# Physicians And Their Practices Under Health Care Reform

## A REPORT TO THE PRESIDENT and THE CONGRESS


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Prepared on behalf of

**THE PHYSICIANS FOUNDATION**

Physicians Committed to a Better Health Care System for all Americans

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## ORGANIZATION of the REPORT

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## EXECUTIVE SUMMARY

In the context of the continuing debate about health care reform, the Physicians Foundation saw a need for a critical analysis of how various proposed changes might affect the demand for physicians and the ability of their practices to provide optimum patient care. To that end, the Foundation called upon a small but experienced team of academics to assess the conditions and make recommendations. This report is the product of that effort.

In undertaking this report, the Project Team acknowledged and endorsed the need for health insurance reform to more equitably cover all Americans and to more fairly distribute the financial responsibility for health care, but it did not assess any of the proposals to achieve those goals. Rather, this report addresses the characteristics of physicians and their practices as medical care evolves, regardless of future insurance scenarios.

The Project Team considered seven broad subjects and concluded with a set of goals:

1. Geographic distribution of health care
2. Growth of the health care economy
3. Physician supply
4. Medical education
5. Physicians' roles within an expanded health care workforce
6. Generalist physicians and primary care services
7. Physician practice infrastructure
8. Goals for health care reform

Like health care reform, this report is a work in progress, offering insights and recommendations applicable to the current debate while framing questions for the future.

### 1. Geographic distribution of health care

Because it is so deeply woven into health care reform discussions, the Project Team began by examining geographic differences in physician distribution, health care utilization, expenditures and outcomes. It found that geographic variation relates primarily to economic and health status at the communal and individual levels:

- Communal wealth: wealthier communities use more services and have better health and better outcomes;

- Individual income: paradoxically, low-income patients use more services, yet they have worse outcomes;

- Health status: patients who are in poorest health use the most health care services and have the poorest outcomes.

The Project Team rejected the interpretation that greater health care utilization in certain regions is due to the overuse of supply-sensitive services. And, while acknowledging that all providers must strive for better efficiencies, it rejected the conclusion that large-scale savings could be achieved by reducing the volume of care in communities where it is greatest. Indeed, the Team noted the striking persistence of variation among communities over the course of many years and the enormous impact that poverty has had on determining the levels of health care services utilized.

## 2. Growth of the health care economy

The Project Team chronicled the long-term trends in health care services and spending and critically examined proposed strategies to slow the growth of health care spending through means such as better prevention, greater efficiency and the wider use of health information technology. The Team concluded that health care services are likely to grow more rapidly than the overall economy over the next several decades, though at a pace that will slow over time. It modeled the future demand for physicians and the structure of physician practices on this basis.

## 3. Physician supply

Based on an assessment of the future demand for physician services, the Project Team endorsed recent reports showing that physician shortages are developing across all specialties and regions. The Team called upon Congress to assist with an expansion of medical schools. And because Medicare's support of graduate medical education (GME) residency training is so essential, the Team urged Congress to remove the cap on Medicare's support of residency positions, which was established more than a decade ago. The Team also called on academic leaders and health insurers to find an equitable payment formula for GME that encompasses all payers. The Project Team noted that, while expanding medical education is critically important, the long lead time necessary to train physicians means that shortages will persist for fifteen years or more. Therefore, while the recommended strategies to expand training are essential for the more distant future, other strategies will be needed to fill the gap during the coming decade.

## 4. Medical education

In calling for an expansion of medical education, the Project Team urged academic leaders to re-examine the length and content of training. The educational experience must be realigned with the demands that will be placed on physicians as they enter practice. Training programs must adapt to the realities of tomorrow's clinical practice, where teams of physicians and other clinicians will provide the broad range of services patients need. It is not clear that the combined duration of premedical and medical education

must span eight years, nor that residency programs must be as long as they currently are, particularly for residents who then pursue fellowship training, and the pathways to specialization must be streamlined. Changes like these are needed not only to remove waste and redundancies but to decrease the financial burden on trainees and to free up residency positions that could go to additional trainees.

## 5. Physicians' roles within an expanded health care workforce

Given the reality of persistent physician shortages, the Project Team recommended that efforts be made to increase training of health care workers at all levels, from physicians to aides. It also recommended that tasks be down-streamed to providers with the competence to perform them. In that way specialists can retain the responsibility for major acute and chronic diseases while delegating the general care of specialty patients to midlevel clinicians, principally nurse practitioners or physician assistants. Similarly, generalists can retain the responsibility for managing patients with chronic illness and multisystem disease, while midlevel practitioners can provide front-line primary care services, with generalists' consultative oversight. Midlevel practitioners can, in turn, delegate routine tasks to nurses, aides and assistants. Training at all levels must be increased immediately, recognizing that the time-frame of training is different for each. Caregivers with the least complex tasks can be trained most quickly, while physicians will take the longest. The result will be a strengthened, cost-effective and broadly available health care workforce prepared to address today's needs and ready to adapt to tomorrow's challenges.

## 6. Generalist physicians and primary care services

Primary care has been a central focus of health care reform. In modeling the future workforce, the Project Team acknowledged the critical importance of primary care services and the role of generalist physicians in providing them. However, the Team rejected the claim by Starfield and others of lower mortality in regions with more family practitioners as a statistical anomaly, and it questioned the wisdom of deploying generalist physicians to take responsibility for the proposed medical homes. Indeed, faced with deep and prolonged physician shortages, it saw no need for physicians to expend effort on uncomplicated primary care. Rather, the Team saw an opportunity for program leaders in family medicine and general internal medicine to refocus generalist care for adults in a single specialty that would undertake the responsibility for patients with multisystem disease and chronic disorders and offer consultation for nurse practitioners and other front-line primary care providers. In addition, the Project Team urged that attention be focused on training programs that specifically train physicians for rural practice.

## 7. Physician practice infrastructure

Finally, the Project Team expressed support for efforts to enhance information systems and expand medical effectiveness research, with the belief that, with adequate financial support, physicians' practices will be able to embrace both. However, it discouraged the use of practice incentives, such as "pay-for-value," that are linked to particular outcomes, because they fail to consider essential outcomes and distort the orderly process of care. It also opposed penalties for events, such as readmissions, that are strongly associated with patients' socioeconomic status. And it urged repeal of Medicare's Sustainable Growth Rate (SGR) formula for physician reimbursement, recognizing that the growth of health care spending overall will exceed economic growth and that physician reimbursement must follow accordingly.

## 8. Goals for health care reform

Based on its analysis of the health care landscape, the Project Team formulated the following six goals for Health Care Reform:

### Physician workforce

Undertake a major expansion of the physician workforce by enlarging the infrastructure of medical school and residency education. Many actions will be necessary, but removing Medicare's caps on support for residency positions is essential. Because these efforts will not reach fruition for fifteen years or more, other near-term strategies will be needed.

### Team building

Build the workforce of midlevel practitioners, particularly nurse practitioners and physician assistants, who will be critical members of clinical teams and important providers of primary care. Simultaneously build the workforce of nurses, aides, technicians and others, and down-stream tasks from more highly trained clinicians to those who have less-complex training but the requisite skills to provide care competently.

### Primary care

Build a broad system of front-line primary care and public health services that reach deep into communities and that recognize the varied patient needs in different income groups.

### Specialty mix

Faced with physician shortages, emphasize physician training in areas where physicians are uniquely capable of providing care, predominately in the medical and surgical specialties. At the same time, reshape the career paths of generalist physicians to take advantage of their capacity to manage chronic illness and multisystem diseases and their parallel abilities to give consultative support to midlevel primary care providers.

### Education

Shorten the length of medical education from premed through residency, and realign medical education with the realities of clinical practice and the necessary roles of physicians in the future in both urban and rural settings.

### Autonomy

Equip physicians with better information technology and more access to medical effectiveness research, but do not burden physicians with practice incentives that fail to recognize the vast differences in socioeconomic characteristics among patients and among regions. At the same time, create a Medicare reimbursement formula that is grounded in the reality that physician services will continue to grow in quantity and complexity. And recognize that, ultimately, physician autonomy is the friend of quality.

Achieving these six goals will set America on a path toward preparing a broadly skilled and cost-effective workforce of physicians and other health care workers who are aligned with the broad needs of the public and capable of serving the nation during the difficult period of physician shortages and constrained resources that lie ahead.

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## INTRODUCTION

High-quality, affordable care for every American is the major goal of health care reform. Achieving this goal requires a clear understanding of the complex dynamics that influence health care utilization and that affect the outcomes of care. It also requires a deep appreciation of how health care spending depends on the status of economic growth and how it contributes to the growth of the economy. And it requires a conceptual framework that allows an understanding of how health care is likely to evolve in the future. Most of all, it requires answers to the question, why can't health care be more accessible and affordable?

The conventional answer given by the President's Council of Economic Advisors is summarized in this recent statement: "While the American health care system has many virtues, it is also plagued by substantial inefficiencies and market failures. Some of the strongest evidence of such inefficiencies comes from the tremendous variation across states in Medicare spending per enrollee, with no evidence of corresponding variations in either medical needs or outcomes. These variations suggest that up to 30% of health care costs could be saved without compromising health outcomes. Likewise, the differences in health care expenditures as a share of GDP across countries, without corresponding differences in outcomes, suggest that health care expenditures in the United States could be lowered by reducing inefficiency in the current system. The sources of inefficiency include payment systems that reward medical inputs rather than outcomes, high administrative costs, inadequate access to primary care and inadequate focus on prevention" (1).

This report presents a different view. It does not claim that health care is efficient or that primary care and prevention are not important. However, it does argue that the simple framework embodied above is faulty and that interventions based on it will not achieve their desired goals. Instead, it sets forth a conceptual framework for health care that is cognizant of the social and demographic differences that exist across the US and that recognizes the bonds that bind physicians and health care spending to economic growth and the needs of patients. From this vantage point, it projects the size and characteristics of the physician workforce that will be required in the future, while recognizing that, because of the long lead times in training physicians, health care will have to be structured around persistent physician shortages for a decade or more. Finally it examines the medical education system that must train tomorrow's physicians and the practice environment that will allow them to succeed. While unambiguous, the challenges are great, and many of the solutions elusive. Better access, higher quality and lower cost are the goals. Clarity, objectivity and determination will be essential.

# I. TESTING the CONVENTIONAL WISDOM of GEOGRAPHIC VARIATION

Health care utilization varies considerably among regions of the country and even among smaller communities and hospitals within a region. Some is clearly due to the way that physicians practice. However, as will be discussed further below, the major reasons for such variation are economic and social, both among communities and among individual patients. Unfortunately, these aspects of geographic variation have been largely ignored. Instead, a belief has arisen that such variation is unnecessary and should be eliminated, or at least decreased. Indeed, the notion that this is possible has become a centerpiece of health care reform.

This Report begins by examining the basis for this pervasive belief. While the literature describing regional variation in health care is broad, three fundamental observations serve as its foundation:

1. The US spends a larger share of its gross domestic product (GDP) on health care than any other developed country, yet its outcomes are no better and sometimes worse (2).

2. The variation in health care spending that exists among regions of the US is not associated with differences in either medical needs or patient outcomes (3, 4).

3. Areas of the US with more primary care physicians have better quality and lower costs (5).

Based on these observations and their associated conclusions, a series of health care reform goals have evolved, which include:

- altering the geographic distribution of health care services;

- using incentives and regulations to limit the volume of services that physicians provide; and

- shifting the specialty balance of physicians from specialists toward primary care physicians and creating physician-directed medical homes to provide and coordinate most care.

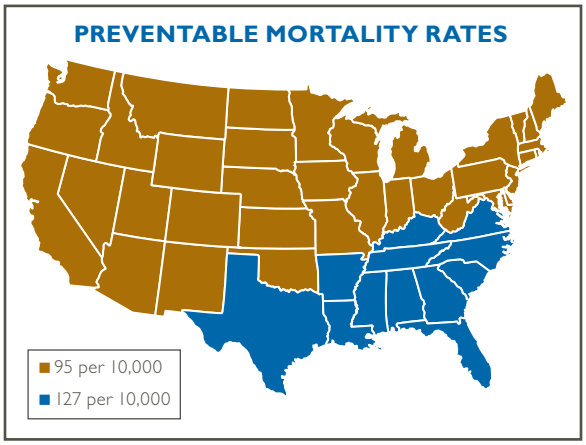
In fact, none of the underlying observations is valid, which undermines their conclusions and the reform strategies that are based on them. Before discussing important issues related to physician supply and physician practices, these three false tenets will be examined and explained.

### False Tenet #1: The US spends more but gets less.

The US often ranks near or at the bottom for health care outcomes among developed nations. For example the US has one of the worst death rates from medically preventable causes. However, a closer look reveals that the US is really a nation of nations, with large differences in health care utilization and outcomes in various regions of the country. It is not a homogenous country when it comes to such issues as race, income or education levels (6, 7). While the nation is readily divided into five or more such districts, the illustration on the next page simply divides the US into two, along the boundaries of the Confederacy during the Civil War.

Except for the Confederate states, preventable mortality in the US is rather average among developed countries, similar to Finland's. However, preventable mortality in the Confederate states is worse than in any developed country - double the rate of France. This relates to matters of race,

income and burden of disease, but also to lower health care spending per capita than in the rest of the nation. Lasting health care reform needs to be built around an understanding of these vast regional differences.



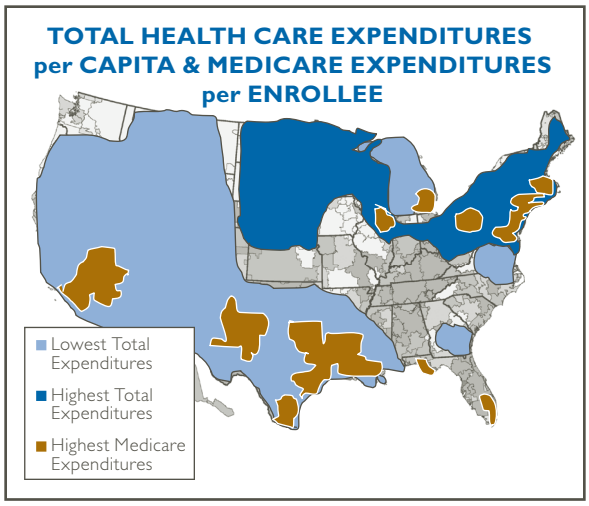

## False Tenet #2: More health care spending does not yield better outcomes.

The Dartmouth Atlas group has set forth a model to understand health care spending, based on analyses of fee-for-service Medicare spending in each of 306 hospital referral regions. To compare outcomes, they further aggregated these 306 regions into five quintiles, based on the level of Medicare spending in each (3, 4). Because outcomes were no better in the highest spending quintile than in the lowest, they concluded that 30% of health care expenditures could be saved if care in the highest were more like the lowest.

Unfortunately, payments from Medicare constitute only half of the overall payment for services, the remainder coming from Medi-gap policies, Medicaid, out-of-pocket expenditures or charity write-offs, so the real expenditures are not known. And Medicare payment levels are not simply related to services but are influenced by efforts to cross-subsidize poorer areas of the country.

Of greatest importance, payments per enrollee from Medicare do not correspond to payments per capita from other sources in the same region (8, 9), because of differences in private insurance, Medicaid and the numbers of uninsured. Through what is known as the spillover effect (10, 11), it is total payments from all sources that determines the size and quality of the nursing staff and other critical characteristics that govern broad outcomes, such as processes of care. And it is the social and economic status of regions that most influences mortality.

As is apparent from the illustration below, some of Dartmouth's high Medicare spending regions were in areas with high total-spending, and some in areas of low total-spending. The average proved to be "average," both with respect to total spending and outcomes.



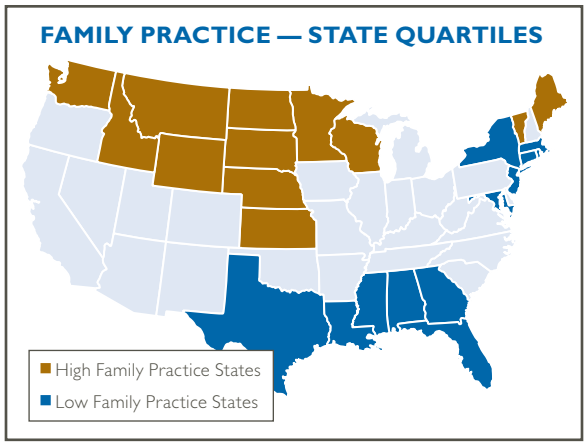

Unfortunately, the Dartmouth group turned this fact into the notion that the greater Medicare spending was "unexplained" and, by default, must have been due to unnecessary services by overzealous specialists. But the poignant reality is that outcomes are poorest in areas where total spending is least, even though Medicare spending may be more. Total spending, not simply Medicare spending, matters, and more total spending is associated with better outcomes.

That reality creates enormous challenges for health care reform.

### False Tenet #3: Primary care physicians produce better outcomes at lower cost.

Some popular research claims that regions with more primary care physicians and fewer specialists spend less on health care while achieving better quality (12-18). Indeed, some claim that primary care physicians can care for patients with chronic disease better and cheaper than specialists (19, 20). Yet Greenfield, who led this effort in the 1990s, has acknowledged that such studies lacked adequate risk adjustment (21), and a broad body of research has shown that specialty care generally yields better outcomes, particularly for patients at greater risk, but at higher cost (22-26). And claims of family practice's superiority by Dartmouth collaborators reflect statistical manipulations that do not represent actual physicians (27). In fact, states with more physicians, both specialists and generalists, have the better quality care (28, 29).

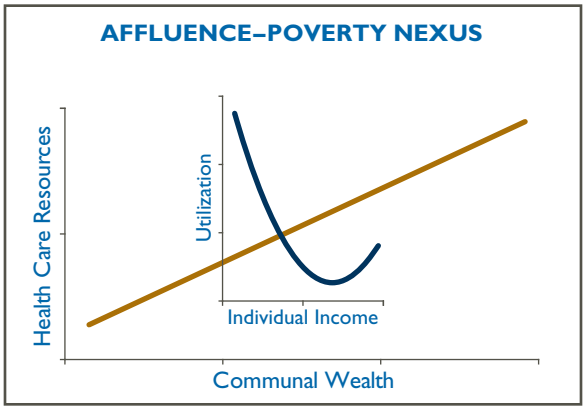
The most avid declarations of primary care's superiority emanate from Starfield and her colleagues, who have reported that areas with more primary care physicians have lower mortality from cancer, heart disease and stroke, lower infant and maternal mortality and longer life spans (5, 16, 18). Although remarkable, these relationships are only marginally significant (5) and not reproducible (30) when examined at the level of counties. However, they are significant and reproducible among states, but even there, they generally apply to family physicians but not general internists or pediatricians, who practice in a similar manner (12, 15, 16, 18). How can this be explained?




As is evident from the map above, differences at the state level are simply the result of an anomalous concentration of family physicians in states along the northern tier and in the plains, where there are few major urban centers and low percentages of blacks, whose mortality rates are double those of whites. The superior mortality in these states has everything to do with differences in the social and demographic characteristics of patients and nothing to do with the number of family practitioners, despite their important contributions to health care.

## II. AFFLUENCE, POVERTY and REGIONAL VARIATION

These three examples of geographic variation have a common thread. They all reflect social and demographic differences. These differences can best be understood within a conceptual framework termed the "affluence-poverty nexus," illustrated below, which distinguishes the effects of communal wealth and individual. Simply stated, communities amass health care facilities and personnel at levels that are commensurate with their collective economic capacity, and their health care outcomes follow accordingly, while individuals use health care services in proportion to their individual needs, which are greatest among those with the lowest incomes, and those who use the most have the poorest outcomes (31).




The communal effect is seen by the fact that wealthier regions have more health care resources and better overall outcomes, while poorer regions have fewer resources and worse outcomes (9). Affluent regions not only have more physicians and other health care services than poorer regions, they also have fewer uninsured patients and less poverty, and they invest more in K-12 education and other social services. All of these factors contribute to the better overall health of wealthier communities. While a goal of health care reform should be to narrow these differences, it is important to recognize how slowly this occurs. When viewed among states, the differences in both per capita income and physician supply have narrowed by less than 1% annually over the course of more than 50 years (9, 28, 32).

A more complex relationship exists between income and health care at the level of individuals. Higher-income people use somewhat more health care, particularly elective services. However, those with the lowest incomes, who also tend to have the greatest burden of disease, use the greatest amount of health care services, and have the poorest outcomes (33, 34). Hospital admission rates for the poorest quarter of the population are 25% greater than for the rest of the population (35), and their readmission rates for chronic conditions are 2-3 fold greater (36).

A natural question is whether the interplay between communal wealth and individual income explains the greater amounts of health care utilization that have been observed in major urban centers. This question was examined in both Milwaukee and Los Angeles (34) by separately studying patients in the dense cores of poverty that exist within both cities as compared with the surrounding areas and with other communities with lower population density. In both cities, patients residing in the core accounted for virtually all of the excess hospital utilization in the entire urban region, and there was little difference in the rates of utilization in the areas surrounding the core as compared with lower cost communities with similar levels of affluence elsewhere in the country.

This same phenomenon also appears to explain the variation in health care utilized by patients at various academic medical centers (37). The Dartmouth group has referred to such varia-

tion as an example of waste and inefficiency, and President Obama has cited the Mayo Clinic, where utilization is low, as an example to be followed. The important fact is that the centers with the lowest utilization are all situated in smaller cities, like Mayo's, often college towns, with low poverty rates, few blacks and Latinos and none of the complexities of the urban environment. In contrast, all of the centers with the highest utilization are in major metropolitan areas, such as New York and Detroit, where there are large percentages of blacks and Latinos and double the poverty rates of cities with the lowest utilization. This same phenomenon extends to community hospitals, where the differential increase in admission rates for the poor is three times greater in major metropolitan areas than in small communities (35).

Viewing health care from the perspective of affluence and poverty offers three critical insights for policy-makers:

**There are marked social and economic differences among US regions:** It should not be surprising that wealthier areas have more health care resources, just as they have more of other amenities and social services. Achieving greater uniformity in health care is an important long-term goal. However, history shows that such progress takes many decades. Near-term planning must take into account that these regional differences exist while long-term efforts are made to narrow them.

**Health care spending is captive to persistent poverty:** Spending is greatest among the poor, whether insured or uninsured, and their outcomes are the poorest, despite this extra spending. In fact, much of the added spending is for readmissions, which are evidence of poor outcomes. It is a mistake to view this as a sign of waste and to penalize providers rather than to recognize that this is a sign of poverty and an indication that ways must be found to add the needed social support systems if this extra utilization is to be averted.

**"More is more:"** Regions with more health care services and more spending have better population health. Further growth of spending will be a challenge in the coming years, but there should be no illusion about the consequences of spending less – the overall health of the population will suffer. And the mistaken notion that "more is less" must not be allowed to stand in the way of assuring that there will be a sufficient expansion of physician supply to meet the demands for health care in the future.

# III. HEALTH CARE, the ECONOMY and PHYSICIAN SUPPLY

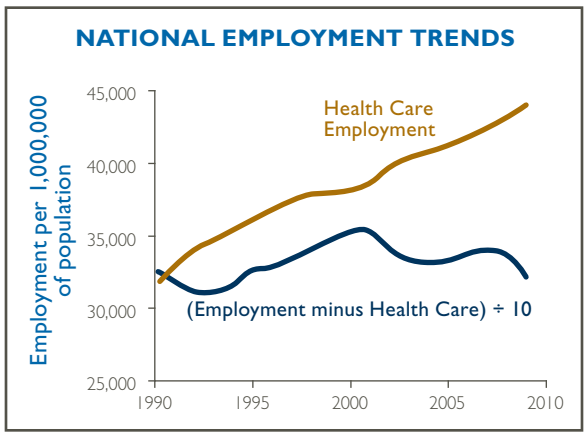
The goal of health care reform is to assure that high quality, effective health care is accessible to everyone, and this will require enough physicians and other health care workers to provide the needed care. But how much is enough? The answer to this question is trapped in a fundamental contradiction in health care reform. From one perspective, the growth of health care spending is seen as bankrupting the nation and must be constrained. From another, health care spending is the key to economic development and job growth.

## Growth concerns

The President's Council of Economic Advisors (CEA) wants health care spending to decrease (1). One goal would be to free up resources that could be used for other desired goods and services capable of raising the standard of living. The other is to reduce federal outlays. Because the federal government pays for a large percentage of health care, decreased health care spending would prevent serious budgetary consequences, while raising national saving. The CEA reasons that, as health care costs rise more slowly, the economy could see higher employment without triggering inflation, although the potential effects of decreased health care spending on labor markets is complex and unpredictable. Indeed, it is unclear how resources that could be freed up would be used or what the net effect would be for the economy overall (38, 39).

## The engine of economic growth

An alternative perspective sees an economy in transition from one dependent on manufacturing and finance to one where health and wellness will be even more prominent. As illustrated below, over the past 20 years, net employment outside




of health care was unchanged, even in the high growth years of the 1990s. The entire increment of new jobs since 1990 was equal to the growth in health care employment (40). In the past year, sectors outside of health care lost more than six million jobs, while health care saw an increase of almost 300,000. One could argue that if health care had not grown, other industries would have, but it is not clear what those industries would have been.

Economists expect job growth to resume as the economy recovers, but the question is, which sectors of the economy will create these jobs? Certainly not in manufacturing, and not in financial services. Many states and communities are looking to health care to drive economic growth and have invested in health care facilities and research parks. A recent report from the Pew Charitable Trusts found that, of the 13 major cities examined, all but one had deficits due to falling property taxes, decreased consumer spending and high unemployment (41). The exception was Pittsburgh, which lost 120,000 manufacturing jobs in the 1980s but subsequently diversified. Its main industries now are education and health care, which are thriving. Recognizing this potential for growth, Scranton, Pennsylvania, a former steel town, has tied much of its economic future

to a new medical school and the associated clinical, educational and research partnerships. And, Wisconsin's Senator Feingold recently introduced legislation, The Community-Based Health Care Retraining Act (S.1173), which would support retraining workers dislocated from other industries for jobs in health care.

## Spending more and sharing more

Continued health care growth will be unusually complicated. It will entail changes in how disposable income is used, such as trading off wage increases for health care benefits. It will also create changes in the distribution of income among individuals and communities. Equity issues will inevitably require substantial wealth transfers from those with higher incomes to those with lower incomes and from wealthier states to poorer states. As more individuals survive into the Medicare age group, it will involve transfers of wealth from younger to older generations. All of these actions set into motion an intense national debate about what is desirable, what is affordable, who will pay for it and how equitably the burden can be distributed.

If these were the only issues to debate, the discussion would focus on the practical economic and social ramifications involved. However, as the auto companies did in years past, the federal government has placed the future responsibility for retirees' health benefits on future taxpayers, which brings the discussion into the political arena. The most palatable way to deal with it is to shift the blame to patients and their physicians. For example, "patients seek too much care, and much of their care could have been avoided through better prevention" or "physicians induce the demand for too much care, and the outcomes are poor anyway." These play well in the political arena and, to a degree, both are true, but neither patients' desires nor physician-induced demand are the real reason behind the growth in health care spending. Nor is growth a consequence of the greater prevalence of disease among an aging and increasingly obese population (42). Health care spending growth is principally a product of the growth of technology and the economic capacity to employ it for the benefit of patients.

## Slowing growth

Health care reform efforts have the potential to decrease spending in a number of separate ways. Those most commonly discussed are decreased prices, greater administrative and clinical efficiency, better information management, and a slower introduction of new technology and decreases in the overuse of services. Health care reforms such as these face these realities:

- Most are counterbalanced by pressures in the opposite direction.
- Most are near-term adjustments with no effect on long-term growth.
- Most affect expenditures but not the volume of clinical services and the associated demand for physicians.

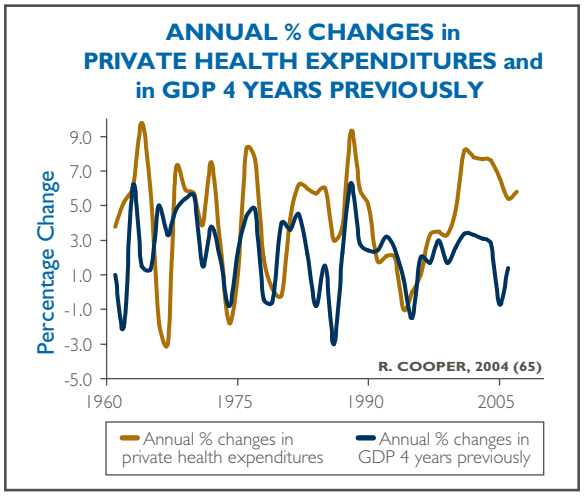
For example, information technology is commonly seen as a way to increase efficiency and decrease costs, but its evolution can barely keep up with the increasing complexity and volume of information that must be managed and communicated. Though better information management is likely to affect quality, it is unlikely it will affect either the volume of physician services being used or the growth of services over time (43, 44). Similarly, while decreasing prices through market power would decrease the health care workers' wages, workforce shortages are already pushing wages higher. From the perspective of the demand for physicians, lower wages would not decrease the volume of services doctors provide. Even when prices decrease naturally as pro-

cedures become more efficient and safer, the universe of patients who can gain from them grows, increasing utilization and overall expenditures. Lastly, delaying the introduction of expensive, new technologies may temporarily decrease spending, but eventually these technologies are adopted, continuing the growth chain.

There are good reasons to focus on the last mentioned strategy, decreasing the overuse of services. Some reason is an appropriate concern about fraud and abuse, which are egregious, although in percentage terms they are minor contributors to overall spending. The major reason to focus on overuse is the belief, derived from studies of geographic variation in health care, that areas with added spending do not experience added benefits and, therefore, such spending is wasteful and should be eliminated. As a result, there is growing momentum to impose performance incentives in high-spending regions in order to reduce what is believed to be unnecessary medical care and slow spending. However, these reforms are based on faulty methodologies and invalid logic, as discussed in Section II, above. They should not serve as the basis for crafting policy.

## Major policy interventions and economic growth

Despite good intentions, many decades of experience indicate that most reforms do not have a lasting impact on health care spending. The biggest impact comes from overall economic growth. Averaged over time, annual spending on health care has followed the general pattern of gross domestic product (GDP) growth. Though, on average health care spending has grown approximately 2% faster than the growth of the GDP. Changes in private health care spending are most closely linked to overall economic changes, and, as illustrated below, it is this relationship that gives the greatest insight into the limited impact of major policy changes.




Drawing on data from the past 35 years, researchers associated with the Kaiser Family Foundation (45) and the Commonwealth Fund (46) attributed changes in private health care spending to policy changes, such as wage and price controls in 1972-74, a voluntary effort during 1978-80, and managed care in the mid-1990s. But they lamented how briefly these policy changes continued to exert a suppressive effect on health care spending. However, as illustrated above, each peak and trough of health care spending followed a similar pattern of economic growth approximately four years earlier (47), a relationship that Getzen has attributed to the inherent delays in expanding benefits and health care capacity in response to earlier changes in economic activity (48).

## Narrowing the growth differential

Health care spending has grown steadily and has exceeded the overall rate of economic growth. As a result, health care spending as a percent of GDP has increased from 14% in 1993 to almost 18% of GDP today, and it is expected to exceed 20% by 2020 and reach 34% by 2040 (49, 50). The President has called upon Congress and the public to find ways to restrain the growth of health care spending. In response, a coalition of provider groups, including the American Medical Association, American Hospital Association and Amer-

ica's Health Insurance Plans, has made a commitment to decreasing the future annual growth of health care spending by 1.5%, thereby bringing it to within 1.0% of GDP growth, a differential rate that would be unprecedented in modern times. Four broad strategies have been cited to accomplish this goal:

- **Utilization of care:** Clinicians and other providers would be armed with tools to decrease utilization and improve quality and safety.
- **Cost of doing business:** Innovative approaches would be developed to reduce the costs of providing health care services.
- **Administrative simplification:** Claims processing and paperwork would be streamlined.
- **Chronic care:** Chronic disease would be better managed, and more effective approaches would be found for promoting health and preventing disease, with a special focus on obesity.

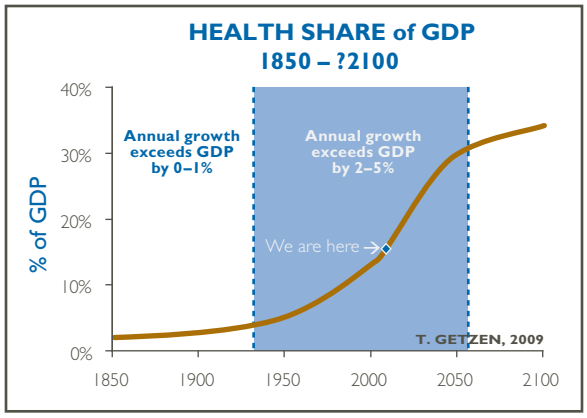
In assessing the potential impact of approaches such as these, they must be measured by the standards discussed earlier:

- Will the cost-containment strategies be counterbalanced by pressures for more spending?
- Will the proposed measures affect both near-term spending and long-term growth?
- Will they affect both spending and the volume of physician services?

Better tools to address chronic disease management would be welcomed, but while there is strong evidence that this would benefit patients, their ability to decrease spending is more in question (51). Similarly, although case management is cost-effective for highest risk patients (52), its costs for lower-risk patients are not matched by cost-savings (53). Strategies such as reducing the number of hospital-acquired infections and imaging tests would save money, but other strategies, such as more prenatal visits and closer follow-up treatment, add services and costs. Nor does prevention hold strong promise for net decreases in utilization (54, 55), and any impact on spending from decreasing obesity lies very far in the future. And while administrative simplification and better purchasing could decrease costs for hospitals and large systems, such measures do not decrease the amount of medical care people seek or the number of physicians and other clinicians needed to provide it. Indeed, as such cost savings are plowed back into care, the demand for services will increase.

## The planned, the possible and the likely

Getzen has postulated that the developed world is in the middle of a long-term process that began about 75 years ago, when health care spending first began to consume an increasing portion of economic activity (illustrated below). In recent




years, the annual rate of growth has exceeded GDP growth by 2% to 5%. This was not simply due to the greater use of previously-existing

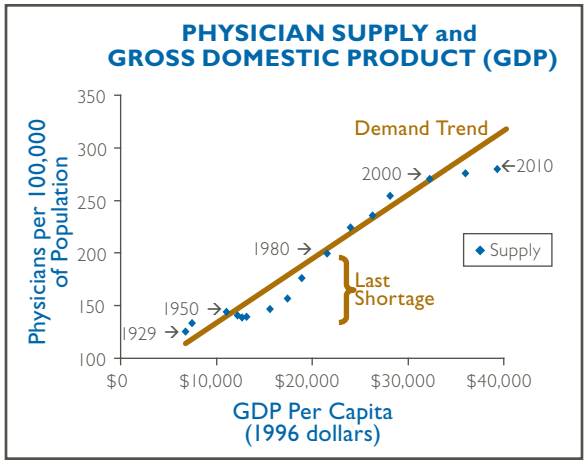
forms of care; it was due to the expansion of health care into entirely new areas, spurred on by the nation's investment in research. These have yielded life-saving and life-extending technologies and turned many fatal illnesses into chronic diseases, with their attendant costs. Although it seems inevitable that the growth rate of health care spending will come closer to the overall rate of economic growth, it seems unlikely that substantial slowing will occur within the time-frame of current health care reform efforts. Indeed, the evidence suggests that the health care reforms under discussion will add to spending and increase the demand for health care personnel, including physicians.

This has profound ramifications for the physician workforce. The US population is continuing to grow, access to health care is expanding and the range of beneficial services is ever-enlarging, while the number of physicians being trained has not changed appreciably for more than a decade. Without expanding the supply of physicians, access to medical care will become limited, initially for patients living in rural communities and in the cores of major urban centers, but ultimately for patients everywhere. Indeed, very similar projections underlie the current efforts to expand nursing supply. It is essential that the infrastructure for medical education be expanded, as well. If health care spending slows more than expected and fewer physicians are needed, training could be scaled back in the out-years of a planned expansion. **Alternatively, if too few physicians are trained, it will be impossible to make up for this shortfall in the future when more physicians are needed.**

## Projecting the future demand for physicians

Like health care spending, the growth of physician supply has closely followed the growth of GDP over the past 80 years (as illustrated to the right) (32, 56). In the period after World War II, physician supply deviated from the trend line of demand and, shortages were felt, the number of physicians being trained was increased. During the 1990s, the resulting growth in supply exceeded demand, and the general feeling was that there were too many doctors. But population growth and economic expansion soon caught up, and by century's end, supply and demand were in balance. However, while population and the economy have continued to grow and as physicians trained near the start of the last expansion began to retire, physician supply plateaued, and the picture today resembles the shortages after 1950.

Most economists assume that GDP will grow at an inflation-adjusted annual rate of 2% to 3% per capita. If health care spending exceeds GDP growth by 1% to 2%, the demand for physicians can be expected to increase by approximately 2% per year, slower than health care spending




and the health care labor force overall. Even if health care spending were to grow at the same rate as the gross domestic product, the demand for physicians would grow by more than 1% per year. However, as emphasized above, the output of physicians from residency training programs has been relatively flat for more than a decade, and this number cannot be increased quickly. If nothing is done, the nation will be short 200,000 physicians by 2025, 20% of the needed workforce, and these shortages will continue to deepen.

# IV. THE EDUCATIONAL IMPERATIVE

## Expanding medical education

Increasing the number of physicians requires an expansion of medical school places in the US, but increases in graduate medical education (GME) are even more critical (57). This is because, regardless of where physicians are schooled, they must complete US residency training in order to be licensed, a limitation that does not hold for most other countries.

There are two branches of medicine in the US: allopathic medical schools graduate doctors with an MD degree, and osteopathic medical schools produce physicians with DO degrees. The other option for US students is to attend medical school abroad, and more than 3,000 do so annually. The US also accepts foreign nationals trained abroad. In fact, 20% of US physicians are foreign nationals who attended foreign medical schools (58).

Medical school expansion began a number of years ago, most vigorously among osteopathic medical schools. Eight new schools have opened and a ninth is planned. In addition, many existing osteopathic schools have expanded their class size. First-year enrollment at osteopathic schools is expected to grow by 1,500 positions in 2015, a 50% increase from 2005 (59).

Expansion of MD schools began later, but fourteen are in various phases of development, half as branches of existing schools. Together with enrollment increases at current schools, the 2015 entering class is expected to be 15% greater than in 2005, a gain of 2,500 students (60). Combined with DO graduates, US medical schools will be graduating 4,000 more physicians annually by 2020.

Unfortunately, the current projection of 4,000 additional graduates by 2020 is less than half of the needed increase. Without adequate growth in medical school positions, the US will further increase its draw on foreign nationals (58). While offering physicians from other countries the opportunity to immigrate to the US is intrinsic to the American way of life, an excessive dependency on foreign physicians drains an important resource from other countries. Balancing self sufficiency in producing homegrown physicians against giving others the opportunity to practice medicine in the US is important when determining the training capacity of US medical schools.

## Medicare support for graduate medical education

While the growth of medical schools is essential, the bottleneck is residency training and, as discussed further below, the major obstacle to expanding residency training is Medicare's cap on the number of residency positions it will support. Medicare's support of residency training is historic. The initial Medicare legislation in 1965 stated: "Educational activities enhance the quality of care in an institution, and it is intended, until the community undertakes to bear such education costs in some other way, that a part of the net cost of such activities (including stipends of trainees, as well as compensation of teachers and other costs) should be borne to an appropriate extent by the medicare hospital insurance program."

A 1983 bill, which reformulated support for graduate medical education within the new Prospective Payment System, continued this commitment, stating that: "This approach will allow for continued Federal support of medical education through the Medicare program, while clearly identifying that support as separate from patient care."

Congress capped this level of support in 1997, and the caps remain more than a decade later. Therefore, additional US medical graduates will simply displace some of the 6,000 international medical graduates who now enter US residency programs. Even if 4,000 new entry-level residency positions were created, this would be less than half of the number needed to make a serious impact on future physician shortages. All of this is further complicated by the reality that educating physicians spans many years, which means that the results of expanding medical schools and residencies now will not be felt for many years. Yet nothing will occur unless the chokehold on resident education is broken and residency training programs expand (57). For more than 40 years, the federal government has committed support for residency training principally through Medicare. Further delays in expanding graduate medical education put future generations' health care at risk. This covenant must not be broken.

The introduction of the Prospective Payment System in 1983 created the problem of how to compensate hospitals for a basket of services that previously were supported through cost reimbursement. The solution was to base the payment for these services on each hospital's resident-to-bed ratio and to classify this support as Indirect Medical Education (IME) payments.

Although these payments carry a medical education label, their purpose, as stated by Congress in 1983, is much broader: "This adjustment is provided in light of doubts...about the ability of the DRG case classification system to account fully for factors such as severity of illness of patients requiring the specialized services and treatment programs provided by teaching institutions and the additional costs associated with the teaching of residents....The adjustment for indirect medical education costs is only a proxy to account for a number of factors which may legitimately increase costs in teaching hospitals (House Ways and Means Committee Rept, No. 98-25, March 4, 1983 and Senate Finance Committee Rept, No. 98-23, March 11, 1983).

Despite statements like this, IME is misunderstood and threatened. Planners and legislators must be sensitive to its intent.

## Medicare's graduate medical education cap

When medical education was last expanded during the 1960s and 1970s, the number of first-year resident positions was increased by 10,000, bringing the class of first-year residents from 10,000 in 1960 to 20,000 by 1980. Over the next fifteen years, another 5,500 first-year positions were created, bringing the total to 25,500.

This growth ceased abruptly when, as part of the Balanced Budget Act of 1997, Medicare fixed the number of residency positions it would support at its 1996 level. This was done in order to freeze physician production because of a widely held belief in the mid-1990s that physician surpluses were developing, a view promoted by the Council on Graduate Medical Education (COGME) (61) and endorsed by major medical organizations (62), and little change has occurred in the number of residency positions since then (63). However, rather than surpluses, increasing evidence of shortages has emerged (64, 65).

These shortages were projected by Cooper and Getzen a decade ago (56, 66), confirmed in subsequent projections by both COGME (67) and the Association of American Medical Colleges (68) and supported by declarations of shortages by more than 20 physician specialty societies and an equal number of state medical and hospital associations. Major medical organizations that had previously endorsed Medicare's cap have reversed their position (69, 70), and numerous state medical and hospital organizations have joined the call for Medicare to lift the cap. Yet, the cap persists.

It is important to note that, although Medicare is a major source of support for graduate medical education, it is not the only source. The table above shows the sources of financial support for residencies in 2006 (57). If residency training is to expand, support will be required not only from Medicare but from other sources. Among these is Medicaid, which has been an important source of funding (71). However, recently state and federal government leaders have threatened to cut off Medicaid funding of graduate medical education.

### Financial Support for GME

$2.5B Medicare Direct Medical Education (DME)
$5.1B Medicare Indirect Medical Education (IME)
$3.0B Medicaid (state & federal) (approx. 1/3 DME and 2/3 IME)
$1.1B Veterans Administration and Department of Defense
$3.2B Private insurance (est.)
$1.0B Practice revenues, endowment (est.)

**$15.9B Total**

$8.8B DME (approximately $80,000 per resident)
$7.1B IME

Although the Veterans Administration has authorized additional residency positions, and some private hospitals have added a few, less than 1,000 new first-year positions have been added to 25,500 that existed in 1996 (62). This represents fewer than 100 new positions per year over the past decade, less than one-third of the annual growth rate prior to 1996. **Had previous growth in residency positions simply continued, the US would not be facing a physician shortage today.**

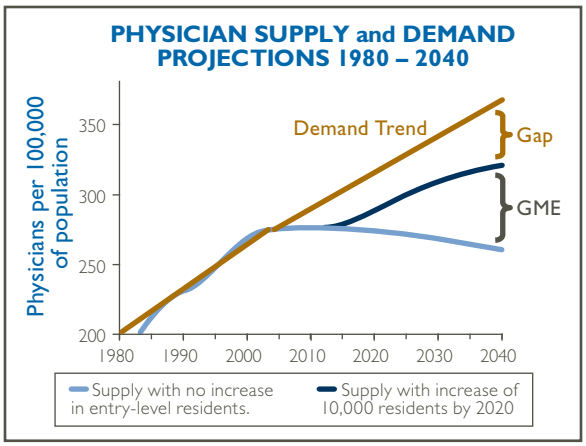
## Expanding resident training

Expanding GME is not a simple matter. Training programs must be created in appropriate institutions with the necessary faculty to assure valid educational experiences. Many existing programs have a limited ability to add positions, and only a limited number of hospitals that do not now have residencies have the capacity to add them. Infrastructure support will be essential.

Each program, whether new or existing, must meet rigorous accreditation standards. Allopathic (MD) programs are accredited by the Accreditation Council for Graduate Medical Education (ACGME), and osteopathic residencies by the American Osteopathic Association (AOA). There are roughly 5,700 hospitals in the US, of which 400 are major teaching hospitals and 500 others serve more limited teaching roles. One-third of the remaining hospitals have 100 beds or fewer. It is uncertain how many of the other 3,000 have the potential to mount successful residency programs. Maintaining educational quality will be essential, but so too will be flexibility by the accrediting bodies in facilitating the creation of large numbers of additional residency positions over a relatively short interval of time.

Considering practical restraints, it is unlikely that more than 1,000 new first-year residents could be added to the current base of 26,000. Doing so each year for ten years would add 10,000 first-year positions, an amount equal to the growth in residencies during the last major expansion in the 1960s and 1970s. Because residencies are multiyear programs, 10,000 additional first-year positions translate into approximately 42,000 more residents, a 40% increase above the current level of 105,000 total positions.

The illustration on the next page shows the consequences of such an expansion. Due to the long lead-times in setting up new programs and training physicians, adding 10,000 first-year residents over the next ten years will have little impact on physician supply until after 2020. Even beyond then, a gap between supply and demand of about 100,000 physicians will continue well into the fu-




ture. More than half of these new physicians will be women, many of whom will choose to practice less than full-time, blunting the expansion's impact. Further delays in funding additional residency positions will push these timelines out still further.

## Residency redesign

The nation's medical education system must not only expand; it must become better aligned with the demands that will be placed on physicians as they enter practice, and continuing medical education must be enhanced to assist physicians in maintaining competence in the years that follow (72). Surveys of young physicians already reveal the gaps that they perceive in their readiness for practice (73). And the design of training programs must integrate the reality that there will be too few physicians to do all of the tasks that physicians have historically done.

The length of training is an important concern. Starting in the mid-1980s, the duration of residency training increased from an average of 3.6 to 4.3 years. This was due, in part, to a higher proportion of specialty residents, whose training is longer than in primary care, but mainly to a lengthening of both specialist and generalist training. It is not clear whether this lengthening always added to trainees' skill levels, particularly for those continuing in post-residency fellowships. Both Whitcomb and Johns have called upon program leaders to re-examine the content and duration of training (72, 74, 75), and a number of efforts to examine these issues have been initiated. Efforts in surgery have focused on defining the appropriate pathways to specialization, while assuring a broad base of knowledge, and some initial successes have been achieved (76). In contrast, both family medicine and general internal medicine have considered extending the length of training (77, 78).

As a practical matter, decreasing the total duration of training will decrease the associated financial burden for trainees and free up residency training positions for additional trainees. If residencies were shortened by an average of 0.5 years, 10,000 residency positions, one fourth the needed number would become available. Yet residency redesign is impaired by cumbersome and rigid regulatory control through the Accreditation Council for Graduate Medical Education, Residency Review Committees and their parent bodies, and through inertia within most of the specialties.

## Efficiency and sufficiency in medical school education.

Similar issues face medical school education. Further expanding medical schools is an essential part of future health care reform. Medical school and premedical education each require four years but are satisfactorily completed more quickly at a number of existing programs. Twenty years ago, Ebert and Ginzberg proposed shortening the curriculum from college through residency. They pointed out that premedical education need not be four years and that the combined period of medical school and residency need not average more than eight (79). The knowledge base and scientific breadth of physicians cannot be expected to encompass the vast scientific and clinical knowledge that exists today and that is

expanding daily, and the demand for physicians to be broadly skilled in values and ethics looms ever larger (80). The requisite preliminary training must be refocused on broad principles and general skills. Such efforts must be coordinated with redesign of the Medical College Admission Test and the US Medical Licensing Exam, both of which drive the learning process despite efforts to refocus the curriculum on broader goals. A workforce for the 21st Century will have to be educated with 21st Century goals and values (80).

## A call for graduate medical education financing

As stated above, lifting the caps on Medicare support for GME is the lynchpin to increasing physician supply (57). Such support enjoys wide approval, but it is not without critics. As long ago as 1984, the Advisory Committee on Social Security recommended that Medicare funds no longer be used for this purpose. Some have suggested transferring the financial burden to medical residents, but most plans call for an all-payer system, as included within the Clinton Health Plan and in subsequent legislative proposals. Advocates for this approach point out that physicians serve all the public, not just those insured by Medicare, and training physicians is a public good. An all-payer pool would more clearly express that commitment, although, as shown in the previous table, such a plan may not change how many public dollars support GME, it may just alter how graduate medical education funds flow.

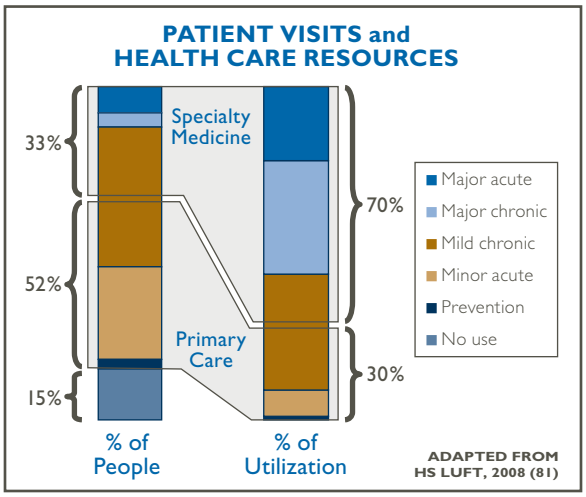
Unfortunately, neither a newly crafted plan nor the existing Medicare mechanism has addressed the current caps on residency support. GME expansion has languished, first against a background of federal reports in the1990s claiming that physician surpluses were imminent. And when it was shown that those studies were flawed, residency expansion was called into question by studies claiming that geographic regions with more physicians have more costly health care but no better outcomes, which, as discussed in Section II, above, are equally flawed. Others have seized the possibility of expansion to shift the balance of residency positions from specialty training to primary care and from regions of the country where there are more residents to regions with fewer, responding to concerns that have existed for decades but not cognizant of the fact that there will be too few physicians to do it all. No one alive today has carried out health care planning under the circumstances of deep and persistent physician shortages as are being faced today.

Several recent congressional bills address the problem of too few residents, but the targets that they have set are too low and their emphasis on primary care encumbers their ultimate utility.

While well intentioned, the fundamental problem is that the US needs to train more physicians, principally specialists, and this training will have to occur wherever the capacity for training can be developed and in whatever disciplines it can occur. Robbing specialties in order to draw more physicians into primary care may not be good public policy.

## V. REDEFINING PHYSICIANS' ROLES

Expanding training will contribute to the ability of physicians to meet the public's needs in the next generation, but the realities of practice require solutions to today's problems. Given the underlying financial constraints, the central challenges will not simply be how little can be spent on medical care but how much can be achieved from the available fiscal resources in the face of deepening physician shortages.




The illustration above depicts the spectrum of care that physicians provide and the portions of the public who receive it (81). Approximately 15% of people do not seek care in a given year. Most of the rest receive uncomplicated front-line care for acute self-limited conditions, such as colds and sprains, for mild chronic conditions, such as hypertension and diabetes, or for routine check-ups and prevention. They get the bulk of this care from primary care physicians. Although this patient group is large, it consumes only 30% of health care spending. Approximately one-third of the population receives more complex care, and they use 70% of the resources, principally under the care of specialists. Within this group, the 1% of the patients who use the most care consume 25% of the resources, and the top 5% consume 55%. Conversely, the half of the population that uses the least health care consumes only 3% of all health care resources. Since health care reform is a political process, attention generally focuses on the majority of the population, but they use a minority of the resources. Real health care reform must focus on the needs of the few who use the most.

### Realities of physician practices

Tomorrow's needs should not be seen through yesterday's lens, nor addressed with yesterday's solutions. In the past when physician supply was adequate, policies were created to encourage more physicians to choose primary care and specialty fields. However, as Cooper and Getzen stated almost a decade ago: "Physician shortages will force the medical profession to redefine itself in ever more narrow scientific and technological spheres while other disciplines evolve to fill important gaps" (56).

There is little that can be done over the next several years to influence the magnitude of physician supply over the upcoming fifteen years. The roles that physicians will play during this long trough of shortages will be shaped by their availability and the demands placed upon them. Although unplanned, the resulting changes in roles are likely to persist into the future and shape the next chapter of clinical practice.

Considerations of physician supply and specialty distribution must be addressed in the context of the following realities:

- The size of the physician workforce will remain relatively constant in per capita terms, but considering the gender shift, its effective size will decrease.

- The per capita demand for physician services will continue to grow at 1% to 2% per year, as previously discussed. It will not remain constant or decline.

- If areas of the country with fewer physicians see more physicians arrive, this will be from general increases in physician supply not from physicians moving out of areas with greater physician numbers.

- More specialist and generalist care will be delegated to midlevel clinicians and other health care workers (82).

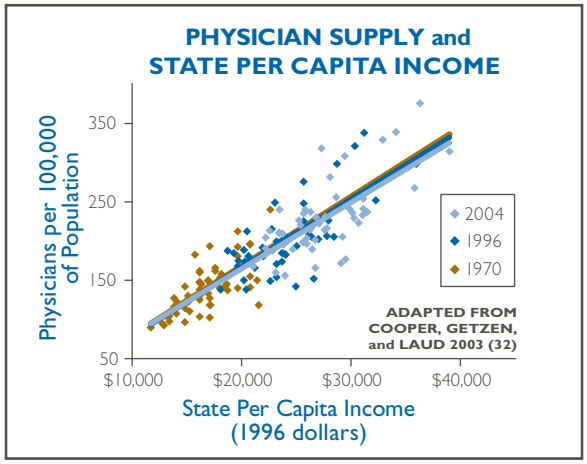
- Physicians and midlevel clinicians, often in consort with hospitals, will form organizational structures tailored to particular diseases, particular groups of patients and particular geographic areas.

Society wants more primary care physicians than will be available. It will be faced with a choice - patients can obtain a full spectrum of primary care from generalist physicians and expect severe shortages of specialists, or they can obtain front-line primary care services from midlevel practitioners who are competent to provide such services, with the oversight and support of consulting generalist physicians, while more physicians become specialists and generalists devote more of their effort to managing chronic disease.

## Physician distribution

"Maldistribution" of physicians and health care is a common perception. In a nation striving for equality, differences in distribution represent a flaw in the system. But for planning purposes, it is important to recognize that such differences in health care represent broader differences throughout society.

The illustration below shows the differences that have existed in both physician supply and per capita income among the states. Wealthier states have more physicians, and poorer states have fewer. The close relationship between these two




parameters has existed for more than 35 years (32), and throughout that time, the range of differences among states in both has narrowed by less than 1% annually. Moreover, this pattern is not unique to health care. An identical relationship exists between per capita income and expenditures per pupil for K-12 education (9). It would be ideal if there were less variation in income, physician supply and K-12 spending, but states like Mississippi cannot be made to resemble Connecticut through health care reform (29). Economic development will have to be the instrument of equality, and policy makers must remain aware of the economic diversity among regions and the associated differences in the demand for health care services as they work to improve health care equity throughout the nation.

## Specialization and interchangeability

States with more physicians do not have the same mix of physicians as in states with fewer. Those with more have greater numbers of specialists (28, 32). This creates a breadth and depth of specialized expertise, but it leads to a physician workforce with less **interchangeability** among

physicians. While overlaps exist among medical specialists, it does not extend to the deeper knowledge necessary in fields as diverse as oncology and neurology. Similarly, surgical specialists in fields like otolaryngology cannot readily substitute for neurosurgeons or urologists, all of which exaggerates the actual impact of physician shortages. Specialization drives physicians into interdependent practice arrangements, which motivates physicians to cluster in large population centers. This creates added pressures on rural areas and smaller towns, which cannot support a broad range of specialists.

Physicians are responding to these realities by creating a new taxonomy of practice roles. Five general models are emerging:

- Specialists and subspecialists associated with organ systems, therapeutic modalities or diagnostic procedures
- Hospital-based physicians, such as emergency physicians, critical care physicians and hospitalists
- Pediatric generalists concentrating on ambulatory care
- Adult generalists, increasingly focused on non-hospital care
- Rural generalists (medical and surgical), broadly trained for practice in more remote locations

In order for any changes to be effective under health care reform, they must be aligned with the nature of the physician workforce as it is evolving. At issue is not only the size and specialty mix of the workforce, but the way that physician practices will be organized and the impact of regulatory and reimbursement policy on their efficiency and effectiveness.

## VI. PRIMARY CARE and GENERALIST CARE

Primary care is highly sought and highly valued by patients, and it is the medical field where physicians' roles are changing the most dramatically. Discussions of primary care are often confusing because the term "primary care" is a legacy term that is used in many ways. It defines a group of physicians, a broader group of clinical disciplines, a set of skills and a range of services. The Institute of Medicine has defined primary care as: "The provision of integrated, accessible health care services by clinicians who are accountable for addressing a large majority of personal health care needs, developing a sustained partnership with patients, and practicing in the context of family and community."

Even physicians who are identified as primary care physicians are not all alike. Some provide a full spectrum of care, from front-line services to the care of patients with chronic illness; others serve as consultants to primary care clinicians and personally manage more complex patients; and some practice as hospitalists or limit their practices to particular ages (adolescents or geriatrics) or disease areas (HIV-AIDS or sports medicine). Family physicians care for patients across the age spectrum and readily serve the needs of patients in rural towns, while general internists and pediatricians serve more narrow age ranges and tend to practice in urban communities. Geriatricians and obstetrician-gynecologists are often counted among primary care physicians and, whether or not they are, provide a great deal of overlapping services. Many patients with chronic disease gravitate to their specialist as their principal or primary physician. Nurse practitioners, physician assistants and complementary practitioners also serve various overlapping roles.

The numbers of primary care physicians have often been expressed as a percentage of all physicians, and the fact that it is falling has been lamented. But as the total physician workforce has increased over the past 60 years, the number of primary care physicians per capita has remained relatively stable, at approximately 75 to 80 per 100,000 people. Fifty years ago, primary care physicians constituted 60% of all physicians. Today they account for fewer than 30%. Thirty years from now, the percent will be smaller still. Primary care is population-based, while the growth of specialty medicine is principally technology-based (83). As a result, the major growth of physician supply has been among specialists who have undertaken roles heretofore unknown, such as hip replacements, imaging and interventional cardiology.

The current quest to expand the number of primary care physicians has several origins. One is the oft-cited belief that regions with more primary care physicians have cheaper and better care. But as described in Section II, above, this conclusion is based on statistical anomalies. It is the total number of physicians rather than the number in any particular specialty that correlates best with population health (28).

Patients are another driving force behind the push for more primary care physicians. For most people, this is the doctor they seek most often, whether they are sick or well, so there is less of an outcry when these physicians are not available. As noted above, a much smaller percentage of patients seek care from specialists, and most of that care is utilized by the even smaller percent with major acute or chronic conditions.

Unfortunately, the discussion of primary care has tended to be emotionally and politically charged, and it is burdened with the concerns of current primary care physicians about the conditions of

practice and reimbursement. These must be addressed, not by training more, but by responding to their legitimate concerns.

## Interest in medicine

Among recent graduates, interest is lowest in the two largest primary care disciplines, general internal medicine and family medicine, even among osteopathic graduates, who have historically favored these specialties. The caliber of students going into these fields is another concern. Among US graduates matching in family medicine, average USMLE Step 1 scores, the first stage of the licensure exam, were among the lowest of all specialties, and the scores of international medical graduates, who constitute more than half of the residents entering primary care, were the very lowest (84). While compensation and student debt are cited as root causes of students' lower interest, neither has been an impediment for pediatrics, which earns least. Indeed, the greatest problem in pediatrics is too few sub-specialists. While students with higher income expectations tend to choose specialties where higher income can be achieved, a recent analysis of medical students' choices over the past 20 years revealed that debt had no influence in choosing primary care except at levels above $250,000, which affected only a small percentage of graduates (85).

Surveys of practicing physicians are the more revealing. They indicate that practice pressures, loss of autonomy and workload stress are the major negative factors impacting satisfaction. Fewer than 25% said compensation was a problem (86-89). Among primary care physicians, the biggest reason given for leaving practice is the content of work. Over time, well-baby exams and mild hypertension fail to retain the interest of physicians, who have invested twelve years and hundreds of thousands of dollars in preparing for practice. In a survey weighted toward primary care physicians, 42% described poor morale among their colleagues, 60% said that they would not advise young people to enter medicine, 45% said they would not undertake primary care if they had it to do all over and 27% said that they would not become physicians at all (89). Physicians feel overworked and undervalued, and this is most prominent among primary care physicians. Creating a system where too many physicians lose interest is not a system at all. There is little wisdom in committing highly trained individuals to routine care. The task ahead is to create a health care system that draws on the skills and knowledge of primary care and specialty physicians, sustains their interest and commitment, and compensates them appropriately for the services that they provide.

## Generalist physicians

Physicians in family medicine and general internal medicine have been major providers of front-line primary care for adults, including wellness care, patient education, prevention and the care of acute self-limited disease. In addition, they have played a large role in the management of patients with moderate chronic illness and multisystem disease. Approximately two-thirds of their patient encounters are at the low-complexity end of practice and one-third are of higher complexity (90). However, the future content of generalist practices will necessarily change for a number of reasons:

- Persistent physician shortages
- Declining interest in family medicine and general internal medicine among medical graduates, largely because of the large amount of routine care
- Desire of most physicians for practice that is more demanding and challenging

- Growing skill levels among nurse practitioners, physician assistants and other clinicians who are able and willing to provide routine services.

Many national discussions over the past decade have attempted to define the "future of primary care," but the conclusions have been impossibly broad and idealistic. As an example, generalists have been described as: "Humanistic clinicians, diagnosticians, primary care physicians and consultants with expertise in disease prevention, health promotion, continuing care and the management of patients with advanced disease, while also serving as the patient's advocate and managing resources in a constantly changing practice environment."

While this may define a scope of care that the public needs, new ways to provide segments of this care are developing. Examples include generalist physicians who limit their practices to hospital care and nurse practitioners who establish limited private care practices in retail clinics. Meanwhile, generalist physicians struggle to span a broad range of mental and physical disorders of varying severity and complexity within the span of 10-minute office visits, devoting the majority of their effort to common problems that do not require their depth of education but serve as the bread and butter of clinical practice. As discussed above, surveys attest to their unhappiness, in part because of lower-than-desired income but principally because of their practice content. Although there are many examples of generalists who have conquered the challenge, too many are overwhelmed and demoralized. This is a major impediment to quality medical care and to primary care's future.

## Generalist physicians are at a crossroads

Generalist physicians appear to have two paths to the future:

- They could retain their primacy as primary care providers, from wellness to multisystem disease, and further expand their range of services through the creation of physician-directed **medical homes** (91). Although largely untested (92), medical homes are intended to allow generalists to have continuous and comprehensive relationships with patients, using information systems and drawing upon evidence-based guidelines to identify the necessary intensity of care. More importantly, their patients would have enhanced access to them in a manner similar to concierge practices. Although there would be greater participation of midlevel clinicians, patient panels would be smaller, allowing physicians more time with each and creating more satisfying encounters for both patients and physicians. The ability of physicians to reduce their panel size would be aided by reimbursement subsidies for each patient. However, smaller panels would require larger numbers of generalists to provide this care.

- Alternatively, generalists could redefine their roles in **consultative practice**, as caregivers for patients with chronic illness and multisystem disease and as the identifiable physician-of-record for large panels of patients. Less complex patients would be cared for predominantly by midlevel practitioners, principally nurse practitioners and physician assistants, with consultative support by generalist physicians, thereby allowing physicians to concentrate their efforts on patients with higher acuity and complexity (90, 92). This model embraces the concept of **down-streaming** care to the provider who is at an appropriate skill level, with appropriate compensation. Engaging physicians in services that nurses can deliver competently for less is an inefficient

use of personnel and fiscal resources, just as engaging nurses in tasks that are readily accomplished by assistants and aides is inefficient. This framework takes advantage of the evolving variety of primary care structures which are geared toward particular patients and services. Fewer generalist physicians would be required, but they would practice at higher average levels of acuity and complexity.

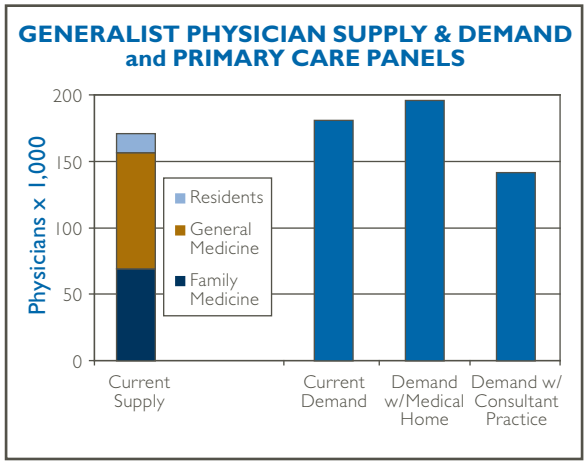
Primary care physicians must decide whether they will manage all primary care services or focus on segments of primary care that demand their level of training and knowledge. Those who advocate for the former argue that physicians have a greater ability to provide medical care at all levels. However, if health coverage is expanded, the reality is that the nation will not pay physicians to do what others can do competently at a lower price, and even if it did, there will be too few physicians to do it.

The consultative role for primary care generalists described here is prevalent in Europe, where internists interact with general practitioners and practice nurses. Dialysis centers in the US operate in a similar manner. Midlevel providers care for large panels of patients under the supervision and support of a consulting nephrologist. A model resembling consultative care also exists in the Trauma Verification Program, which widely distributes trauma care through emergency medical personnel under the distant supervision of physicians and the support of trauma centers. While all have special characteristics, they each depend on a collaborative, consultative relationship between front-line providers and physicians.

Of particular concern is the fact that the current payment policy does not reimburse primary care physicians adequately for complex generalist care. As a result, primary care physicians provide lower intensity services, which they could delegate, in order to support their practices. If generalists are to focus on providing higher complexity care, the cognitive and managerial skills that are their hallmark must be adequately recognized and compensated.

## Practice panels and physician supply

Ultimately, the strategy adopted for the physician workforce is captive to the evolving physician shortages and the inability to increase physician supply quickly enough over the short term. Society is being faced with the choice of filling its hunger for primary care with generalist physicians or with midlevel primary care clinicians supported by generalist consultants, as more physicians become specialists and generalist physicians refocus their efforts. It ultimately becomes a problem of practical mathematics rather than philosophy.




With 75 to 80 primary care physicians per 100,000 people, there is one doctor for every 1,300 patients. However, many physicians work part-time or devote portions of their time to nonclinical responsibilities, so the actual panel size per physician is 1,800 to 2,200. Adult concierge practices have smaller panels, averaging about 800, as do academic practices. It is because so many physicians' panels are full that the public is noticing

shortages of primary care physicians. The magnitude of the current shortage is approximately 7%, as it is among specialists. In actual numbers, this is 10,000 to 12,000 fewer primary care physicians than currently demanded.

Reducing the average panel size to between 1,650 to 1,850 in order to provide all of the services necessary in a medical home would increase the requirement for practicing generalists by approximately 10%, widening the gap from 10,000 to 12,000 to more than 25,000. At the same time, the gap is widening due to the growing numbers of women generalists who practice part-time and by the movement of generalists from ambulatory practice to hospitalist roles. Even if residencies in family medicine and general internal medicine were increased by 2,000 per year, a 50% increase, this gap would not close for a decade, while such increases would erode the numbers of specialists being trained and increase the severe shortages now being experienced.

Conversely, increasing the average size of primary care panels to 3,000 or more, while decreasing the amount of front-line acute care and prevention provided by physicians, would free up 50,000 generalists. This would be enough to fill current generalist shortages and allow more medical graduates to enter the specialties.

## Sharing roles

The use of midlevel clinicians has grown steadily. In the 1920s physicians accounted for 25% of all health care workers. Today they account for less than 7% (93). There has been a progressive expansion in the numbers of midlevel clinicians, including nurse practitioners, physician assistants, optometrists, podiatrists, nurse anesthetists, psychologists, clinical social workers, pharmacists and complementary therapists (94). Health care employment has increased from less than 9% of total payroll jobs in 1990 to more than 12% today (40), closely tracking the growth of health care expenditures, and as mentioned previously, it has been a critical factor in sustaining employment opportunities.

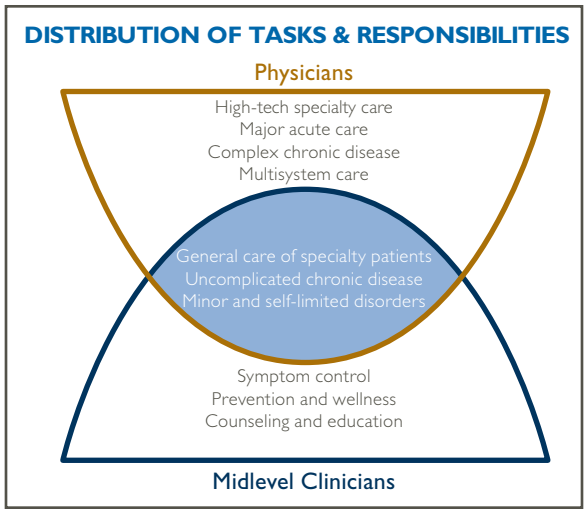
While most health care workers serve in roles that are distinct from physicians' services, midlevel practitioners have responsibilities that overlap physicians (95, 96). These overlaps are greatest in primary care, where nurse practitioners and physician assistants are capable of providing 70% or more of the care required for adults and 90% in pediatrics.

The evolution of nurse practitioners and physician assistants in these roles within the framework of Medicare began more than 30 years ago, when the *Rural Health Clinics Act* permitted direct Medicare and Medicaid support at free-standing, physician-directed clinics staffed by nurse practitioners and physician assistants in rural health professions shortage areas (HPSAs). In 1980, this was expanded to non-HPSA rural sites without on-site physician supervision, and in 1997 it grew to include all non-hospital settings without any physician supervision.

Many states license nurse practitioners as independent providers with independent prescriptive authority, and while all states require physician supervision of physician assistants, many define such supervision as telephone contact if the supervising physician is within one hour's drive. Midlevel clinicians are also providing more of the general care for specialty patients, such as those in transplant and dialysis programs, and they are performing minor specialty procedures. These overlaps are continually changing (96), as depicted below, and their evolution contributes to the efficiency of physician practices.

In considering the potential for midlevel clinicians to alleviate projected physician shortages, it is important to recognize that past trends in phy-

sician supply include a progressive delegation of tasks from physicians to midlevel clinicians as it is now occurring (93). Most of the observed efficiencies that NPs and PAs could bring about are already embedded within the projections of the demand for physicians (56). Moreover, because many tasks of lesser complexity have already been delegated, those remaining to be delegated are more complex and demand individuals with more training.




Recognizing this dynamic, many disciplines have raised their educational requirements. Pharmacy mandated a doctoral degree more than a decade ago and many nurse practitioner programs are beginning to offer the same. Physician assistants have added certificates of proficiency in various specialties (82), and the percent intending to practice primary care has declined from greater than 60% throughout the 1990s to less than 40% today. Nurse practitioners, physician assistants and other midlevel clinicians have, in turn, delegated tasks of lesser complexity to workers with less training, such as pharmacy technicians and anesthesia assistants. This has created an orderly transition in the roles and responsibilities of physicians and other health care workers and has been essential in allowing patients to have access to traditional physician services in the face of growing physician shortages. However, in some circumstances, the natural limits to delegation are being approached, and concerns have been voiced that midlevel clinicians will be placed in situations that exceed their competence (96). It will be important to assess the readiness of various practitioners to provide front-line primary care and to continually monitor the safety and effectiveness of their practices.

## Down-streaming care

It should not be assumed that there will be enough midlevel practitioners for all of the tasks attributed to them. The number of nurse practitioners trained annually has been relatively constant at approximately 8,500 for more than a decade (97). If this continues, the nurse practitioner supply will plateau by 2020. The numbers of physician assistants trained annually has steadily increased to approximately 5,000, but this increase is not enough to meet future needs.

Given the reality of persistent specialist shortages, similar shortages of generalist physicians and insufficient numbers of nurse practitioners and physician assistants, what can be done to meet the projected demand for services plus the added demand that broader insurance coverage will create? The answer is to institute training programs at every level and distribute care throughout the available health care labor force. Graduates from each discipline will have to perform services at their maximal level of ability and delegate tasks that others can competently perform. Specialists will delegate the general care of specialty patients to midlevel clinicians, and generalists will delegate front-line primary care to midlevel clinicians. Similarly, midlevel clinicians will delegate routine tasks to aids and assistants.

The ability to add personnel follows an inverse path: aids and assistants can be trained most quickly, nurses and physician assistants more

slowly, nurse practitioners slower still, while training physicians will take the longest. Expansion of all caregivers must be addressed immediately. The result will be a strengthened, cost-effective and broadly available health care labor force prepared to address today's needs and ready to adapt to tomorrow's challenges.

## Re-engineering generalist training

Writing in *Academic Medicine* in 2008, John Halvorson, family medicine chair at the University of Illinois in Peoria, noted: "The United States remains the only Western industrialized nation that delivers its primary medical care through three major specialty disciplines - general internal medicine, family medicine, and general pediatrics - rather than delivering it through a single primary medical specialty." (98).

While general pediatrics appears to be on a successful path, both family medicine and general internal medicine are in turmoil. The existence of two separate physician specialties providing primary care to adults has contributed, in part, to the current unease in both.

Family medicine emerged during the last expansion of medical education in the 1970s, when general practice, which had been a major contributor to front-line primary care, was transformed into this new discipline. Originally spanning pediatrics and adult medicine and including office surgery and obstetrics, the scope of family medicine in urban communities has narrowed. Obstetrical practice is infrequent, and surgery is rare. At the same time, family practice has spawned subspecialties, such as sports medicine and geriatrics.

In the 1990s, general internal medicine identified itself more strongly as a primary care specialty. But the greatest demand for generalists in the coming years will be to serve as consultants in front-line care, rather than as providers at this level. They will direct their principal effort to caring for patients with chronic illness and multisystem disease (90). Accordingly, while ambulatory care sites with rigorous teaching offer valid and necessary training for generalists, the demands of generalist practices in the coming years will require substantial exposure to inpatients as well as to outpatients in subspecialty clinics.

Given the shortages in both general internal medicine and family medicine, the broad overlaps in patient populations cared for by each, and the duplication of effort in conducting separate training programs, it seems an opportune time to consider consolidating these specialties into a single discipline within the framework of a single training program that leads to a single career path for generalist physicians.

## Physicians in rural towns

In creating an overall strategy for the physician workforce, rural areas are distinctive. Specialization has driven physicians into interdependent practice arrangements, which motivates them to cluster in large population centers and creates added pressures on rural areas and smaller towns. The march toward specialization and greater regional concentrations of physicians is an urban phenomenon. Another mode of practice is needed for rural areas and small towns, which include approximately 20% of the US population.

Rural general surgeons provide a range of services very similar to general surgeons in urban areas. The problem is that there are too few. Indeed, of the approximately 1,200 critical access hospitals serving rural areas, one-third lack a surgeon who lives in the same county. The availability of a general surgeon is fundamental to the hospital's ability to offer services to the public.

Rural generalists present a different set of problems. The range of clinical skills demanded of them is broader than that of urban generalists. They care for all age groups and must be competent in obstetrics and minor surgery, hallmarks of family medicine today. However, unlike practice in rural areas, few urban family physicians have this breadth of practice, and urban training programs often lack the capacity to assure competence in these fields, particularly as they are manifested in rural communities. What is needed is to train smaller numbers of more broadly trained rural generalists in programs devoted to this purpose

Recruiting physicians to rural areas is a challenge for a number of reasons. Rural areas are often far from airports and major teaching facilities, and there are too few other physicians to make for reasonable call schedules, particularly in general surgery. It is also difficult to provide appropriate employment opportunities for spouses and satisfactory educational opportunities for children. And rural practice is handicapped by a reimbursement system that inadequately compensates physicians in rural settings. On the other hand, midlevel practitioners, in consort with collaborating physicians, have proven their effectiveness. Thus, training rural generalist physicians is only a part of the range of issues that must be addressed if rural health care is to operate at a high level. But it is a critical one.

## The physician supply conundrum

Faced with physician shortages, many are asking how much of the available supply of physicians in the future should be devoted to primary care and how much to specialty medicine. Those arguing for expanding the workforce of primary care physicians must be aware of the trade-offs. **Physician supply in the coming 20 years will be a zero-sum game.** If greater numbers of generalists are to serve as front-line primary care providers or as custodians of medical homes, more will be needed and fewer physicians will be available to train as specialists in fields like oncology, surgery and radiology, where the needs will be equally great but the opportunities for delegation are more limited. As stated above, the strategy that will be adopted is captive to the evolving physician shortages. Ultimately, it is this pragmatic reality that will rule the day.

# VII. INFRASTRUCTURE of PHYSICIAN PRACTICES

Tomorrow's challenges for physicians will include an explosion of health information, vast increases in the repertoire of beneficial services and unprecedented complexity in assuring high quality and effective care in a system where care is shared among a range of specialists and provided in a variety of settings. Physician practices must not only be sized appropriately. They must be structured to provide efficient and effective care. Government has the ability to strengthen physicians' practices, but it also has the potential to decrease efficiency.

## Medical effectiveness

Medicine has a long tradition of defining effectiveness and best practices, from centuries of case reports and scholarly opinions to modern randomized clinical trials and disease registries. These efforts are occurring today against a background of rapid growth in therapeutic modalities and continued refinement in the identification of patients who could benefit from specific therapeutic approaches. An example is the International Bone Marrow Transplant Registry, which has collected sufficient data over the course of decades to allow valid statistical predictions of the best treatment plan for patients with specific characteristics. Another example is the comparative clinical trials of cancer therapy by national cooperative groups, and similar efforts for cardiac treatment, diabetes therapy and many other diseases. For many years, the Cochrane Collaboration, a global network of volunteers, has analyzed clinical information to illuminate the most effective treatments (99). And scores of health services researchers devote effort to comparative analyses of therapeutic modalities.

Evaluating new and expensive technologies presents a particular challenge. The federal government has a history of such efforts dating to 1972, when a Democratic congress established the Office of Technology Assessment (OTA), but a Republican congress soon eliminated its funding. In 1978, the National Center for Health Care Technology was established, but its funding lasted only four years. A year later, in 1983, the Office of Health Technology Assessment (OHTA) was created to assist the Health Care Financing Administration in making determinations applicable to Medicare and Medicaid. Over a period of years, it undertook many such evaluations, although some were protracted. For example, it took five years to determine that liver transplants should be covered and more than 10 years to withdraw coverage for thermography, a quack technique for determining variations in the body's surface temperature. Like previous efforts, it was phased out.

In 1989, the Agency for Health Care Policy and Research (AHCRP) was founded. It, too, became exposed to political pressures. In the early 1990s, it was accused of favoring elements of the Clinton Health Plan, and several years later it elicited opposition from the medical community when its back pain guidelines legitimized chiropractic spinal manipulation, viewed by many as a bogus remedy. Several years later, the agency became more embroiled in politics when its guidelines drew opposition from spine surgeons, whose political influence was sufficient to reduce the agency's funding and stop it from issuing guidelines of any sort. In 1999, the agency's name was changed to the Agency for Healthcare Research and Quality (AHRQ), and it has subsequently devoted its efforts and rather small budget to analyzing health care data and evaluating quality. It also has provided guidance for the Centers for Medicare and Medicaid Services. AHRQ has served as a central locus for expert groups that

wish to develop clinical practice guidelines, and it currently maintains access to more than 2,000 such guidelines.

This brief history has three important lessons:

- It demonstrates the instability of government-based technology assessment efforts.
- It shows how the assessment activities of government agencies can be subject to political influences.
- And it shows how governmental organizations, such as AHRQ, can serve as effective partners with private sector initiatives in research and in the development of clinical practice guidelines.

The federal government has made a commitment to expanding comparative effectiveness research. The observations above offer a number of points of guidance. First, they suggest that investigator-initiated efforts hold the most promise. It would be useful, therefore, if funds were added to the NIH budget to expand clinical trials, outcomes research and measures of comparative effectiveness. Second, they show that AHRQ is a valuable partner. AHRQ can collaborate with the broader research community in assessing health care utilization and quality and evaluating technology. But it will be essential for AHRQ to be insulated from political pressures like those that have weakened it in the past. However caution should be exercised in establishing a new federal agency for comparative effectiveness. Any such entity must be insulated from political interference, and there is no indication from past experiences that this is possible. In addition, it must be established in a manner that gives it long-term staying power and that allows it to establish a culture of neutrality and objectivity. There should be no expectations that such an agency could quickly and responsibly address the complex issues of technology assessment.

Nonetheless, the aggregate output of efforts to evaluate effectiveness could have an enormous impact on the ability of physicians to provide the best care. However, several caveats are important:

- It will not be possible to have objective evidence of effectiveness for all forms of treatment under all circumstances.
- Medical technology is rapidly evolving. Evaluating comparative effectiveness is a laborious and time-consuming process. Treatment often changes before the effectiveness of previous generations of drugs or devices can be fully evaluated.
- Effectiveness studies typically exclude patients who have more than one medical condition or are outside of particular age ranges, and they cannot embrace the great variety of racial and ethnic groups that comprise America. As a result, applying the results of effectiveness studies to particular patients requires clinical judgment. Providing physicians with information about effectiveness is valuable, but rewarding physicians for using certain treatments or penalizing physicians for deviating from particular guidelines would intrude into the practice of medicine and endanger patients' welfare.
- Finally, for purposes of resource planning, it is important to recognize that the amount of care thought to be ineffective is roughly equivalent to the amount of appropriate care that is not provided, not only to uninsured patients but to those with insurance. Therefore, enhancing the effectiveness of care will yield better clinical outcomes, but it may not yield commensurate cost savings.

## Information technology

The past 50 years have been marked by an explosion of information and parallel growth in information technology. Electronic prescribing, electronic medical records and e-mail communication with patients are three prominent examples. Each is an essential characteristic of modern practice and all contribute to quality. However, none has proven to decrease the volume of physician services or to change overall expenditures (44). IT will improve communication and very likely enhance outcomes, and it will prevent even greater increases in spending as the complexities of patient care mount, but its impact on current costs is unlikely to be noticed.

The federal government has made a large commitment to encouraging the further development and dissemination of information systems. Younger physicians will more quickly adapt than older physicians, and large practices will be better able to adopt IT than small practices, which are in the majority but shrinking rapidly. Although the particular needs of physicians' practices will vary, all physicians will need assistance with infrastructure costs. It will be important to recognize the wide variation in specialties, geography and practice structure. While some may urge measures to guarantee adherence to some centrally determined standard by means of reimbursement incentives or penalties, the carrot will be more powerful than the stick in attaining broad participation.

## Quality and performance

In the past 50 years, giant steps have been taken in improving patient safety. Since the advent of imaging, exploratory surgery has become rare. Mortality related to anesthesia has decreased from an estimated 500 per million 50 years ago to less than 5 per million today. Numerous efforts to enhance safety and improve quality continue, stimulated by the Institute of Medicine, consumer groups and professional traditions within medicine and nursing.

There is a great deal of interest in enhancing quality through incentives or regulations. Unfortunately, the metrics that are employed generally draw upon processes of care, such as prescribing aspirin for every heart attack survivor and treating pneumonia rapidly, and these correlate poorly with actual clinical outcomes (100). Yet there is a general correlation between better process standards within hospitals and lower overall mortality. This seeming inconsistency is due to the fact that the lower mortality in such hospitals is not due to these processes but to unmeasured variables that tend to correlate with them (101, 102), most probably the size and skill level of the staff (103) and patients' sociodemographic characteristics (9).

Replicating quality standards without affecting these underlying and unmeasured attributes would not be expected to yield the desired effect. Indeed, hospitals that instituted specific performance measures for heart attacks or acute myocardial infarctions achieved no greater improvement in mortality than hospitals that did not (100). Even introducing a broader set of safe practices failed to improve inpatient mortality (104). Nonetheless, it is such process measures that are the focus of incentives and regulations.

### 1. Pay for performance (P4P):

Despite these shortcomings, P4P draws upon performance measures to reward clinical practices that achieve particular standards (105). Others reward physicians for carrying out tests or procedures in particular diagnostic groups. For example, Medicare's *Physician Quality Reporting Initiative* employs 153 separate measures and a complex reporting system (106). Yet, despite its complexity, it necessarily omits thousands of other ways that physicians enhance quality, and its

association with clinically-important outcomes is unknown.

Too often efforts like these intrude into clinical decisions and pervert clinical efforts, while not producing real changes in the most desired outcomes, a conclusion that is supported by the experience in England (107). Before establishing still more incentive programs, the effectiveness of existing ones must be thoroughly evaluated. Indeed, **in an era in which comparative effectiveness has become the watchword, the effectiveness of various regulatory measures deserves scrutiny**.

### 2. Pay for value:

Recognizing that many quality-performance efforts fail to evaluate clinically meaningful end points, pay-for-value incentives have been introduced as a means of attaching reimbursement levels to measures of patient mortality and satisfaction (108). Hospitals with worse outcomes, less-satisfied patients and higher costs would have their reimbursements reduced. This is a treacherous road. One obstacle is the measurement of satisfaction. In general, patients in poorer states, where total health care spending is low, give lower satisfaction scores, while patients in states with higher spending give higher satisfaction scores. However, when groups of patients in a single area are studied, there is no correlation between patients' ratings of their health care provider and the technical quality of their care (109). Indeed, among patients with lower back pain, satisfaction is greatest among those cared for by chiropractors (110).

The major obstacle to pay-for-value measures is risk adjustment, and poverty is the major risk. The steep inverse relationship between patient income and utilization was illustrated in Section III above. Low-income patients have higher readmission rates and utilize the most health care resources. However, income is not generally incorporated into risk assessments. As a result, not only will hospitals be wrongly penalized for higher mortality among their poorest patients, the system will reward hospitals that either are located where there are few such patients or find ways to prevent admitting them.

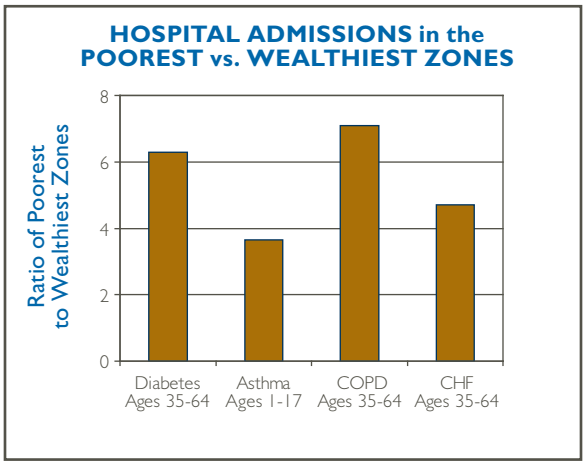
The House of Representatives discussion bill of June 2009 (111) includes a provision (Section 1123) for pay-for-value at the county level. This provides an incentive payment of 5% for suppliers of medical services in the 20% of counties that have the lowest Medicare expenditures per enrollee. But are these counties distinctive in any other way? While Medicare payments per enrollee are one-third less in these counties, they have two distinctive features: smaller populations (only one-fourth as many Medicare enrollees as in the high-cost counties) and much less poverty (60% lower disproportionate share of DSH payments per enrollee than in the high-cost counties). While health care reform should move the nation toward greater equality, this pay-for-value strategy rewards counties with the sparsest populations and the least poverty, while counties with high populations and high poverty rates struggle on.

### 3. Hospital readmissions:

A third approach to assessing provider performance is the rate of hospital readmissions. Some believe that hospitals with greater numbers of readmissions should be penalized. However, readmission rates are strongly associated with poverty and account much of the income effect illustrated above. This phenomenon is even more striking when admission rates for particularly sensitive ambulatory conditions are examined.

The illustration on the next page summarizes the experience in Milwaukee, where patients in the poorest quadrant of the city were admitted for ambulatory care-sensitive conditions four to seven times as frequently as patients living in the

wealthiest quadrant. This phenomenon has been observed in many urban centers (36). When examined in the nation as a whole, admission rates for the 25% of patients in the poorest households were 25% greater than for the rest (35). The lesson is not that there is no value in finding ways to reduce admissions and readmissions. It is that comparing hospitals is fraught with error due to the confounding effect of poverty.




## Reimbursement

Administrative and regulatory complexities related to reimbursement and insurance approvals account for a great deal of practice overhead, and they are a major source of discontent among practicing physicians. It was recently estimated that physician practices spend $31 billion annually interacting with private health plans on billing and other issues (112). On average, physicians spend nearly three weeks per year interacting with health plans, while their nursing staffs spend 23 weeks and clerical staffs spend 44 weeks. More than three quarters of the physicians said the cost of these interactions had increased in the past two years. This is an inordinate effort, which must be addressed through simplification of billing and administrative processes.

While a single payer system might be expected to require less time from physicians and their staffs, the experience with Medicare does not support that claim. Medicare billing involves thousands of separate codes, and the associated documentation requirements are onerous. Surveys indicate that it is not possible for the average physician to bill without error (113), yet billing errors are subject to penalties and actions by the Office of the Inspector General. The associated requirements for documentation consume still more time and do not contribute to patient care. In teaching settings, this documentation diminishes the value of education of students or residents. Most tragic is the fact that the inefficiencies and costs associated with dysfunctional billing and documentation have adverse effects on patient care. The current system is untenable. It is essential Medicare undertake a massive process of simplification and that other payers find ways to cooperate in the creation of efficient and less costly administrative processes.

## Medicare's sustainable growth rate formula

Medicare's system of compensating physicians utilizes the sustainable growth rate (SGR) formula to adjust annual changes in aggregate reimbursement. Although the growth of health care spending has exceeded the growth of the gross domestic product by 2.0% to 2.8% over the past decade, Medicare's SGR pegs the growth of physician reimbursement to the level of gross domestic product growth, which is taken as a proxy for volume and intensity. An upward adjustment is made for new beneficial services and economy-wide inflation, but there is no additional adjustment for health care inflation, and a downward adjustment for economy-wide productivity growth, although the principle drivers of productivity (information and automation) do not contribute substantially to health care productivity.

While health care is expanding more rapidly than the gross domestic product, the SGR is unsustainable, and periodic updates have been a sham. The American Medical Association has called for its permanent repeal, which seems to be the most prudent action (114). If it is to continue, the base rates must be updated to the growth that has occurred in health care spending, and future increases must assume that the costs of physician services will grow approximately 2% faster than the gross domestic product. Proposals now being considered in Congress conform to these general characteristics and are welcomed. **Health care reform will not succeed unless both Medicare's reimbursement formula and its billing and documentation processes are reformed.**

## VIII. THE FEDERAL GOVERNMENT'S ROLE

Underlying all of the considerations discussed above is a fundamental question — what is the role of the federal government in physician's practices? The Project Team has made seven recommendations:

### 1. Physician supply

The major problem affecting the delivery of high quality, cost-effective health care is a deepening shortage of physicians. It is untenable to believe that the massive increase in spending that is contemplated by insurance reform will not be matched by a substantial increase in the demand for physicians. Assuring that there will be enough physicians is a role that the federal government has accepted for more than 50 years, through the support of medical school expansion in the 1960s and '70s and through the support of residency training ever since the initiation of Medicare in 1965. In 1997, the federal government capped Medicare's support of residency education. Numerous organizations are now calling for this cap to be lifted. Partial solutions have been offered through legislation that would redistribute unused positions and add some additional positions up to a maximum of 15,000 total positions (3,400 first-year residents). However, this is only one third of the increase seen in the 1960s and '70s and one third of the needed increase today. Medicare should progressively increase its residency funding over the next decade to achieve a total growth of 10,000 first-year resident positions by 2020. Less will jeopardize the next generation's health care. The federal government's covenant with medical education must not be broken.

### 2. Medical practice infrastructure

Government has built the infrastructure for medical research, principally through the National Institutes of Health (NIH). In recent years, research support from the NIH has been the main funding source for outcomes and effectiveness research, supplemented over the past decade by AHRQ. Expanded funding for comparative effectiveness research will add appreciably to this knowledge base. Parallel efforts by government to build clinical information systems and to disseminate their use by physicians and hospitals will add a second dimension to the needed infrastructure. These government roles are invaluable. But mandating specific treatments based upon such analyses, or rewarding their preferential use, could be destructive under the variable circumstances presented by patients.

### 3. Market failures

In health care, as in politics, everything is local. Local needs are best responded to by local providers interacting with local insurers, businesses, government and patient advocates. The interactions that result constitute the local market for health care. But not all locales are able to cope with local needs, and the market fails. This is particularly true in low-income areas, where the health care system ultimately bears the high health care costs associated with poverty. National efforts are needed to address this problem, through the support of community health centers, critical access hospitals and primary care networks. Better reimbursement for physicians who treat low-income patients will enable more to sustain their practices. But addressing these health care needs through health care services alone will not be enough. Poor communities need a better infrastructure of public health and social services, including home care assistants, interpreters and others who can provide the low-cost services that prevent high-cost utilization. The role of government in these efforts is essential.

## 4. Maldistribution

There are wide geographic variations in the density and specialty mix of physicians, which follow regional patterns of economic development, and those areas with more have better overall health. Federal health care planners have sought to rectify this "maldistribution." It is not that past efforts have failed; they could not have succeeded. Mississippi cannot become like Connecticut (29), nor can Birmingham, Alabama resemble Grand Junction, Colorado, as some planners have wished (115). Variation in the supply of physicians, nurses and other health care resources will exist as long as variation in economic status persists. Therefore, rather than continuing to identify a natural circumstance as abnormal, the government should identify what it must do under the conditions of persistent variation. Communities are very different and organize care differently. Most function well. Under some circumstances market failures exist, and they must be addressed. However, it is counterproductive to impose broad incentives or restrictions intended to influence an overall distribution pattern that reflects the fundamental economic structure of the nation. Equality is a goal. Variation is an operational reality.

## 5. Physician specialties

It is natural for patients to want primary care and to want it from physicians, and it is natural for legislators to want to respond to the wishes of their constituents. But the future of 21st Century technology-based medicine will not permit those desires to be fulfilled (116). There will be too few physicians to both allow personal primary care by generalists and to permit an adequate supply of specialists. While efforts are devoted to attracting medical students into primary care, there is little evidence that past efforts have had their intended result. Too few students see the wisdom of investing 12 years in education and training, only to find that the majority of their time is devoted to front-line care that can be provided by midlevel clinicians. More importantly, faced with physician shortages, the responsible action today is to marshal the scarce physician resource to meet the needs that only physicians can serve.

## 6. Practice incentives

There is a view that government should guide the practice of medicine by means of regulation and reimbursement incentives. The usual goals are to increase quality and decrease costs, goals that are pursued in many other ways in the course of clinical practice. There is little evidence that these external constraints on physician decision making have improved health care quality or decreased overall spending. Indeed, spending has closely tracked changes in gross domestic product irrespective of governmental initiatives. One could argue that incentives are effective in principle, but those capable of achieving the desired goals simply have not yet been devised (117). Sadly, yesterday's failed incentives are never examined, and tomorrow's promised incentives gather broad support. This is a trap, and government should avoid it. Policies that constrain practice decisions have the potential to cause unintended consequences, impair effectiveness and deprive patients of beneficial care.

## 7. Autonomy

There is a parallel belief that the premium placed on autonomy may lead to safety constraints and adverse medical events and that medical malpractice is an instrument for quality improvement (118). These beliefs are at the heart of the tension between physicians and regulatory processes (119, 120). Surveys show that the physician workforce is overworked, overstressed and demoralized. Widespread discontent has been found among physicians practicing in high-liability environments (118). In a survey conducted

by the American College of Physician Executives, 38% of respondents cited bureaucratic red tape and the loss of autonomy as the biggest factors lowering morale (87). More alarming, a survey conducted by the Physicians Foundation found that 27% of respondents would not choose medicine again and 60% would counsel young people against entering medicine (89). It is difficult to imagine how patient care could be optimal under such circumstances.

Physicians struggle to improve quality, safety and efficiency in an imperfect world of clinical practice that is overwhelmed with information and laced with ambiguity and plagued by deepening physician shortages. From an organizational perspective, they require sufficient numbers of colleagues, a supportive infrastructure for their practices, adequate reimbursement and freedom from administrative and regulatory intrusion. High quality care depends on the autonomous exercise of clinical judgment by competent and empathic physicians who are accountable to their patients and society. No amount of regulation or incentives can substitute. In the last analysis, physician autonomy is the friend of quality.

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