of challenges, it also offers a remarkable opportunity for change. Some of the innovations identified in this report are not new, yet they remain poorly adopted. Given the current political climate and the renewed focus on health reform at the national level, many consider the current conditions an ideal

opportunity to revive previous approaches and to implement a new generation of innovations including service delivery, site of care, reimbursement and educational changes to improve primary care in the United States.

“ The current climate represents either an incredible crisis or an incredible set of opportunities. ”
-Physician Administrator

Service Delivery Changes

The current system of delivering primary care is seen by most experts as antiquated and inadequate to provide high quality care. The traditional 15-minute physician visit model is considered flawed and primary care practices are regularly described as inefficient. In an effort to address these shortcomings, several innovative service models have been proposed.

- [Patient-Centered Medical Home \(PCMH\)](#)

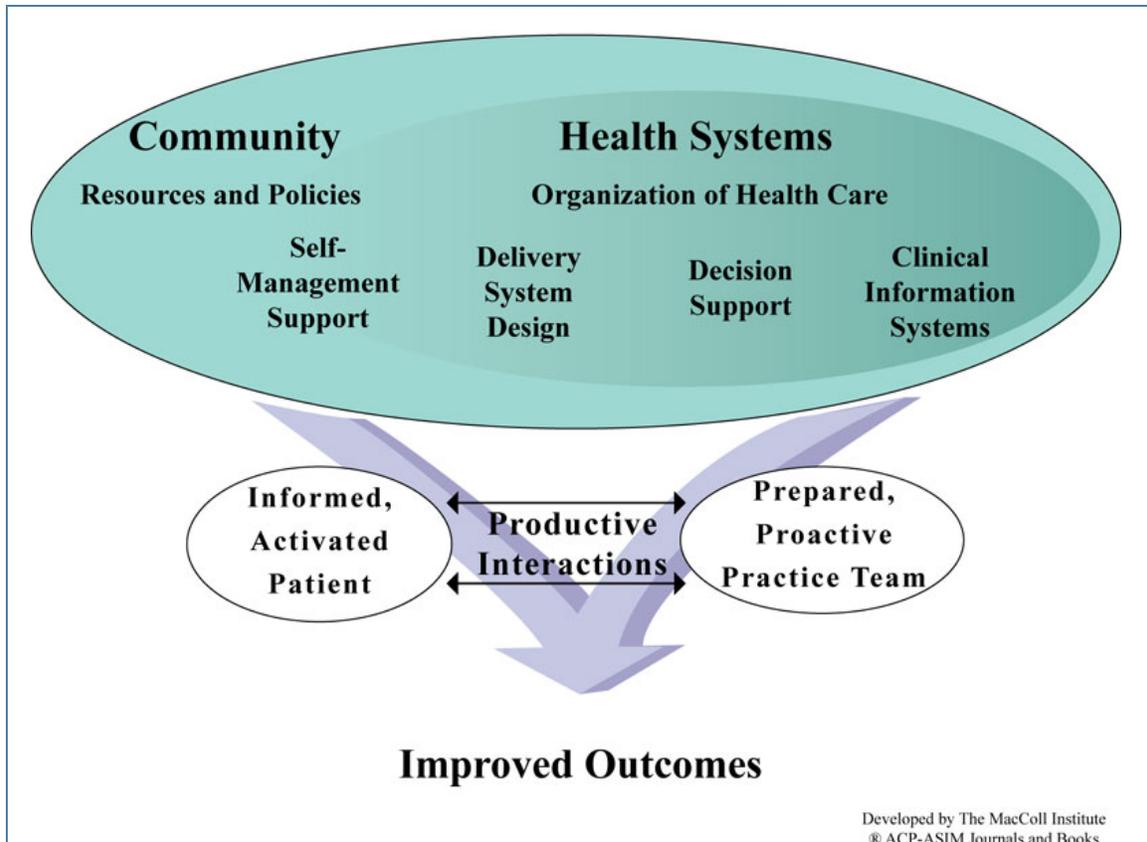
A patient’s “medical home” is the clinical setting that serves as the central coordinator of care and provides a range of acute, chronic and preventive medical care services. Care provided by the medical home is intended to be accessible, comprehensive, patient-centered, and relies heavily on advanced health information technologies and reformed payment systems.²⁵ Successfully implemented, the PCMH returns the patient to the core of the primary care system and may improve provider efficiency and satisfaction, increase patient access and improve the quality of care. According to the Patient Centered Primary Care Collaborative, the Patient Centered Medical Home concept is currently being piloted at over two dozen sites nationally.

- [Chronic Care Model](#)

The chronic care model was developed to counter many of the current system’s deficiencies in the management of chronic diseases. The model, depicted in Figure 4, is based on the idea that effective chronic disease care requires an approach that incorporates patient, provider and system level collaboration. The model’s six components include the community, the health system, self-management support, delivery system design, decision support and clinical information systems.²⁶ Each of these components coalesces to create a patient-centered health team, focused on

producing productive interactions and relationships, ultimately leading to better management of the chronic conditions and improved clinical outcomes.

Figure 4: The Chronic Care Model



- [Shared Medical Appointments](#)
In a shared medical appointment, also known as a group visit, multiple patients are seen in a group for follow-up or routine care. These visits provide a secure, but interactive setting in which patients have improved access to their physician(s), the benefit of counseling with additional members of a health care team (e.g. behaviorist, nutritionist, or health educator), and can share experiences and advice with one another. Patient-provider time is maximized in this model through the use of non-physician staff to assist with the logistics of the visit.²⁷
- [Open Access Scheduling](#)
Open access scheduling, also known as advanced access or same-day scheduling, uses information technology to allow practices to offer same day appointments, often unavailable due to the limitations of current systems. Depending on the needs and capabilities of individual practices, these same day appointments may be available for routine, urgent, or preventive visits (or a combination of all three). The result is

increased patient access, particularly for acute care, and increased patient satisfaction in the responsiveness of their primary care practices.²⁸

- [Health Information Technology](#)

Health information technology (HIT) is a key enabler of model change in the provision of primary care service delivery. Properly implemented, HIT frees up physician time during visits, provides all members of the primary care team with timely access to patient information, and aids in the overall coordination of care. The range of health information technologies include electronic medical records (EMR), clinical decision support systems, computerized physician order entry (CPOE), online appointment scheduling, and secure messaging of test results. The implementation of these technologies does require substantial investment in both capital and personnel. Consequently, the development of financial models that encourage adoption and the creation of best practices in both implementation, use and maintenance of the systems are required.

Site of Care Changes

In addition to changes in the models of primary care service delivery, several innovations have been proposed to change where care is delivered, making care more accessible and more convenient for patients.

- [Retail Clinics](#)

The retail clinic, usually located within a pharmacy or other large consumer goods retailer, offers a limited number of minor acute medical services on a walk-in basis. Care is generally provided by nurse practitioners or physicians assistants. Retail clinics offer convenient access to basic primary care services, particularly for patients who are unable to schedule an immediate appointment with their primary care provider, though their ability to provide continuity of care and coordinate with patients' regular providers remains untested.

- [Worksite Wellness Programs](#)

A growing number of employers, particularly large companies, are adding worksite wellness programs to their employees' traditional health benefit packages. These programs may include an on-site clinic that can provide both preventive and acute care in a place and at a time that is most convenient for employees. As with retail clinics, convenience must be carefully balanced with care continuity and coordination. Pitney Bowes, considered a leader in workplace wellness, uses data driven interventions for its employee population to limit health care expenditure growth and reduce the health risks for its employees.

- [Home Visits](#)

In a return to past medical practice, several programs across the country are shifting the site of care away from the office setting and back into the home. Primary care

services are provided in the home to elderly patients who face significant obstacles for office appointments. Care may be provided by either physicians or nurse practitioners.²⁹ The Urban Medical Group has been a pioneer in this approach.

- [Pre-visit Preparation Packets](#)

While not shifting the site of care, pre-visit preparation packets are an effort to more efficiently utilize patients' time at physicians' offices. These packets contain basic information about a patient's upcoming appointment, ensuring that patients are better prepared for and educated about their appointment. Having patients familiarize themselves with the packet materials ahead of time allows for better use of limited clinical time during the appointment.³⁰ The John D. Stoeckle Center for Primary Care Innovation at Massachusetts General Hospital in Boston is currently examining this concept.

Workforce Changes

As identified earlier, shortages in the primary care workforce are a factor contributing to the crisis in primary care. In particular, the limited supply of primary care physicians and the severe shortages expected in the years ahead are major issues requiring a rethinking of the way in which primary care is provided. Key to addressing the workforce challenge is redefining primary care as a team activity and refocusing the roles of all types of primary care providers, ensuring that the appropriate level practitioner is matched to the work. For physicians, this will likely mean a shift in tasks such as paperwork and blood pressure screenings to higher value clinical encounters.

- [Primary Care Teams](#)

The most frequently mentioned workforce change identified as part of the research and interview process was the development of primary care teams. Such teams are typically led by physicians and consist of nurse practitioners, physician assistants, registered nurses, medical assistants and receptionists, but may also include social workers and nutritionists. While these professionals currently practice together, their interactions are not coordinated and their roles appropriately delineated to provide the desired level of seamless and efficient service delivery.

“ Sometimes I feel like more of a social worker. ”
-Primary Care Physician

- [Primary Care Coordinators](#)

As their title implies, the main role of a primary care coordinator is to ensure that patient care is coordinated within the local practice and throughout the broader health care system. This team member is typically a registered nurse or a social worker assigned to a select group of special needs patients, particularly those with multiple chronic conditions that require the coordination of both primary care and specialist providers. While primary care coordinators are most often only responsible for a select

portion of the patient panel, they could also be used to coordinate care for all patients in a practice.

- [The “Dr. Nurse”](#)
Advanced practice nurses, sometimes referred to as “Dr. Nurses,” are an emerging group of nursing professionals trained and qualified to practice independently. These nurses are specifically trained to provide comprehensive care in the primary care setting. This new provider role has been identified by some experts as a potential solution to the shortage of primary care physicians by increasing the number of providers offering care and developing professionals who are committed to and focused on primary care practice. Significant work has been done in this field at Columbia University’s School of Nursing, but programs have opened nationwide.

Reimbursement Changes

The current primary care reimbursement system is considered by nearly all of our experts to be deeply flawed, fundamentally undervaluing primary care and rewarding, or perhaps even forcing, physicians to provide more services without regard for the benefits of those encounters. Consequently, experts noted that the key in developing new reimbursement strategies is not simply to pay more for primary care services, but to ensure that primary care services are paid for in a way that encourages and rewards high-value encounters.

- [Global Service Payment](#)
In this payment scheme, physicians are paid a lump sum to manage a group of patients, as opposed to reimbursement for encounters on a patient-by-patient basis. Physicians and their practices may use this money to provide care for individuals as well as to invest in improvements to their practice which enhance the care for all patients, such as electronic medical records or the hiring of additional staff members. Global service payments are considered a key enabler of the patient-centered medical home approach.
- [Improved Pay-for-Performance](#)
The promise of primary care lies in improved health outcomes, yet financial incentives in the current system have been identified by experts as poorly aligned with quality goals. Improved pay-for-performance would reward providers for helping their patients achieve positive health outcomes and move the system away from paying for episodic care. The reality of this new generation of pay-for-performance is complex; any system would need to fairly and transparently adjust payment according to case mix to prevent cherry-picking of healthy patients, and reward physicians who succeed with those patients in greatest need.
- [Reimbursement for Phone and Email Encounters](#)
According to our experts, basic reimbursement for providers’ time spent on phone and email encounters with patients would be a major improvement to reimbursement

policy. Many clinicians already provide these contacts without compensation, believing that they improve care and enhance patient experiences. Offering reimbursement for phone and email activities is not only a matter of fairness, but will serve to support patient access and improve care continuity through communications mechanisms which are commonplace to most Americans.

Health Profession Education Changes

Reforms to medical education have the potential to address multiple factors driving the primary care crisis. First, improved training approaches offer an opportunity to increase the number of medical students and residents going into primary care, alleviating the physician supply challenges. Second, and equally important, a redesigned training curriculum can ensure that new primary care practitioners are equipped to practice in the emerging models of primary care. Given that the physician training process is multi-staged, innovations at the undergraduate medical student level and at the graduate medical education, or resident, level will be addressed separately.

- Medical School: Increasing the Numbers

Some experts argue that in order to increase the number of primary care physicians we should start from the very beginning – with medical school admission policies. Proposed changes to admission policies include moving away from a focus on MCAT scores to a more “whole person approach.” Such changes could increase the number of students from rural, inner-city and disadvantaged backgrounds, as well as increase the number of minority students. There is some evidence that shows individuals from the aforementioned backgrounds are more likely to enter primary care. Reforms to admission policies would also support the creation of a more diverse workforce that better maps to the changing demographics of the nation.

Another approach to encourage students to enter primary care is tuition assistance and loan forgiveness for students who practice primary care. According to the Association of American Medical Colleges, the average medical student in the Class of 2007 graduated with \$139,517 in educational debt, and many consider the compensation offered in primary care insufficient to meet their debt obligations and provide their expected standard of living.³¹ Financial incentives may provide the extra incentive to direct students into primary care who are otherwise reluctant due to the income expectations. Massachusetts, in its most recent set of health care reforms, has made debt forgiveness for primary care physicians a key feature of efforts to improve access to primary care services.

Improvements to medical schools’ primary care clerkships may also help to increase the number of students entering primary care residency programs. Some experts have noted that current primary care clerkships are often provided by physicians who themselves are unhappy with the current practice of primary care. Far from trying to

“sell” the field to students, their frustrations may push away prospective primary care practitioners.

Proposed improvements include lengthening the clerkship from six weeks to eight weeks and placing students with practices that have adopted new primary care models. Another approach involves assigning medical students to a panel of patients that they follow through the health care system. Thus, rather than providing only primary care for the entire period, students experience the interplay between inpatient and outpatient care and see the importance of care coordination and teamwork. Some programs, most notably at new osteopathic medical schools, have begun to shift the undergraduate medical education of primary care physicians out of the classroom and hospital setting and into the community (e.g. community health centers), exposing students to the real-world practice of community-based primary care.

Finally, experts have identified the need to create primary care role models for students and foster primary care champions within medical school leadership. They note that it is vital that students are exposed to primary care professionals who represent the highest ideals of the field. Likewise, it is important that medical schools have primary care champions to ensure that the needs and interests of primary care are taken seriously and the field has a seat at the table for strategic and financial decision-making.

- [Medical School: Redesigning the Curriculum](#)

In addition to simply increasing the number of medical students entering primary care residencies, experts have noted that there is a need to redesign the medical school curriculum in order to better prepare students for practice. Given the aging population, many have called for an increased focus on chronic illness care and geriatrics. Likewise, as new care delivery models are developed, there is a need to prepare students to practice care within these new systems. Teaching medical students to work as part of team, identified by many experts as a failing of the current system, is another aspect of curriculum redesign that could greatly improve students’ abilities to practice primary care effectively. This includes developing the leadership and management skills of physicians to support work as members of both physician-only teams and physician-led teams. In addition, undergraduate medical student clerkships should include side-by-side training with other health professionals, including nurse practitioners, physician assistants and nurses.

- [Post-Graduate Medical Education: Increasing the Numbers](#)

Data show that many medical students choose to specialize despite selecting a residency program suitable for the practice of primary care. The trend is especially notable in internal medicine residency programs. Consequently, experts have identified a need to alter the residency experience in order to encourage residents to practice in general internal medicine and other general primary care fields. As with

medical schools, there is a need to improve the overall quality of the primary care residency experience to show the rewarding and stimulating aspects of the generalist fields. Though broadly expressed by the experts, there is little clarity about the most appropriate actions and more work and research is needed to determine next steps.

- [Post-Graduate Medical Education: Redesigning Residency](#)

In parallel with medical schools, residency programs must shift the focus of training for primary care physicians to support new delivery models. Programs, particularly internal medicine programs, should be designed to help residents improve care coordination, especially for older patients or those with chronic conditions. One expert also mentioned that an increased focus on coordination would be beneficial. For example, programs could work with residents to expose them to the process of transferring a patient from a hospital to a nursing home and exploring the role of the general internist during that process.

Conclusion

The U.S. primary care system is, without doubt, in crisis. Caught between a growing demand for services and a shrinking pool of providers, primary care is struggling to produce the high quality, low cost outcomes that the primary care model promised to deliver at its inception 50 years ago. The current push for major, national health reform presents an opportunity for proponents of primary care to advocate for reforms in the primary care system as a vital component of a quality, value-based U.S. health care system. The development and, importantly, the implementation of policy solutions to the primary care crisis will require the collaborative efforts of all stakeholders; providers, payers, employers, hospitals, educators, and patients. The preceding report has provided a framework for a future in which primary care is the foundation of a high-quality, affordable, patient-centric health care system. Now all stakeholders must come together to remove barriers, redesign the system and restore the promise of primary care.

APPENDIX I: Selected Sources

- American College of Physicians. (2006). The impending collapse of primary care medicine and its implications for the state of the nation's health care: a public policy report of the American College of Physicians.
- Best, R. G., Hysong, S. J., Pugh, J. A., Ghosh, S., & Moore, F. I. (2006). Task overlap among primary care team members: An opportunity for system redesign? *Journal of Healthcare Management / American College of Healthcare Executives*, 51(5), 295-306.
- Bodenheimer, T. (2003). Primary care in the united states. innovations in primary care in the united states. *BMJ (Clinical Research Ed.)*, 326(7393), 796-799.
- Bodenheimer, T. (2006). Primary care--will it survive? *The New England Journal of Medicine*, 355(9), 861-864.
- Bodenheimer, T. (2007). Coordinating care: A major (unreimbursed) task of primary care. *Annals of Internal Medicine*, 147(10), 730-731.
- Bodenheimer, T., Berenson, R. A., & Rudolf, P. (2007). The primary care-specialty income gap: Why it matters. *Annals of Internal Medicine*, 146(4), 301-306.
- Bodenheimer, T., Wagner, E. H., & Grumbach, K. (2002). Improving primary care for patients with chronic illness. *JAMA : The Journal of the American Medical Association*, 288(14), 1775-1779.
- Bodenheimer, T., Wagner, E. H., & Grumbach, K. (2002). Improving primary care for patients with chronic illness: The chronic care model, part 2. *JAMA : The Journal of the American Medical Association*, 288(15), 1909-1914.
- Colwill, J. M., Cultice, J. M., & Kruse, R. L. (2008). Will generalist physician supply meet demands of an increasing and aging population? *Health Affairs (Project Hope)*, 27(3), w232-41.
- Cunningham, P., & May, J. (2006). Medicaid patients increasingly concentrated among physicians. *Tracking Report / Center for Studying Health System Change*, 16: 1-5.
- Cunningham, P. J., & Felland, L. E. (2008). Falling behind: Americans' access to medical care deteriorates, 2003-2007. *Tracking Report / Center for Studying Health System Change*, (19), 1-5.
- Dorsey, E. R., Jarjoura, D., & Rutecki, G. W. (2005). The influence of controllable lifestyle and sex on the specialty choices of graduating U.S. medical students, 1996-2003. *Academic Medicine : Journal of the Association of American Medical Colleges*, 80(9), 791-796.
- Dummit, L. A. (2008). Primary care physician supply, physician compensation, and medicare fees: What is the connection? *Issue Brief (George Washington University.National Health Policy Forum)*, (827), 1-13.
- Ebell, M. H. (2008). Future salary and US residency fill rate revisited. *JAMA : The Journal of the American Medical Association*, 300(10), 1131-1132.

- Farber, J., Siu, A., & Bloom, P. (2007). How much time do physicians spend providing care outside of office visits? *Annals of Internal Medicine*, 147(10), 693-698.
- Garibaldi, R. A., Popkave, C., & Bylsma, W. (2005). Career plans for trainees in internal medicine residency programs. *Academic Medicine : Journal of the Association of American Medical Colleges*, 80(5), 507-512.
- Goodman, D. C., & Fisher, E. S. (2008). Physician workforce crisis? wrong diagnosis, wrong prescription. *The New England Journal of Medicine*, 358(16), 1658-1661.
- Goroll, A. H., Berenson, R. A., Schoenbaum, S. C., & Gardner, L. B. (2007). Fundamental reform of payment for adult primary care: Comprehensive payment for comprehensive care. *Journal of General Internal Medicine : Official Journal of the Society for Research and Education in Primary Care Internal Medicine*, 22(3), 410-415.
- Government Accountability Office (GAO). (2008). "Primary Care Professionals: Recent Supply Trends, Projections, and Valuation of Services," GAO-08-472T, February 12, 2008. Available online: <http://www.gao.gov/new.items/d08472t.pdf>.
- Grumbach, K., & Bodenheimer, T. (2002). A primary care home for americans: Putting the house in order. *JAMA : The Journal of the American Medical Association*, 288(7), 889-893.
- Grumbach, K., & Bodenheimer, T. (2004). Can health care teams improve primary care practice? *JAMA : The Journal of the American Medical Association*, 291(10), 1246-1251.
- Hauer, K. E., Durning, S. J., Kernan, W. N., Fagan, M. J., Mintz, M., O'Sullivan, P. S., et al. (2008). Factors associated with medical students' career choices regarding internal medicine. *JAMA : The Journal of the American Medical Association*, 300(10), 1154-1164.
- Iglehart, J. K. (2008). Medicare, graduate medical education, and new policy directions. *The New England Journal of Medicine*, 359(6), 643-650.
- IOM (Institute of Medicine). 2008. *Retooling for an aging America: Building the health care workforce*. Washington, DC: The National Academies Press.
- Kirsh, S., Watts, S., Pascuzzi, K., O'Day, M. E., Davidson, D., Strauss, G., et al. (2007). Shared medical appointments based on the chronic care model: A quality improvement project to address the challenges of patients with diabetes with high cardiovascular risk. *Quality & Safety in Health Care*, 16(5), 349-353.
- Laing, B. Y., Bodenheimer, T., Phillips, R. L., Jr, Bazemore, A., & Bazemore, A. (2008). Primary care's eroding earnings: Is congress concerned? *The Journal of Family Practice*, 57(9), 578-583.
- Massachusetts Medical Society. (2008). *MMS Physician Workforce Study*. Waltham, MA. Available online: http://www.massmed.org/Content/NavigationMenu/NewsandPublications/ResearchReportsStudies/PhysicianWorkforceStudy/MMS_Physician_Workf.htm.
- Mechanic, D. (2003). Physician discontent: Challenges and opportunities. *JAMA : The Journal of the American Medical Association*, 290(7), 941-946.

- Mehrotra, A., Keehl-Markowitz, L., & Ayanian, J. Z. (2008). Implementing open-access scheduling of visits in primary care practices: A cautionary tale. *Annals of Internal Medicine*, 148(12), 915-922.
- Mehrotra, A., Wang, M. C., Lave, J. R., Adams, J. L., & McGlynn, E. A. (2008). Retail clinics, primary care physicians, and emergency departments: A comparison of patients' visits. *Health Affairs (Project Hope)*, 27(5), 1272-1282.
- Moore, Gordon T. (2006). Information Technology and Primary Care. Available online: <http://www.rwjf.org/files/research/gtmooreinfotech092006.pdf>
- Moore, G., & Showstack, J. (2003). Primary care medicine in crisis: Toward reconstruction and renewal. *Annals of Internal Medicine*, 138(3), 244-247.
- Munding, M. O. (2002). Twenty-first-century primary care: New partnerships between nurses and doctors. *Academic Medicine : Journal of the Association of American Medical Colleges*, 77(8), 776-780.
- National Association of Community Health Centers, The Robert Graham Center and Capital Link. (2007). Access denied: A look at America's medically disenfranchised. Available online: http://www.nachc.com/client/documents/research/Access_Denied42407.pdf
- National Association of Community Health Centers, The Robert Graham Center and Capital Link. (2007). Access granted: The primary care payoff. Available online: http://www.nachc.com/client/documents/research/Access_Granted_FULL_REPORT.pdf
- Okie, S. (2008). Home delivery--bringing primary care to the housebound elderly. *The New England Journal of Medicine*, 359(23), 2409-2412.
- Phillips, R. L., Jr, & Starfield, B. (2004). Why does a U.S. primary care physician workforce crisis matter? *American Family Physician*, 70(3), 440, 442, 445-6.
- Physician's Foundation. (2008). The physician's perspective: medical care in 2008.
- Poon, E. G., Gandhi, T. K., Sequist, T. D., Murff, H. J., Karson, A. S., & Bates, D. W. (2004). "I wish I had seen this test result earlier!": Dissatisfaction with test result management systems in primary care. *Archives of Internal Medicine*, 164(20), 2223-2228.
- Reuben, D. B. (2007). Saving primary care. *The American Journal of Medicine*, 120(1), 99-102.
- Roblin, D. W., Vogt, T. M., & Fireman, B. (2003). Primary health care teams. opportunities and challenges in evaluation of service delivery innovations. *The Journal of Ambulatory Care Management*, 26(1), 22-35; discussion 36-8.
- Rosenthal, M. B. (2008). Beyond pay for performance--emerging models of provider-payment reform. *The New England Journal of Medicine*, 359(12), 1197-1200.
- Rothman, A. A., & Wagner, E. H. (2003). Chronic illness management: What is the role of primary care? *Annals of Internal Medicine*, 138(3), 256-261.
- Safran, D.G. (2003). Defining the Future of Primary Care: What Can We Learn from Patients? *Annals of Internal Medicine*, 138, 248-255.

- Saxe, J. M., Janson, S. L., Dennehy, P. M., Stringari-Murray, S., Hirsch, J. E., & Waters, C. M. (2007). Meeting a primary care challenge in the united states: Chronic illness care. *Contemporary Nurse : A Journal for the Australian Nursing Profession*, 26(1), 94-103.
- Schmittiel, J. A., Shortell, S. M., Rundall, T. G., Bodenheimer, T., & Selby, J. V. (2006). Effect of primary health care orientation on chronic care management. *Annals of Family Medicine*, 4(2), 117-123.
- Schroeder, S. A. (2002). Primary care at a crossroads. *Academic Medicine : Journal of the Association of American Medical Colleges*, 77(8), 767-773.
- Sepulveda, M. J., Bodenheimer, T., & Grundy, P. (2008). Primary care: Can it solve employers' health care dilemma? *Health Affairs (Project Hope)*, 27(1), 151-158.
- Showstack, J., Lurie, N., Larson, E. B., Rothman, A. A., & Hassmiller, S. (2003). Primary care: The next renaissance. *Annals of Internal Medicine*, 138(3), 268-272.
- Showstack, J., Rothman, A. A., & Hassmiller, S. (2003). Primary care at a crossroads. *Annals of Internal Medicine*, 138(3), 242-243.
- Sommers, L. S., Hacker, T. W., Schneider, D. M., Pugno, P. A., & Garrett, J. B. (2001). A descriptive study of managed-care hassles in 26 practices. *The Western Journal of Medicine*, 174(3), 175-179.
- St Peter, R. F., Reed, M. C., Kemper, P., & Blumenthal, D. (1999). Changes in the scope of care provided by primary care physicians. *The New England Journal of Medicine*, 341(26), 1980-1985.
- Starfield, B., Shi, L., & Macinko, J. (2005). Contribution of primary care to health systems and health. *The Milbank Quarterly*, 83(3), 457-502.
- U.S. Department of Health and Services. (2007). *Health, United States, 2007*.
- Whitcomb, M. E. (2007). Preparing the personal physician for practice (P(4)): Meeting the needs of patients: Redesign of residency training in family medicine. *Journal of the American Board of Family Medicine : JABFM*, 20(4), 356-64.

APPENDIX II: Expert Interviews

- Wayne Altman, MD**, *Associate Clinical Professor, Department of Public Health and Family Medicine, Tufts University School of Medicine*
- Michael J. Barry, MD**, *Chief of the General Medicine Unit, Director of Primary Care Operations Improvement, and Medical director of the John D. Stoeckle Center for Primary Care Innovation, Massachusetts General Hospital*
- Michael F. Collins, MD, FACP**, *Senior Vice President for the Health Science, University of Massachusetts; Chancellor, UMass Medical School*
- Paul D. Cleary, PhD**, *Dean and Anna M.R. Lauder Professor of Public Health, Yale School of Public Health, Yale University*
- Linda Cronenwett, PhD, RN, FAAN**, *Dean & Professor, School of Nursing, The University of North Carolina at Chapel Hill*
- Kathy Dracup, RN, DNS, FAAN**, *Dean, UCSF School of Nursing*
- Harvey V. Fineberg, MD, PhD**, *President, Institute of Medicine*
- Doug Kelling, MD**, *Staff Physician, Carolinas Medical Center NorthEast*
- Alan Khoury, MD, PhD**, *Chief Medical Officer, Take Care Health Systems*
- Joseph B. Martin, MD, PhD**, *Lefler Professor of Neurobiology and Dean Emeritus, Harvard Medical School*
- Afaf I Meleis, PhD, DrPS(hon), FAAN**, *Margaret Bond Simon Dean of Nursing, University of Pennsylvania School of Nursing*
- Gordon Moore, MD, MPH**, *Professor, Department of Ambulatory Care and Prevention, Harvard Medical School & Harvard Pilgrim Health Care*
- Mary O'Neil Munding, DrPH, RN**, *Dean and Centennial Professor of Health Policy, Columbia School of Nursing, Columbia University*
- Zeev Neuwirth, MD**, *Vice President of Clinical Effectiveness and Innovation, Atrius Health*
- Brent Pawlecki, MD**, *Corporate Medical Director, Pitney Bowes*
- John W. (Jack) Rowe, MD**, *Professor of Health Policy and Management, Mailman School of Public Health, Columbia University*
- Stephen Shannon, DO, MPH**, *President, American Association of Colleges of Osteopathic Medicine (AACOM)*
- Joanne G. Schwartzberg, MD**, *Director, Aging and Community Health, American Medical Association*
- Kenneth Veit, DO**, *Dean and Vice President of Academic Affairs, Philadelphia College of Osteopathic Medicine*
- Douglas Wood, DO, PhD**, *Dean, School of Osteopathic Medicine in Arizona, A.T. Still University*
- Charlotte Yeh, MD, FACEP**, *Chief Medical Officer, AARP Services, Inc.*
- Greg Young, MD**, *President and CEO, Pediatric Physicians Organization at Children's; Vice President of Community Pediatrics, Children's Hospital Boston*

Notes and References

- ¹ American Academy of Family Physicians. (2008). Primary Care. Available online at: <http://www.aafp.org/online/en/home/policy/policies/p/primarycare.html>.
- ² National Center for Health Workforce Analysis. (2008). *U.S. Health Workforce Personnel Factbook*. Health Resources and Services Administration. Available online at: <http://bhpr.hrsa.gov/healthworkforce/reports/factbook.htm>.
- ³ Alma-Ata. Declaration of Alma-Ata: international conference on primary health care. USSR; Sept 6-12, 1978. Available online at: http://www.who.int/hpr/NPH/docs/declaration_almaata.pdf.
- ⁴ Starfield, B., Shi, L., and Macinko, J. (2005). Contribution of primary care to health systems and health. *Milbank Quarterly*;83(3); 457-502.
- ⁵ *Ibid.*
- ⁶ Baicker, K. and Chandra, A. (2004). Medicare spending, the physician workforce, and beneficiaries' quality of care. *Health Affairs*: Online Exclusive posted April 7, 2004.
- ⁷ U.S. Census Bureau. Available online: <http://www.census.gov/>
- ⁸ Paez, K., Zhao, L., and Hwang, W. (2009). Rising out-of-pocket spending for chronic conditions: a ten year-trend. *Health Affairs*: 28(1):15-25.
- ⁹ DeVol, R. and Bedroussian, A. (2007). An Unhealthy America: The Economic Burden of Chronic Disease. Milken Institute.
- ¹⁰ Decker et al. (2009) Use of medical care for chronic conditions. *Health Affairs*; 28(1): 26-35.
- ¹¹ A Primary Care Health Professional Shortage Area is a population with a full-time equivalent primary care physician ratio of at least 3,500:1. Full description online at: <http://bhpr.hrsa.gov/shortage/primarycare.htm>
- ¹² Government Accountability Office (GAO), "Primary Care Professionals: Recent Supply Trends, Projections, and Valuation of Services," GAO-08-472T, February 12, 2008. Available online: <http://www.gao.gov/new.items/d08472t.pdf>.
- ¹³ *Ibid.*
- ¹⁴ Colwill, J., Cultice, J., and Kruse, R. (2008) Will generalist physician supply meet demands of an increasing and aging population? *Health Affairs*; 27(3): w232-w241.
- ¹⁵ IOM (Institute of Medicine). 2008. Retooling for an aging America: Building the health care workforce. Washington, DC: The National Academies Press.
- ¹⁶ American Osteopathic Association. (2008). Osteopathic medical professional report. Available online: http://www.osteopathic.org/index.cfm?PageID=aoa_ompreport_specialties
- ¹⁷ IOM (Institute of Medicine). 2008. Retooling for an aging America: Building the health care workforce. Washington, DC: The National Academies Press.
- ¹⁸ Each service has three relative value units (RVU) – physician work, practice expenses, and professional liability insurance- that account for how that particular service compares to all other services in resources and skills needed. The RVUs are summed and multiplied by the conversion factor to determine the total Medicare fee for service.
- ¹⁹ Dummit, L. A. (2008). Primary care physician supply, physician compensation, and Medicare fees: What is the connection? Issue Brief (George Washington University National Health Policy Forum), (827)(827), 1-13.
- ²⁰ National Ambulatory Medical Care Survey based on data from 2003-2004.
- ²¹ National Ambulatory Medical Care Survey based on data from 1997-2005.
- ²² Weinick, R., Billings, J. and Thorpe, J. (2003). Ambulatory care sensitive emergency department visits: a national perspective. *Abstract AcademyHealth Meeting*; 20(8).
- ²³ Chobanian et al. The seventh report of the joint national committee on prevention, detection, evaluation, and treatment of high blood pressure: the JNC 7 report. *JAMA* ;289:2560-2571.
- ²⁴ Schillinger et al. Medication mis-communication and anti-coagulant care. *Advances in Patient Safety: From Research to Implementation*. Vol. 2. Rockville, MD: AHRQ: 199-211.
- ²⁵ Joint principles of patient centered medical home. (2007). Available online: <http://www.pcpcc.net/node/14>.
- ²⁶ MacColl Institute. Chronic care model: improving chronic illness care. Available online: http://www.improvingchroniccare.org/index.php?p=The_Chronic_Care_Model&s=2
- ²⁷ American Academy of Family Physicians. (2008). Shared medical appointments/group visits. Available online: <http://www.aafp.org/online/en/home/policy/policies/s/sharedmedapptsgpvvisits.html>
- ²⁸ Mehrotra, A., Keehl-Markowitz, L., & Ayanian, J. Z. (2008). Implementing open-access scheduling of visits in primary care practices: A cautionary tale. *Annals of Internal Medicine*, 148(12), 915-922.
- ²⁹ Okie, S. (2008). Bringing primary care to the housebound elderly. *NEJM*; 359(23):2409-2412.
- ³⁰ John D. Stoeckle Center for Primary Care Innovation. (2008). Pre-visit preparation packets. Available online: <http://www2.massgeneral.org/stoecklecenter/prepPackets.htm>.
- ³¹ Medical School Tuition and Young Physician Indebtedness (An Update to the 2004 Report), Association of American Medical Colleges (2007)



New England Healthcare Institute

One Broadway, Twelfth Floor
Cambridge, MA 02142

t: 617.225.0857

f: 617.225.9025

www.nehi.net