



200TH ANNIVERSARY ARTICLE

## Major Trends in the U.S. Health Economy since 1950

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Rapid advances in medical science and technology, substantial gains in health outcomes attributable to medical care, and budget-busting increases in health care expenditures fueled by private and

public insurance have marked the past six decades of health care in the United States. As the country struggles to emerge from a multiyear financial and economic crisis, policymakers and the public have increasingly homed in on those skyrocketing health care expenditures. What lessons can be drawn from the evolution, since 1950, in the sources of payment and objects of expenditures in the health care arena?

### HEALTH EXPENDITURES

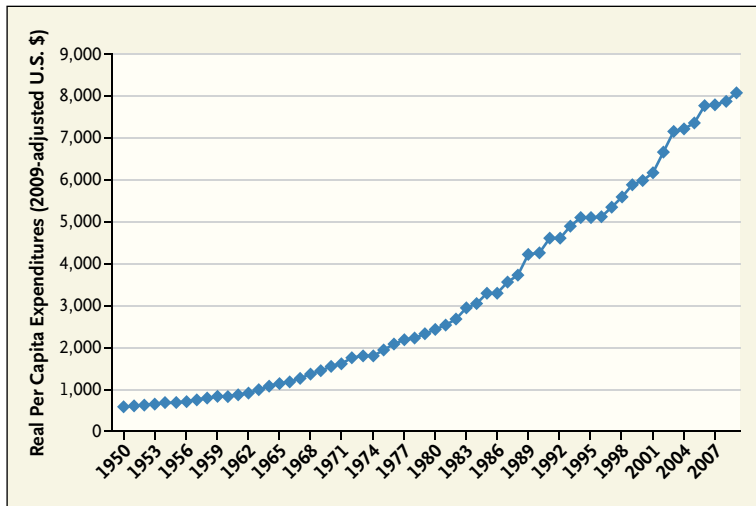
The rapid growth of health expenditures is one of the most important economic trends in the United States in the post-World War II era. It has implications for the financial viability of federal

and state governments and has resulted in stagnation of wages in most industries. In 1950, health expenditures accounted for only 4.6% of the gross domestic product (GDP). In 2009, they accounted for more than 17%, a larger share than all manufacturing, or wholesale and retail trade, or finance and insurance, or the combination of agriculture, mining, and construction. According to public finance experts such as Alan Blinder and Alice Rivlin, control of health care expenditures is the greatest fiscal policy challenge facing the United States.

From 1950 through 2009, there was an almost continuous increase in annual real per capita health expenditures, with the exception

of one 2-year pause in the mid-1990s, when the effect of managed care was at its peak<sup>1</sup> (see line graph). The absolute rate of growth has been increasing over time, as evidenced by the concave shape of the curve in the graph. The relative rate of increase was greater between 1950 and 1980 than between 1980 and 2009 — 4.6% versus 4.1% per year — primarily because of the introduction of Medicare and Medicaid in 1965.

Unfortunately, the slight slowing in the rate of growth of health expenditures since 1980 was accompanied by even greater slowing in the growth of the GDP (per capita adjusted for inflation), from 2.6% per year in 1950–1980 to 1.8% per year in 1980–2009. Thus, the gap between the rate of growth of health expenditures and that of GDP increased from 2.0% to 2.3% per year between the two periods. Most experts be-



U.S. Per Capita Health Expenditures, 1950–2007.

lieve that such a gap is not sustainable over the long term, because health expenditures would cut too drastically into the availability of other essential goods and services.

The most important explanation for the increase in real per capita health expenditures is the availability of new medical technology<sup>2</sup> and the increased specialization that accompanies it. Between 1974 and 2010 alone, the number of U.S. patents for pharmaceutical and surgical innovations increased by a factor of six. Second in importance is the spread of public and private health insurance, which diminishes the effect of health care prices on demand.<sup>3</sup> There is a positive-feedback loop between new technology and the spread of health insurance: new technology stimulates the demand for insurance, and the spread of insurance stimulates the demand for new technology.<sup>4</sup> Finally, a small portion of the increase, typically 0.1 or 0.2 percentage points per year, is attributable to the aging of the population. It's not possible to estimate how much of the increase in expenditures reflects higher health care prices and how much reflects greater quantities

of care, because the content of a day in the hospital or a visit to a physician keeps changing. No doubt some of the increase in expenditures reflects an increase in the quantity of medical care, if quantity is adjusted for improvements in the quality of care.

#### SOURCES OF PAYMENT

The sources of payment for medical care have changed significantly since 1950 (see table). The most important trends have been a decline in out-of-pocket payment and a rise in third-party payment (both private and public), an increase in government's share of payment and a decrease in the private share, and an increase in the federal government's share as compared with that of state and local governments.

Third-party payment has grown partly because of expensive interventions that expose individuals to large financial risk and partly because employers' contributions to employee health insurance are not considered part of employees' taxable income. Since World War II, there has been a large increase in the number of workers who must pay income tax and an even greater increase in the num-

ber who must pay payroll taxes. These increases have made tax-exempt employer-based health insurance more attractive. A shift from individual to group insurance has also contributed to the spread of coverage by reducing marketing and administrative costs and, thanks to compulsory participation within firms, limiting the risk of adverse selection for insurance companies.

The growth of government's share, and especially the federal share, can be explained by the public's desire to cover more of the public with insurance and private insurers' difficulty in providing coverage for the elderly and the poor. Federal legislation also substantially extended public coverage for children.

#### OBJECTS OF EXPENDITURES

Throughout the period since 1950, health expenditures have gone primarily to hospitals, physicians, and drugs. Moreover, the rate of growth of expenditures in each of these categories between 1950 and 2009 has been fairly close to the rate of growth of total health expenditures (see bar graph). Drug expenditures may appear to have grown more slowly, but that's probably due to a data mismatch: the 1950 figure includes sundries, whereas the 1980 and 2009 figures are for prescription drugs only. Such stability in the share of these categories is remarkable, given the great changes that have occurred in medical technologies, sources of payment, and health policy since 1950. As a rule of thumb, the ratio 3:2:1 does a fairly good job of describing the relative importance (in dollar terms) of hospitals, physicians, and drugs. The "other" expenditures are divided among many categories, the most important of which are public administration

Personal Health Care Expenditures in the United States from 1950 through 2009.*			
Variable	Year or Period		
	1950	1980	2009
Per capita expenditures (2009 dollars)	407	2,050	6,807
Source of payment (%)			
Out-of-pocket	56	27	14
Third-party	44	73	86
Private or public (%)			
Private	73	60	53
Public	27	40	47
Federal			
Federal	13	26	35
State and local			
State and local	14	14	12
Average annual rate of change (% in 2009 dollars)			
Out-of-pocket	3.0	1.9	2.4
Third-party	7.1	4.7	5.9
Private	4.7	3.7	4.2
Public	6.7	4.7	5.7
Federal	7.8	5.0	6.4
State and local	5.2	3.8	4.6

\* The percentage of payments by the federal government was calculated on the basis of National Health Care Expenditure data. Data are from the Department of Health and Human Services and the U.S. Census Bureau.

and the net cost (premiums minus benefits paid) of private health insurance, nursing homes, and dental services.

There have been periods in the past 60 years when individual categories accounted for greater or lesser proportions of expenditures. Spending for hospital care and physicians received a boost between 1950 and 1980 from the introduction of Medicare and Medicaid. Spending for drugs accelerated sharply after 1980 following the introduction of a host of new products for treating heart diseases, mental illness, gastrointestinal disorders, and cancer and a large increase in private and public insurance coverage for drugs.

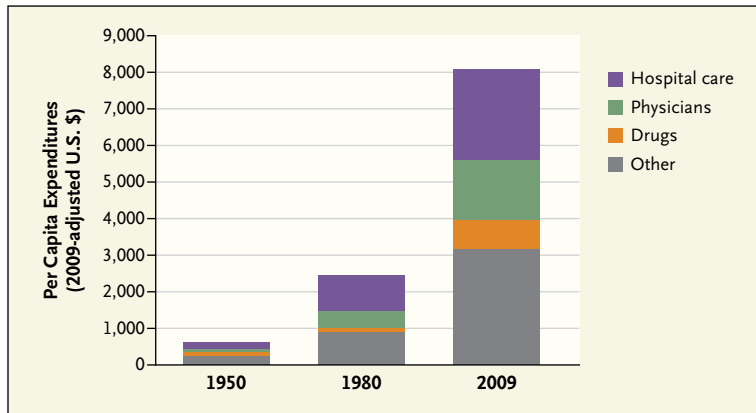
The ability of hospitals to maintain their high share is particularly noteworthy, because between 1950 and 2009 the industry had several large shocks. Psychi-

atric hospitals virtually emptied out. Admission rates to acute care hospitals ("community" hospitals) dropped precipitously after 1970, as did the average length of stay. As a result, the average daily census, adjusted for population growth, has decreased by almost 50% over the past four decades. Hospitals have maintained and increased their revenues in part through more intensive treatment of inpatients. Despite shorter stays, the cost per case (in 2009 dollars) jumped from \$6,600 in 1997 to \$9,200 in 2009.<sup>5</sup> Hospitals' total incomes were also preserved through expansion of outpatient services, including same-day surgery, magnetic resonance imaging and computed tomography, and outpatient clinics for diagnosing and treating cancer, heart disease, and other illnesses.

## COMMUNITY HOSPITALS

Community hospitals (including academic medical centers), the recipients of the largest share of health expenditures, have seen dramatic shifts in demand for and supply of inpatient care since 1950. During the first three decades of this period, the number of inpatient days per 1000 population increased by more than a third, driven by Medicare and Medicaid, the spread of employer-based insurance, and lax utilization controls by public and private payers (see Table 1 in the Supplementary Appendix, available with the full text of this article at NEJM.org). A slight decline in the average length of stay was more than offset by a 50% increase in the number of admissions per 1000 population. The industry's 31% increase in the number of beds per 1000 population, abetted by consultants' predictions of ever-growing demand, proved to be an expensive mistake. In the late 1960s and early 1970s, there was mounting evidence that many hospital admissions were ill-advised and that lengths of stay for many patients were overly long (see the Supplementary Appendix).

Between 1980 and 2009, the number of inpatient days per 1000 population fell by almost half, with declines in admissions and average length of stay contributing almost equally. The decline in length of stay was particularly spectacular in some major categories of patients. For example, stays for uncomplicated myocardial infarction dropped from 3 weeks to 3 days; for uncomplicated vaginal delivery, from 1 week to 1 day; and for herniorrhaphy, from 6 days to same-day surgery. The average decrease among all patients, however, was smaller than those for individual causes of admission, because the aver-



Per Capita Health Care Expenditures in 1950, 1980, and 2009, According to Category.

Data are from the U.S. Census Bureau.

age severity of patients' conditions on admission increased. The hospital industry responded to the drop in demand by closing some hospitals (net decrease of 18%) and closing off some beds as unavailable, but even so, the average occupancy rate fell by 10 percentage points to the inefficient level of 65.5%.

#### PHYSICIANS

The number of active physicians in the United States increased by a factor of approximately four between 1950 and 2009 (see Table 2 in the Supplementary Appendix). As the population grew, the number of active physicians per 1000 population increased from 1.41 to 2.73, an annual growth rate of 1.1%. That figure may overstate the growth of physicians' availability, however, since the number of hours the average physician worked probably decreased appreciably between 1950 and 2009. Major trends in the physician supply that had important implications for the health economy were large increases in the percentages of female physicians, specialist physicians, and hospital-based physicians.

Because women, even professional women, still bear a disproportionate share of domestic re-

sponsibilities, female physicians tend to differ from their male peers in preferences regarding annual hours of work, night coverage, self-employment, specialty choice, and other aspects of practice.

The increase in the proportion of physicians who are specialists and subspecialists has resulted in a considerable increase in the number of years the average physician spends in training, although a restructuring of medical education could change that.<sup>6</sup> There has been a large increase in the number of specialists and an even larger increase in the number of specialties and subspecialties, from a few dozen 50 years ago to more than 150 now.

The shift away from office-based practice, along with possible changes in payment systems, may portend a time when most medical care will be delivered by teams of physicians and other health care providers (e.g., nurse practitioners and physician assistants) working in accountable care organizations.

#### CHANGES IN ORGANIZATION AND DELIVERY

An important recent trend affecting hospitals and physicians is a sharp division between physicians

who treat outpatients and others, called hospitalists, who treat only inpatients. The number of hospitalists has grown rapidly, from no more than 1000 15 years ago to 7000 30 years ago to approximately 30,000 in 2011, according to physician-economist David Meltzer of the University of Chicago. Hospitalists are said to improve both the efficiency of care (mostly through reducing lengths of stay) and its quality. Though primary care physicians initially resisted this change in professional responsibilities, many now prefer the new system because they perceive that hospital visits were not an efficient use of their time.

Another trend attracting wide attention is the use of electronic medical records (EMRs) in physicians' offices. Opinions vary regarding the effects of EMRs on the efficiency and quality of care. I believe a well-organized health care system can benefit substantially from EMRs, but the fragmented nonsystem of U.S. medical care is not likely to derive enough benefit to justify the cost.

During this period, another change that affected hospitals and physicians was the development of managed care. Until about 1990, most insured patients could choose freely among providers, physicians' decisions were not subject to frequent questions by insurers, and payment was typically fee for service. The rapid growth of health care expenditures in the late 1980s, combined with sluggish growth of the GDP, fueled a demand for change.<sup>1</sup> In the 1990s, insurers selectively contracted with providers, fees and prices were negotiated in advance, physicians' decisions became subject to insurance-company review, and patients faced financial penalties for obtaining out-of-plan care. The effect on health care expenditures was

dramatic: growth rates fell to 2% per year by the mid-1990s. At the same time, GDP growth accelerated to about 3% per year. Both physicians and patients, however, grew increasingly critical of managed care. Physicians complained about a squeeze on their incomes and interference with their autonomy. Patients resented restrictions on their choice of providers and worried that cuts in spending would necessarily result in a poorer quality of care. The complaint by physicians and patients that health outcomes were adversely affected by managed care, fueled by many anecdotes, has not been supported by systematic evidence.

The term “managed care” still carries negative connotations for many observers, but as long as concern about cost is strong, it’s difficult to imagine a widespread call for unmanaged care. Stakeholders will disagree about who should do the managing, about the relative roles of regulation and competition, and what form competition should take. Perhaps the most important future trend, too nascent to quantify, let alone evaluate, is the replacement of the current system of organization and delivery with competition among large accountable care organizations serving defined populations for risk-adjusted per capita annual payments.

#### PAST AND FUTURE

The six decades since 1950 have been remarkable for the U.S. health economy in many ways, especially the extraordinary increase in health care expenditures. Future historians may, with some irony, refer to this period as a golden age for U.S. medicine because health care’s share of the GDP quadrupled from 4.6% in 1950 to more than 17% in 2009; in most peer countries, the share is 9 to 11%. Other noteworthy trends in the health economy have been the spread of private and public health insurance to the point where almost 90% of the total bill for care is paid by third parties; the increased role of the federal government in funding health care; the decline in inpatient use of hospitals (fewer admissions and shorter stays) and the expansion of hospital outpatient services; the shift in the physician workforce toward more women, more specialists, and more hospital-based physicians; and the deluge of new medical technologies confronting clinicians with a menu of 6000 drugs and 4000 procedures to choose from.

It is difficult to see how the health sector can continue to expand rapidly at the expense of the rest of the economy, but every past prediction of a sustained slowing of the growth of health expenditures has been proved wrong. Rapid growth may continue as a

result of political gridlock regarding the form that curbs on expenditures should take. There is no public consensus about how much care should be provided for the poor and sick or how it should be done. Similarly, there’s no public consensus regarding efforts to increase the efficiency of care. A rational approach to the financing, organization, and delivery of care seems politically impossible. However, the observation by de Tocqueville that in the United States “events can move from the impossible to the inevitable without ever stopping at the probable” may prove to be prescient.

Disclosure forms provided by the author are available with the full text of this article at [NEJM.org](http://NEJM.org).

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1. Fuchs VR. The future of managed care: Stanford Institute for Economic Policy Research policy brief. Stanford, CA: Stanford University, December 2000.
2. Pauly MV. Competition and new technology. *Health Aff (Millwood)* 2005;24:1523-35.
3. Newhouse JP. Free for all? Lessons from the RAND health insurance experiment. Cambridge, MA: Harvard University Press, 1993.
4. Weisbrod BA. The health care quadrilemma: an essay on technological change, insurance, quality of care, and cost containment. *J Econ Lit* 1991;29:523-52.
5. Stranges E, Kowlessar N, Elixhauser A. Components of growth in inpatient hospital costs, 1997-2009. Statistical brief no. 123. Rockville, MD: Agency for Health Care Research and Quality, November 2011.
6. Fuchs VR. Alan Gregg Lecture: The structure of medical education — it’s time for a change. Presented at the Annual Meeting of the American Association of Medical Colleges, Denver, November 6, 2011.

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## Supreme Court Review of the Health Care Reform Law

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Later this month, the U.S. Supreme Court will examine the constitutionality of the Affordable Care Act (ACA),<sup>1</sup> potentially producing a landmark decision. For most cases, the Supreme

Court allocates 1 hour for oral argument — 30 minutes for each side. For the health care reform case, the Court has scheduled 6 hours for oral argument — the most time devoted to a case in

more than 45 years. These arguments will take place on March 26, 27, and 28 (see box), and the Court’s ruling will probably be announced in June.

Setting the foundation for the